

Collective Pedagogical Teacher Culture and Teacher Satisfaction

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Topics

by [Elizabeth Stearns](#), [Neena Banerjee](#), [Stephanie Moller](#) & [Roslyn Arlin Mickelson](#) — 2015

Background/Context: *Teacher job satisfaction is critical to schools' success. As organizations, schools need teachers who are satisfied with their jobs and who work with one another to build school community and increase student achievement. School organizational culture shapes teacher job satisfaction in many ways, but it is still unclear which facets of organizational culture have the greatest influence on teacher job satisfaction and whether some of these facets may have moderating effects on others.*

Purpose of Study: *This study investigates the association among two aspects of organizational culture (professional community and teacher collaboration), teacher control over school and classroom policy, and teacher job satisfaction. We use the term Collective Pedagogical Teacher Culture to refer to those schools with strong norms of professional community and teacher collaboration.*

Research Design: *We use a nationally representative sample of U.S. kindergarten teachers from the Early Childhood Longitudinal Survey in 1998–1999 and hierarchical linear modeling to examine the association between aspects of school organizational culture and teacher job satisfaction.*

Findings: *We find that professional community, collaboration, and teacher control are predictive of satisfaction and they also have interactive influences. The association between teacher collaboration and job satisfaction, as well as that between control over classroom policy and job satisfaction, is most pronounced in schools with weaker professional communities.*

Recommendations: *Future reform efforts that foster greater professional communities, teacher collaboration, and control over classrooms can exist alongside more conventional reforms such as raising curricular standards and instituting greater accountability. Fostering a strong teacher pedagogical culture will help to bolster teacher job satisfaction.*

THE ROLE OF COLLECTIVE PEDAGOGICAL TEACHER CULTURE IN TEACHER JOB SATISFACTION

In the current educational climate in the United States, teachers are under a great deal of public pressure that

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focuses on raising students' test scores (Crocco & Costigan, 2006; Lankford, Loeb, & Wyckoff, 2002; Nichols & Berliner, 2007). Reform efforts over the years have emphasized the need for teacher accountability. There is, however, a general consensus that without a satisfied and committed teacher workforce, substantive changes through reform will be challenging because teachers are also the implementers of reforms (Ma & MacMillan, 1999). As a result, policy makers look for ways to improve teachers' job satisfaction in schools.

As organizations, schools need teachers who are satisfied with their jobs and who work with one another to build school community and increase student achievement. In fact, studies have found a strong relationship between work environment of teachers, teacher job satisfaction, and student achievement (Hall, Pearson, & Carroll, 1992; Johnson & Birkeland, 2003; Johnson, Kraft, & Papay, 2012; NCEA-AIR, 1997). Dissatisfied teachers may undermine educational goals, and dissatisfaction with teaching conditions may lead to higher teacher absenteeism, stress, and turnover (Perrachione, Rosser, & Peterson, 2008; Renzulli, Parrott, & Beattie, 2011). Attrition rates are particularly high among math and science teachers, new teachers, and teachers of color (Achinstein, Ogawa, Sexton, & Freitas, 2010; Borman & Dowling, 2008; Ingersoll, 2001a; Ingersoll & Connor, 2009). Since teacher dissatisfaction is strongly associated with higher turnover, it poses significant challenges to the effectiveness of school reform efforts (Lortie, 1975; Renzulli et al., 2011).

While many factors may influence the extent to which teachers are satisfied with their jobs, one factor that is of particular interest to those in educational leadership positions and other policy makers is the organizational culture of the school. This interest in organizational culture stems from its malleability to policy intervention. Schools' organizational cultures are critical because they define how teachers interact with one another and their students (Powers, 2009). In fact, several studies have suggested that the organizational culture of schools can have important implications for teaching practices and teacher job satisfaction (Gamoran, Secada, & Marrett, 2000; Lee, Dedrick, & Smith, 1991; Lee & Smith, 1996; Louis & Marks, 1998; Perrachione et al., 2008; Renzulli et al., 2011; Weiss, 1999). There is also a strong association between some aspects of teachers' job conditions, such as the amount of control they have over classroom and school policies, and their job satisfaction (Ingersoll, 2001b; Ingersoll & Connor, 2009). It is still, however, unclear which facets of organizational culture have the greatest influence on teacher job satisfaction and whether some of these facets may have moderating effects on others.

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In this study, we examine the influence of organizational culture on teacher job satisfaction with rigorous quantitative methods, using a nationally representative sample of kindergarten teachers in the United States. We focus on what we term “Collective Pedagogical Teacher Culture,” a type of organizational culture that is comprised of teachers' perceptions of (1) the strength of professional community and (2) the extent of teacher collaboration present in their schools. We hypothesize that professional community and teacher collaboration are positively associated with teachers' job satisfaction. Additionally, we hypothesize that professional community and teacher collaboration moderate the influence of some other facets of organizational culture, such as control over classroom policy, that have been found to be associated with teacher job satisfaction.

TEACHER SATISFACTION

There are several factors that directly and indirectly influence teachers' job satisfaction. While early research focused more on teacher demographics and individual characteristics (Ma & MacMillan, 1999), a growing body of recent research and surveys indicates that workplace environment is a more important predictor of job satisfaction, net of teacher background characteristics and compensation (Hirsch, 2005; Hirsch & Church, 2009; Hirsch & Emerick, 2007; Ladd, 2011; Liu & Meyer, 2005; Ma & MacMillan, 1999; NCES-AIR, 1997; Pfeffer, 1983; Rosenholtz & Simpson, 1990).

Two components of the workplace environment are particularly relevant: teacher control over classroom policies and the schools' culture. Control over classroom policies encompasses the policies that govern the ways that teachers interact with students. Teachers who have a greater level of such control tend to have higher levels of job satisfaction (Bronfenbrenner, 1976; Ingersoll, 2003). Empowerment of teachers by giving them greater control over classroom and school policy decisions can lead to greater job satisfaction and less job stress through various direct and indirect channels. Teachers stand to benefit collectively as professionals when greater autonomy is incorporated into the teaching profession (Blasé & Kirby, 2000; Ingersoll, 1997; Pearson & Moomaw, 2005). The perception of a teaching career as a rewarding and respectable profession motivates both novice and experienced teachers to have greater commitment to the profession. Greater autonomy can also indirectly influence teachers' job satisfaction levels by transforming the work environment within school (Pearson & Moomaw, 2005). Teachers are more likely to feel motivated when they can influence decision making on matters they engage on a regular basis such as textbook selection, curriculum

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design, selection of teaching strategies, and student discipline. Greater autonomy in matters related to teacher professional development and training can also motivate teachers to become effective educators to students (Ingersoll, 2003).

Workplace conditions can also affect teachers' job satisfaction. The school cultural environment shapes how teachers perceive themselves as contributors to the whole school (Lortie, 1975). As opposed to schools with a well-entrenched culture of isolation and individualism, schools that demonstrate a culture of collegiality and collaboration provide an environment where teachers resolve issues easily and continually assess new teaching tools. This enhances professional competence and ultimately creates a more satisfied, committed, and professionally involved teacher workforce (Hargreaves, 1994; Leithwood, Leonard, & Sharratt, 1998; Ma & MacMillan, 1999; Rosenholtz, 1989). In fact, teachers identify the need for effective school community, defined as having a collegial atmosphere and sense of community as a primary factor that enables them to meet personal, instructional and organizational needs (Moore-Johnson, 1990).

Empirical studies have shown a strong and established link between various aspects of organizational culture and teacher job satisfaction (Culver, Wolfle, & Cross, 1990; Lee et al., 1991; Ma & MacMillan, 1999; Perrachione et al., 2008; Renzulli et al., 2011; Reyes & Pounder, 1993; Weiss, 1999). For example, Lee et al. (1991) found that the strongest predictor of teacher satisfaction among high school teachers was what they termed "community." Others have found similar results: Ma and MacMillan (1999) discovered that organizational culture, which they defined in terms of collegiality, or the extent to which teachers perceived themselves and other teachers as sharing positive attitudes in general and attitudes toward how children learn, played an important role in predicting teacher satisfaction. In fact, Ma and MacMillan (1999) found that teacher demographics, although associated with satisfaction, were less important predictors of job satisfaction than were teachers' perceptions of the climate within the school. These results regarding the relative impact of teacher demographics and organizational culture on teacher job satisfaction echoed those of Culver, Wolfle, and Cross (1990) and Weiss (1999). There is, however, little consensus regarding which aspects of organizational culture are most closely associated with teacher job satisfaction.

In the section that follows, we lay out our conceptualization of organizational culture within schools and detail how it relates to teacher job satisfaction. Specifically, we study the extent of what we term Collective Pedagogical Teacher

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Culture, which encompasses professional community of the school and the ways in which teachers interact with one another with regard to collaboration. As such, Collective Pedagogical Teacher Culture is a component of schools' organizational culture. We examine how it moderates the relationship between an important dimension of teacher autonomy—teacher control over classroom policies—and teacher satisfaction.

SCHOOLS' ORGANIZATIONAL CULTURE

The culture of an organization, including its shared assumptions, rituals, values, climate, and behaviors, defines the organization (Schein, 2010). Values and norms shape interactions and expectations, and they are essential to internal control systems for an organization (Black, 2003; Pedersen & Dobbin, 2006; Schein, 2010). In schools, there are multiple layers through which culture diffuses. The school administrators and leaders are typically responsible for generating the cultural values within the school, but teachers must consent to, promote, and enact these values (Kruse & Louis, 2009; Schein, 2010). Effective and transformational leadership that is based on open communication between school leaders and teachers is essential to guide the process of generating shared cultural values and to ensure teachers' commitment to those values (Jantzi & Leithwood, 1993; Ladd, 2011; Leithwood, 1994; Spillane, Halverson, & Diamond, 2001).

Collective Pedagogical Teacher Culture

We build on the existing literature by positing that schools with a certain type of organizational culture that we term Collective Pedagogical Teacher Culture are the most effective at promoting high levels of teacher satisfaction with their jobs. We conceptualize Collective Pedagogical Teacher Culture as a culture where teachers perceive (1) a value of strong professional community and (2) a norm of collaboration among teachers where the needs of students are centralized. This is a concept we have used elsewhere (Moller, Mickelson, Stearns, Banerjee, & Bottia, 2013; Stearns, Banerjee, Mickelson, & Moller, 2014).

Professional community. Much of the research that contributes to our understanding of the organizational culture of schools has focused on professional communities. The exact definition of these communities varies across studies, but common elements include: a shared sense of purpose for the school that is spearheaded by a visionary leadership; a sense of belonging, trust, and spirit among teachers and between school leadership and

teachers; common focus on student learning; collaboration in the development of curriculum and instruction; sharing practices; reflective dialogue among teachers with respect to student learning; and continuous professional development for ongoing teacher learning (Gamoran, Gunter, & Williams, 2005; Kruse & Louis, 2009; Louis, Marks, & Kruse, 1996; Stoll, Bolam, McMahon, Wallace, & Thomas, 2006). As such, we include professional community as a key component of Collective Pedagogical Teacher Culture.

In our conceptualization of professional community, cultural strength is an important dimension because a strong, coherent culture prevents subcultures from undermining the mission of the organization (Schein, 2010). Indeed, shared understanding and acceptance of the organization's mission is the basic foundation of any culture; an organization's espoused values are only components of culture if they are consensually understood (Schein, 2010).

There is a general understanding that professional communities cultivate culture by creating shared languages, values, and expectations among teachers and administrators (McLaughlin & Talbert, 2006).¹ Within schools, it is often the principal or a leadership team comprised of the principal and several school faculty (shared leadership) that guide the process of identifying the goals and developing organizational mission and vision in a shared manner involving all faculty. The greater the involvement of the faculty and the level of agreement on the mission among them, the stronger the culture. The culture is also more community-oriented if teachers feel accepted and respected by each other as colleagues and if they have a sense of pride or spirit, such that teachers who are thoroughly socialized into community-oriented school culture (both professional and collegial) have a sense of belonging, attachment, and pride (Anderson, 1982; Keefe & Howard, 1997; Wynne, 1980).

An important attribute of professional communities within schools is an orientation toward organizational/collective learning. The term professional learning communities emerged as shorthand among practitioners to capture this close association between professional community and organizational/collective learning (Scribner, 1999; Wahlstrom & Louis, 2008). Scholars have suggested that professional communities are most effective when teachers are continually learning and searching for methods to enhance their effectiveness (Little, 1982; McLaughlin & Talbert, 2006; Patchen, 2004; Smey-Richman, 1991; Yasumoto, Uekawa, & Bidwell, 2001). Such learning frequently involves sustained collaboration to develop a common understanding of concepts and practices that complements what teachers bring individually to their

classrooms (Bryk, Camburn, & Louis, 1999; Stoll et al., 2006; Wahlstrom & Louis, 2008). In essence, schools that focus on organizational learning may also provide an atmosphere where teachers are more collaborative (Gamoran et al., 2000). The nature of school leadership is equally important for creating those necessary conditions and opportunities for sustained collaboration through allocation of time and effective school policies (Wahlstrom & Louis, 2008). Thus, we contend that teachers sense that they are part of strong professional communities when they perceive that there is an agreed upon mission, school pride, open communication with leadership, trust and collegial relationship among teachers, an orientation toward collective learning, and a sense of belonging.

Teacher collaboration. This leads to the second main component of Collective Pedagogical Teacher Culture: a norm of teacher collaboration. Collaboration reflects an environment where teachers build their lessons and curriculum cooperatively and meet to talk about progress in student learning in their schools. This collaboration allows teachers to eliminate redundancy in and increase compatibility across parts of the curriculum, to take collective responsibility for student learning, and to interactively develop the best strategy for teaching (Lee & Smith, 1996; Louis & Marks, 1998; McLaughlin & Talbert, 2006). Since the 1980s, research has highlighted teacher collaboration as an essential precondition for school improvement, with foundational papers calling for an end to workplace conditions that promoted isolation and uncertainty in the name of self-reliance and individualism that was inherent in teaching. These studies celebrated the value of joint/shared work among teachers and documented the many benefits attributed to teacher collaboration such as providing moral support, helping teachers become more confident, efficient, and effective, reducing workloads, setting boundaries of their tasks, and promoting teacher and student learning and thereby contributing to sustained school improvement (Hargreaves, 1994; Johnson & Birkeland, 2003; Kelchtermans, 2006; Little, 1982; Little, 1990; Lortie, 1975; Rosenholtz, 1989; Smylie, 1994). Organizational cultures that fail to promote collaboration instead encourage teacher isolation, which contributes to teacher dissatisfaction (Hargreaves, 1994; Leithwood et al., 1998; Rosenholtz, 1990).

The above benefits, however, are not automatically achieved by teacher collaboration, but depend on the value and recognition that is placed on collaborative work and the opportunities that are created through adequate allocation of time, monetary resources and human assistance for actual collaboration to take place (Kelchtermans, 2006; Little, 1990). Professional communities may lay the foundation for teachers to learn from each other through collective understanding as opposed to individualized, fragmented understanding and teaching (McLaughlin &

Talbert, 2006). Yet, a sense of community among teachers may not necessarily translate into collaborative teaching (Little, 1982; Little, 1990; Moller et al., 2013). Collaboration must be one of the norms guiding the community.

Given this connectedness between the two concepts of collaboration and professional community, many studies incorporate collaboration in the definition of professional communities. Yet we contend that teachers may perceive that the school has a strong professional community even if they do not collaborate on lessons. In making this point, we draw upon Little's (1990) foundational work in distinguishing four different forms of community, which she defined in terms of "collegial relations" and placed on a "continuum from independence to interdependence" (Keltchermans, 2006, p. 224). Only one of those four types of community is characterized by joint work based on shared responsibilities for teaching and nonteaching duties. This form of collegial relationship emerges only when teachers undertake actual collaborative activities beyond just talking and discussing and requires absolute interdependence among them (Kelchtermans, 2006). Little's (1990) work has been expanded by Hargreaves (1994) and Achinstein (2002) to illustrate the complexities and conflicts that underlie the association between collaboration and professional community.²

The presence of professional community can sometimes inhibit collaboration as well. Teachers are less likely to consider conflicting perspectives on difficult but important issues when friendship ties among them are at stake (Avila de Lima, 2001). Staessens (1993) termed such schools as "family schools" because the informal culture of congeniality and collegial bonding that is effectively managed in such schools often deters attempts to bring difficult but critical reforms. A similar argument was made by Hargreaves (1994) who found that schools often embrace collaboration that is conformist, cozy, safe, and comfortable and avoid real collaboration in classroom practices and systematic shared reflection. Although it maintains collegial bonding, such collaboration fails to usher in teacher professional learning or bring positive changes in school culture (Sato & Kleinsasser, 2004). At times, collaboration can in fact be efficiently managed in order to silence any dissenting voices and to keep the team "in line" (Johnson & Birkeland, 2003; Kelchtermans, 2006). Rather than assuming that collaboration is part and parcel of professional communities, we test whether these structural features of schools coincide, as we describe below.

We hypothesize that Collective Pedagogical Teacher Culture (defined by strong professional communities and norms of collaboration) is needed to promote teacher job

satisfaction. Following Lee et al. (1991), we also hypothesize that these factors will moderate the impact of control over classroom policy on teacher job satisfaction. More specifically, we hypothesize that the association between the amount of control they exercise over classroom policy and teacher job satisfaction will be weaker in schools with stronger professional communities and more collaboration. We focus on teachers' values and norms because they are quantifiable components of culture (Schein, 2010).

METHODS AND DATA DESCRIPTION

SAMPLE

We use the Early Childhood Longitudinal (ECLS-K) Survey to test our hypotheses. The dataset contains longitudinal information about a cohort of a nationally representative sample of students who started kindergarten in 1998–1999. The survey employed a multistage probability sample of children attending kindergarten in the United States in 1998–1999. The primary sampling units (PSUs) were geographic areas consisting of counties or groups of counties. The second-stage units were schools within sampled PSUs. The third and final stage units were students within schools. A total of 21,260 children participated in the initial sample, which was collected in the fall of 1998 and the spring of 1999. The survey followed them through elementary school and into early adolescence (approximately age 14).

While the ECLS-K child sample is nationally representative across all grades, the teacher sample is nationally representative only at the kindergarten level. During the fall of 1998, a census of teachers was taken in each school and each child was linked to a one primary teacher in his/her school. All kindergarten teachers irrespective of whether they taught a sampled child were asked to complete the teacher questionnaire, with questions on their classroom characteristics and school working environments.³ Given the focus of this study, we have restricted our sample to all kindergarten teachers who completed the teacher questionnaire during fall 1998 and spring 1999.⁴ Our initial sample consisted of 3,150 teachers in 980 schools.

We use a two-level HLM (described more fully below) where teachers are nested within schools. For HLM to be an efficient analytic technique, the lower level unit must have more observations than the immediately higher level unit (Bryk & Raudenbush, 1997). The ECLS-K sample has several schools with only one teacher. We eliminate these schools in our analysis and restrict our sample to only those schools with more than two teachers. This brings down the sample to 2,450 teachers in 500 schools. The final model with control variables and appropriate teacher weights ran with 1,890 teachers and 410 schools. Although

the kindergarten teacher sample is nationally representative in ECLS-K, we prefer it to the School and Staffing Survey (the only other survey that deals with a nationally representative sample of teachers in the United States), because the ECLS-K dataset provides a more comprehensive set of variables that describes teachers' perception about the different aspects of school organizational culture. Also the ECLS-K dataset provides information about a range of control variables such as teachers' salary and classroom conditions that have been found to be linked to their job satisfaction and are not available in the SASS.

STATISTICAL ISSUES

One of the challenges we encountered while using ECLS-K is the problem of missing data. In order to tackle this problem, we employ a multiple imputation approach. Multiple imputations determine a set of values after examining the statistically appropriate distribution of all possible values in the sample. By using this approach, we account for any bias that may exist between observed and unobserved values. The entire process helps in reducing the uncertainty that is associated with any imputation (Allison, 2002; Schafer, 1997). We impute scaled variables with the Markov Chain Monte Carlo method because we have an arbitrary missing data pattern (Schafer, 1997). Categorical variables are imputed with a logistic regression method. Within the kindergarten wave, teacher and school data are imputed separately to ensure efficiency. We also impute fall 1998 and spring 1999 teacher data separately. In addition, only variables with less than 20% missing data within a particular wave are imputed. The imputation is greater than 93% efficient for all imputed variables. Our comparison of the imputed sample with the sample prior to imputation reveals that the final sample is comparable to the initial sample on several key teacher characteristics including teacher race and gender.

VARIABLES

Teacher Satisfaction

The dependent variable used in our paper is teacher satisfaction. For the purposes of this paper, we treat job satisfaction as a unitary concept and assume that it is possible for individuals to balance satisfaction with some aspects of their jobs against dissatisfaction with certain other aspects and in the process arrive at a combined satisfaction with the job as a whole (Kalleberg, 1977). Following Kalleberg (1977), we conceptualize job satisfaction as an "overall affective orientation on the part of individuals toward work roles which they are presently occupying" (p. 126). Such a conceptualization allows us to distinguish between overall job satisfaction and satisfaction with specific dimensions of those work roles.

We use an exploratory factor analysis technique to combine teacher responses to three items, including: (a) whether the teacher enjoys teaching, (b) whether the

teacher would teach again and (c) the teacher’s perception about making a difference through teaching. This measurement is consistent with the approach adopted by Lee et al. (1991) and by Renzulli et al. (2011). Our measure of teacher satisfaction combines the two related but distinct concepts of teachers’ sense of efficacy (for example, “I can make a difference through teaching”) and satisfaction (teacher enjoys teaching and would teach again).

The ECLS-K captures teacher responses to the above questions using an ordinal five category response scale that ranges between strongly disagree and strongly agree. We maintained the ordinal nature of the variables while combining them into a factor by running an Exploratory Factor Analysis (EFA) on an unrotated polychoric correlation matrix. Table 1 shows that all three items loaded on a single factor with individual factor loadings greater than 0.7. These factor loadings show that correlations between the three items and the single factor vary from 0.76 to 0.89. Correspondingly, communalities under the extraction column in Table 1 show that the factor explains 57% to 90% of variation in individual items of teacher satisfaction and 100% of their aggregate variation. We also checked the internal consistency among the three items measuring teacher satisfaction using Cronbach’s Alpha (0.73). The value is greater than 0.7, indicating high inter-item reliability. Each of these three variables is gathered from the teacher questionnaire and described more fully in Appendix A. Results from the factor analysis are presented in Table 1.

Table 1. Factor Analysis Results for Teacher Satisfaction—Communalities and Factor Loadings

Items	Communalities		Factor Loadings (Correlations)
	Initial	Extraction (Variance Explained)	
I really enjoy my present teaching job	.594	.796	.89
I am certain I am making a difference in the lives of the children I teach	.485	.573	.76
If I could start over, I would choose teaching again as my career	.516	.615	.78

Total Variance of the Variables Explained by the Factor	Initial Eigen values		
	Total	% of Variance	Cumulative %
Factor 1	6.861	100	100

Notes: a. Extraction Method: Maximum Likelihood; b. One factor extracted with three iterations.

Collective Pedagogical Teacher Culture

We conceptualize Collective Pedagogical Teacher Culture as a school workplace environment where teachers perceive (1) a strong professional community-orientation and (2) teacher collaboration. A strong professional community is measured with five variables: (1) teachers have school spirit; (2) leadership has communicated a shared school mission; (3) teachers agree on a school mission; (4) teachers feel accepted and respected as a colleague; and (5) teachers are constantly engaged in learning. The norm of teacher collaboration is calculated with three variables that measure the extent to which individual teachers perceive that teachers within the school: (1) collaborate on lesson planning; (2) collaborate on curriculum development; and (3) meet to discuss children. Each of these variables is gathered from the teacher questionnaire, described in more detail in Appendix B.

We also measure Collective Pedagogical Teacher Culture through exploratory factor analysis (EFA). We use exploratory factor analysis because the literature does not clearly articulate the extent that professional communities are collaborative. There is an assumption in the literature that they flow together, but we test this assumption through maximum likelihood exploratory factor analysis with promax rotation.⁵ Each of these variables is ordinal (Appendix A lists values), and therefore we ran the EFA on a polychoric correlation matrix. Our analysis produced two factors. The first factor represents professional communities (as the first five measures presented in Appendix B have a moderate to strong loading on this factor), and the second factor represents collaborative, child-oriented planning among teachers (the final three measures have a moderate to strong loading on this factor). We call our factors “Professional Community” and “Teacher Collaboration.” Table 2 presents the factor analysis results for the concept Collective Pedagogical Teacher Culture. Once again, communalities under the extraction column in Table 2 show that Factor 1 explains 39% to 62% of variation in the first five items denoting teacher professional community and Factor 2 explains 26% to 67% of the variation in the last three items denoting teacher collaboration. Together these two factors explain 59% and 41% of the aggregate variation in the two sets of items respectively. The lack of correspondence between the collaboration variables and the remaining community variables suggests that schools with a professional

community are not necessarily collaborative (see also Moller et al., 2013, and Stearns et al., 2014).⁶

Table 2. Factor Analysis Results for Collective Pedagogical Teacher Culture—Communalities and Factor Loadings

Items	Communalities		Factor Loadings (Correlations)
	Initial	Extraction (Variance Explained)	
Teacher's perception that staff have school spirit	.465	.566	.75
Teacher's perception that administrators communicate a mission	.425	.387	.62
Teacher's perception that teachers agree on school mission	.481	.464	.68
Teacher feels accepted and respected as a colleague	.476	.548	.74
Teacher feels that staff are continually learning and seeking new ideas	.528	.619	.78
Frequency that teachers meet to collaborate on lesson planning	.459	.657	.81
Frequency that teachers meet to collaborate on curriculum development	.463	.666	.82
Frequency that teachers meet to discuss a child	.210	.257	.50

Total Variance of the Variables Explained by the Factor	Initial Eigen values		
	Total	% of Variance	Cumulative %
Factor 1 (Professional Community)	5.887	59	59.4
Factor 2 (Collaboration)	4.022	41	100

Notes: a. Extraction Method: Maximum Likelihood; b. Two factors extracted with five iterations.

Teacher Autonomy

Following Ingersoll (2003), we also measure teachers' perceptions of the amount of autonomy they have in the classroom and in the school. We include two measures in this regard. The first measure is teacher perception about the degree of control they exercise over school policy. Teachers are asked about the extent of influence they manage to exercise over school policy matters in areas such as student discipline, on decisions about spending school funds, and assignment of children in classes. The second measure captures teacher perception about the degree of control they exercise over classroom policy matters. Teachers are asked about the extent of control they get to exercise in classroom matters involving areas such as selecting skills to be taught, deciding about teaching techniques, and disciplining children. Response categories range from "no influence/no control," "slight influence/control," "some influence/control," "moderate influence/control," and "a great deal of influence/control." We dichotomize these variables to contrast teachers who feel that they have a "great deal" of influence/control (1) and those who feel they have less than great deal of influence/control (0). In addition to ensuring meaningful comparison across groups, our decision to combine several categories together is also influenced by the uneven distribution of observations across groups.

Control Variables

In our analysis, we use several control variables, grouped into two categories: teacher-level control variables and school-level controls. Teacher-level controls include demographics, such as teacher gender, and race (Asian-American, Latino, African-American, White, and "other," with White as the reference category). Other control variables include whether the teacher teaches in a public or private school, as well as some typical measures of teacher quality such as teacher experience (in years), type of certification (highest level available vs. regular, alternative, provisional, temporary, or no certification), full-time vs. part-time status, and salary.

Finally, we use several school-level controls that derive

from existing research that indicates that school structures can have an impact on school culture (Bidwell, Frank, & Quiroz, 1997). These are school type (regular public school vs. private school), size (total school enrollment), location (urban/suburban/rural, with suburban and rural as the reference category) and region of the country (Northeast/Midwest/South/West, with South and the Midwest as the reference category). In the ECLS-K, administrators were also asked about the racial composition of their schools. We create a measure that captures the proportion of children in school who belong to various U.S. minority groups such as African-American, Latino, Asian-American, American-Indians, and Hawaiian natives. Further information on these control variables can be found in Table 3. In addition, means and standard deviations for variables used in the analyses may be found in Table 4.

Table 3. Description of Variables Predicting Kindergarten Teachers' Job Satisfaction From the Early Childhood Longitudinal Survey of Kindergarten Teachers in the United States in 1998–99

Dependent Variable	
Teacher satisfaction	Factor of three items: teacher enjoys teaching, teacher would teach again and teacher makes a difference (1=strongly disagree & 5=strongly agree)
Independent Variables	
Teacher professional community	Factor of five items: staff has school spirit, teachers agree on school mission, administrator communicates a central mission, teacher feels accepted among staff as a colleague, and teachers continually seek new ideas and learning (1=strongly disagree & 5=strongly agree)
Teacher collaboration	Factor of three items: teachers collaborate on lesson planning, curriculum and collectively discuss the progress of students (1=strongly disagree & 5=strongly agree)
Degree of teacher influence over school policy	Dummy variable (1= great deal of influence)

Degree of teacher control over classroom policy	Dummy variable (1= great deal of control)
Teacher-Level Control Variables	
Teacher Demographics	
Teacher gender	Dummy Variable (1=Female 0=Male)
Teacher is Asian-American	Dummy variable (1=teacher is Asian-American)
Teacher is Latino/a	Dummy variable (1=teacher is Latino/a)
Teacher is African-American	Dummy variable (1=teacher is African-American)
Teacher is White (reference category)	Dummy variable (1=teacher is White)
Teacher is from other race	Dummy variable (1=teacher is American-Indian or Hawaiian native)
Teacher Quality	
Teacher experience (in years)	Number of years the teacher has been teaching in the current school
Teacher has highest available certification	Dummy variable (1=the highest certification available: permanent or long term)
Teacher full-time status	Dummy variable (1=full time employment)
Teacher log salary	Log of teacher base salary
School Level Control Variables	
School type (public vs. private)	Dummy variable (1=regular public school)

School size (total school enrollment)	Total school enrollment
School location: urban	Dummy variable (1=Urban School)
School region: North-east	Dummy variable (1=North-east)
School region: West	Dummy variable (1=West)
Percentage of students in school who are minorities	Continuous variable

Table 4: Means and Standard Deviation of Variables Predicting Kindergarten Teachers' Job Satisfaction From the Early Childhood Longitudinal Survey of Kindergarten Teachers in the United States in 1998-99

Variables	Mean	SE
Dependent Variable		
Teacher satisfaction (Factor score)	-0.03	0.02
Independent Variables		
Teacher professional community (Factor score)	-0.02	0.02
Teacher collaboration (Factor score)	0.1	0.02
Teacher feels control over school policy	0.21	0.01
Teacher feels control over classroom policy	0.56	0.01
Teacher-Level Control Variables		
<i>Teacher Demographics</i>		
Teacher is female	0.98	0
Teacher is Asian-American	0.02	0
Teacher is Latino/a	0.1	0
Teacher is African-American	0.1	0.1
Teacher is White	0.8	0.01
Teacher is from other race	0.04	0
<i>Teacher Quality</i>		
Teacher experience (in years)	8.53	0.16
Teacher has highest available certification	0.65	0.01
Teacher full-time status	0.95	0
Teacher log salary	10.44	0.01
School Level Control Variables		
School type (public vs. private)	0.93	0
School size (total school enrollment)	107.49	1.62
School location: urban	0.35	0.01
School region: North-east	0.1	0
School region: West	0.23	0.01
School Racial Composition (percentage of minority students in school)	39.7	0.74

Note: N Teachers=1890; N Schools=410

ANALYSIS METHOD

We follow the Hierarchical Linear Modeling (multilevel modeling) approach in estimating the effect of Collective Pedagogical Teacher Culture on teachers' job satisfaction. The nature of the ECLS-K kindergarten teacher data is such that teachers are nested within schools. This nesting violates the key assumptions of independence of observations in conventional statistical analysis because teachers who are in the same school may be more similar in many ways than teachers who teach in a different school. Clustering of cases around higher level units produces biased coefficients because errors are correlated and there may be group-specific error variances. The

multilevel regression model addresses the error in estimation and also produces accurate standard errors for making inferences. However, several schools in our dataset have only one teacher. Therefore, we retain only those schools with more than two teachers to ensure that the lower level unit has more observations than the immediately higher level unit (Bryk & Raudenbush, 1997). All of the independent and control variables are grand-mean centered.

RESULTS

We begin our analyses with the unconditional multilevel model of the variation in teacher satisfaction. This model (not shown) indicates that 56% of the variance in teacher satisfaction occurred at the teacher level, with the remaining variance occurring at the school level. Next, we test several conditional multilevel models (Model 1–4) to explain the variation in teacher satisfaction as a function of Collective Pedagogical Teacher Culture and several other teacher and school level controls.

Our results indicate that some of our hypotheses were supported, while others were not (see Table 5). In Model 1, we find results consistent with our hypothesis regarding teacher professional community. Specifically, teacher professional community has a significantly positive association with teacher satisfaction among kindergarten teachers. That is, the more that teachers perceive that they work in schools with a shared and central mission and school spirit, among other aspects of professional community, the more they enjoy teaching, think they would teach again, and feel that they are making a difference. Consistent with Ingersoll's (2003) findings, teacher satisfaction is also significantly associated with the level of control that teachers feel they have over classroom policy.

Results of Model 2 are also consistent with our hypotheses. We see the same sort of statistically significant and positive association between teacher collaboration and teacher satisfaction: the more that teachers collaborate on student learning, the more satisfied the teachers are with their working conditions. As expected, Model 2 indicates teacher control over both school and classroom policies are positively associated with teacher satisfaction. Once both teacher professional community and teacher collaboration are included together in the models, however, only teacher professional community maintains its significant association with teacher satisfaction. As Model 3 shows, the magnitude of the coefficient for teacher professional community does not change, but the coefficient for teacher collaboration declines and is no longer statistically significant. These results occur even when teacher professional community and collaboration are the only two variables in the model (results not shown), so we are confident that they are not the result of any confounding variables. Furthermore, teacher professional community and teacher collaboration are only correlated at 0.15, so collinearity is not a concern with both variables included in the model.

Therefore, we investigated the possibility that teacher professional community and collaboration had an interactive association with teacher job satisfaction. Model 4 shows that that was indeed the case, with a significant interaction between those two variables appearing. For ease of interpretation, Figure 1 shows the results of this interaction graphically. As Figure 1 demonstrates, where professional community levels are perceived to be low, the association between teacher collaboration and satisfaction is as predicted: Those teachers who work in schools where they perceive low levels of teacher collaboration also have lower levels of satisfaction. In these schools, high levels of collaboration are needed to maintain relatively high levels of teacher satisfaction. As levels of professional community increase, however, the gap in teacher satisfaction among those teachers who work in schools with differing levels of teacher collaboration declines. In schools where teachers perceive strong professional communities, teachers who work in schools with less collaboration are as satisfied as those who work in schools with more collaboration. In other words, in those schools where teachers feel that they are most accepted and that the staff has school spirit and agrees on the a school mission, where the administrator communicates that mission, and where teachers are continually learning and seeking new ideas, teachers do not also need to see teacher collaboration at work to report high levels of job satisfaction. But, in those schools where teachers do not feel that there is a strong community, teacher collaboration is critical to maintaining high levels of job satisfaction.

To test our final hypotheses regarding the interplay of teacher control over policies and collaborative professional teacher community, we tested interactions between teacher professional community, teacher collaboration, and control over school and classroom policy. Statistically significant results are shown in Model 4: These results lend some support to earlier findings from Lee et al. (1991) and are consistent with predictions derived from Ingersoll (2003) regarding teacher professional community, collaboration, and control over policy. Model 4 shows that there is a significant interaction between professional community and teacher control over classroom policy. As Figure 2 shows, teachers who feel that they have control over classroom policy always have higher levels of satisfaction than those teachers who do not feel as if they have control over classroom policy. This gap is particularly evident in those schools with low levels of professional community. However, the gap narrows considerably in schools with higher levels of professional community.⁷ Once again, Figure 2 illustrates the critical role that teachers' perceptions of collegiality and other aspects of professional community play in maintaining high levels of job satisfaction. As professional community increases, control over classroom policy appears less important for satisfaction.

Table 5: Slopes and Standard Errors from Two Level Hierarchical Linear Model Predicting Job Satisfaction among Kindergarten Teachers by Collective Pedagogical Teacher Culture

	Model 1	Model 2	Model 3	Model 4
Intercept	-.01 (.02)	-.02 (.03)	-.01 (.02)	.01 (.02)
Teacher Level Primary Independent Variables				
Teacher professional community	.35 (.03)***		.35 (.03)***	.35 (.03)***
Teacher collaboration		.06 (.03)*	.00 (.02)	.00 (.02)
Degree of teacher control over school policy	.01 (.05)	.14 (.05)**	.01 (.05)	.03 (.05)
Degree of teacher control over class policy	.16 (.04)***	.22 (.04)***	.16 (.04)***	.15 (.04)***
Professional community*teacher collaboration				-.06 (.03)*
Professional community*teacher control over class policy				-.12 (.05)*
Teacher Level Control Variables				
Teacher is Female	.18 (.14)	.21 (.16)	.18 (.15)	.18 (.15)
Teacher is Asian-American	-.01 (.17)	-.06 (.17)	-.01 (.17)	-.01 (.17)
Teacher is Latino/a	.36 (.09)***	.33 (.09)***	.36 (.09)***	.36 (.09)***
Teacher is African-American	.38 (.08)***	.39 (.08)***	.37 (.08)***	.37 (.08)***
Teacher is from other race	-.16 (.11)	-.21 (.11)	-.17 (.11)	-.17 (.11)
Teacher experience (in years)	.00 (.00)	.00 (.00)	.00 (.00)	.00 (.00)
Teacher has highest available certification	-.17 (.05)***	-.13 (.04)**	-.14 (.04)***	-.14 (.04)***
Teacher full-time status	.11 (.11)	.07 (.11)	.10 (.10)	.11 (.11)
Teacher log salary	-.06 (.07)	-.03 (.08)	-.05 (.07)	-.05 (.07)
School Level Control Variables				
School type (public vs. private)	.06 (.10)	-.02 (.11)	.06 (.10)	.05 (.10)
School size (total school enrollment)	.00 (.00)	.00 (.00)	.00 (.00)	.00 (.00)
School location: urban	-.01 (.05)	.01 (.06)	-.01 (.05)	-.01 (.05)
School region: North-east	.27 (.09)**	.19 (.09)*	.26 (.08)**	.27 (.08)**
School region: West	.29 (.06)***	.25 (.06)***	.28 (.06)***	.28 (.06)***
School Racial Composition	.00 (.00)***	.00 (.00)***	.00 (.00)***	.01 (.00)***

Notes: N Teacher level=1890, N school level=410 standard errors in parentheses, *** p<.001, ** p<.01, * p<.05, ° p<.10.

Figure 1: Teacher Satisfaction by Professional Community and Teacher Collaboration

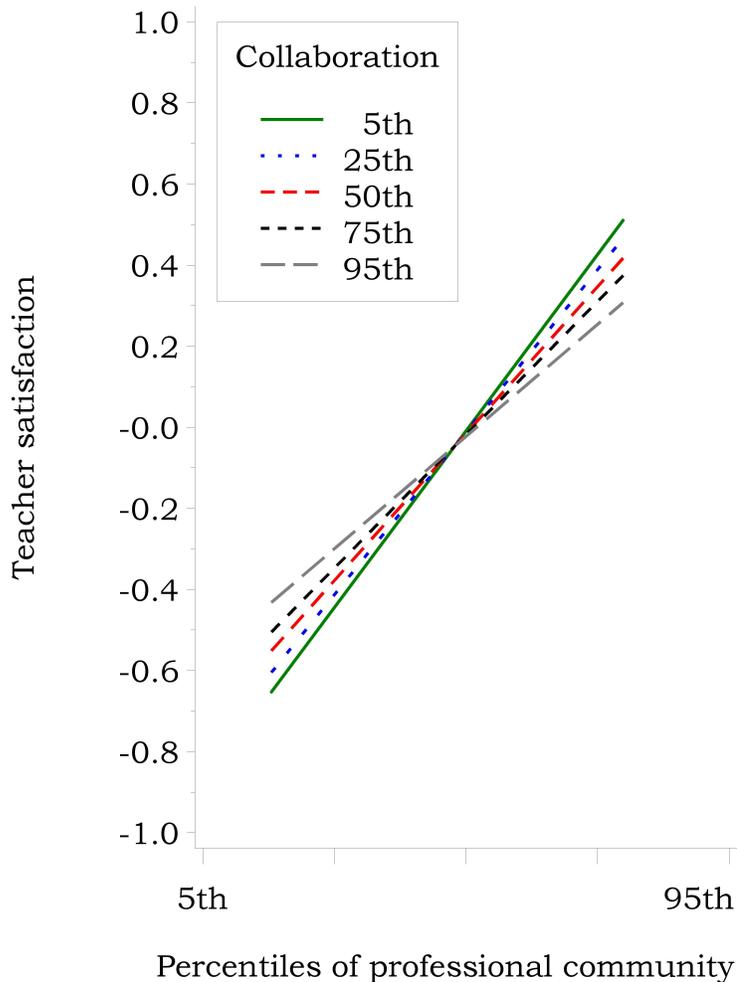
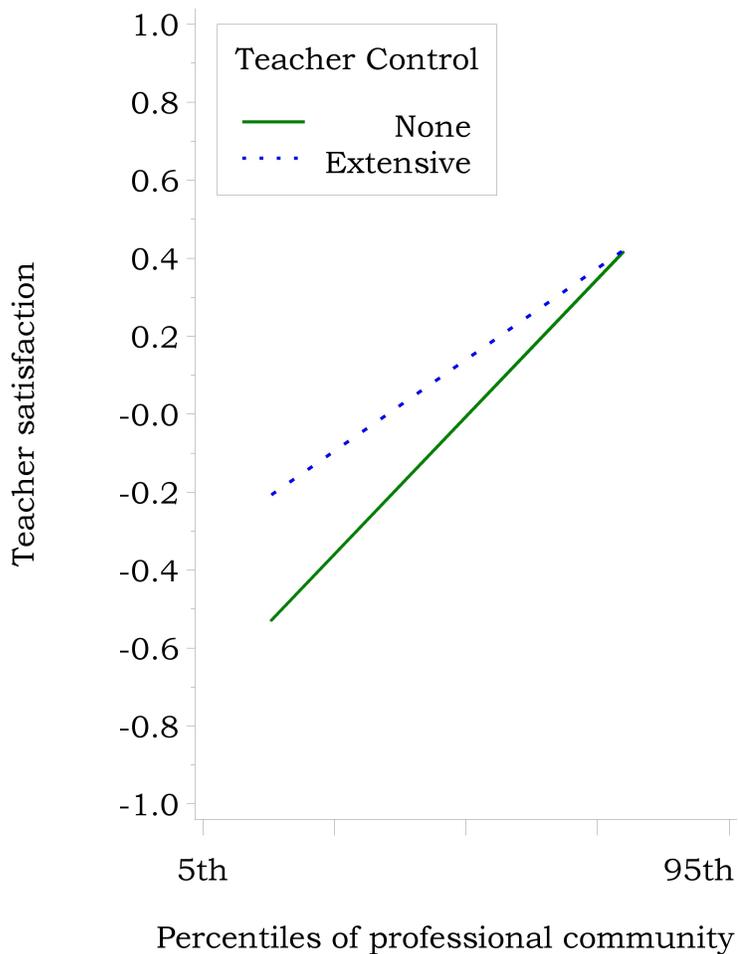


Figure 2: Teacher Satisfaction by Professional Community and Teacher Control over Classroom Policy



DISCUSSION AND CONCLUSIONS

Teachers have tough jobs in today's U.S. educational climate. Popular accounts of their job performance and accountability pressures frequently decrease their morale and undermine job satisfaction. Calls from education reformers to address the culture of the school have not found the key aspects of organization culture that should be addressed. Our work in this paper, however, highlights two aspects of organizational culture—professional community and teacher collaboration—that have positive, significant, and interactive associations with teacher job satisfaction among this nationally representative sample of kindergarten teachers in the United States. Furthermore, teacher perceptions of professional community, a part of what we term Collective Pedagogical Teacher Culture, appear to moderate the impact of both collaboration and teacher control over classroom policies on teacher job satisfaction. In other words, the levels of teacher control over classroom policies and the levels of teacher collaboration are less predictive of their job satisfaction in schools with strong professional communities. Our findings therefore suggest that changes in professional community and teacher collaboration—two targets of reform efforts—

will be accompanied by changes in teacher job satisfaction. Below, we discuss the implications of these findings.

Teacher job dissatisfaction, in that it is associated with lower morale, and higher turnover, can be detrimental to schools' functioning (Borman & Dowling, 2008; Ostroff, 1992; Park, 2005). Even ambitious and well-implemented efforts are unlikely to take hold in organizations that experience high levels of teacher dissatisfaction and therefore high rates of annual faculty turnover. Thus, those in educational leadership looking to reform schools should consider strategies for increasing teacher satisfaction, a goal that we suggest could be accomplished by focusing on supporting Collective Pedagogical Teacher Culture. Such efforts would emphasize hiring and training competent administrators who are capable of clearly communicating goals to school staff, as well as obtaining staff buy-in for those goals. They would also include efforts to build communities among teachers at the same schools, to heighten trust among those individuals, and to emphasize collegiality. These efforts might also encourage teachers in their efforts to seek new ideas and to learn from each other. Reform initiatives should encourage teacher collaboration on lesson planning, curriculum, and discussion of student progress as much as possible. Although we found that professional community was a stronger predictor of teacher job satisfaction, high levels of collaboration, especially in schools with low levels of professional community, were also necessary to obtain optimal levels of satisfaction.

The significance of this paper's findings lies in several areas. Our findings show that treating teachers as professionals with sufficient autonomy to do their job, paying attention to the extent of professional community, collaboration, and teacher control over classroom policy, can indeed increase teacher job satisfaction. The interactive relationship between teacher control over classroom policy and elements that form Collective Pedagogical Teacher Culture (professional community and collaboration) suggest why we consider neither professional community nor teacher collaboration alone to be sufficient for maximizing teacher job satisfaction in most schools; both are necessary because they complement each other. Our results suggest that the presence of a professional community mitigates the difficulties teachers encounter in schools that have low levels of collaboration; where there is no strong professional community, a school requires collaboration for teachers' satisfaction. Similarly, teachers can be satisfied with their jobs even where they have less control over their classrooms if they are part of a strong professional community. A strong professional community cushions the challenges and frustrations that teachers otherwise experience, permitting them to find satisfaction in their very challenging jobs.

Of course all studies have limitations and this one is no different. A dataset ideally suited to studying teacher job satisfaction among elementary school teachers would include more teachers than those at the kindergarten level.

We considered using teachers from the follow-up waves of the ECLS-K but, although the students represent a nationally representative sample of students, the teachers are not nationally representative. Therefore, we present only the results for kindergarten teachers. Kindergarten teachers are important because of the strong foundations of learning that they help nurture among children for successful transition of these children into more formal grades. Although kindergarten teachers have not historically delivered as rigorous academic content as teachers in later elementary grades, recent emphases on basic skills and child readiness for school have increased the level of academic rigor in kindergarten (Cooper, Allen, Patal, & Dent, 2010). The longer term impact of kindergarten teachers on students' ability to acquire important life skills, their chances of college attendance and future earnings have been also established using experimental data (Chetty et al., 2011). Kindergarten teachers' working conditions might not be as different from those of other elementary teachers today as they were one generation ago. These teachers are also on the vanguard of the demographic changes with respect to race and ethnicity that characterize the school-age population of the United States. In other words, these teachers are beginning to see changes that other teachers will see in years to come.

With dwindling public resources and the growing challenges of reaching out to a diverse classroom, job satisfaction among kindergarten teachers is likely to be affected as they strive to remain effective in their classrooms. These teachers are more likely to rely on the broader school community to help them better prepare for tackling some of these challenges. The organizational culture of schools in terms of professional community and collaboration could minimize some of negative consequences that are associated with higher levels of dissatisfaction among kindergarten teachers.

Another limitation of this study is our use of survey data that we gathered from the same teachers who were asked both about their job satisfaction and their perception about the presence of professional community and collaboration in schools. This might generate common source bias as teachers who are satisfied or dissatisfied with their jobs might systematically respond more positively or negatively to items that capture their perceptions about professional community and collaboration in school (Boyd, Grossman, Ing, Lankford, & Wyckoff, 2011).

Finally, as always with analysis of secondary data, our study is limited by the variables available in the dataset. While we incorporate many of the key features of professional learning community in our measurement, we are unable to adequately measure some elements of professional learning communities, including deprivatized practice and reflective dialogue. Future research should assess how these components of professional learning communities interact with teacher control to affect teacher satisfaction. In the meantime, we have illustrated that

collaboration among teachers and shared values provide an atmosphere where teachers are more satisfied.

The centrality of teachers to student learning is beyond debate. The importance of quality teachers, especially in the early grades, is becoming clearer. Yet many qualified teachers are often unhappy with their jobs: this dissatisfaction often results in teacher mobility and turnover that create havoc and disorder in too many young students' educational experiences. To date, school reforms typically have not addressed this critically important feature of educational success—teacher job satisfaction. In fact, too often reforms have undermined teachers in precisely the ways that can erode their satisfaction with their job. The findings from this research suggest directions for school reform that draw upon the ways that schools organize the workplace. Future reform efforts that foster greater professional communities, teacher collaboration, and control over classrooms can exist alongside more conventional reforms such as raising curricular standards and instituting greater accountability. Fostering a Collective Pedagogical Teacher Culture will help to bolster teacher job satisfaction.

Notes

1. A visionary leader is important for professional communities because s/he permits a centralized set of goals. This leader, typically the principal, can change or bolster the organizational culture of schools by working with teachers to instill values, trust, and expectations (Bizar & Barr, 2001; Bryk & Schneider, 2002; McLaughlin & Talbert, 2006). A lack of leadership, in contrast, inhibits the development of shared norms.

2. We recognize that effective and sustained collaboration among teachers may also depend on several conditions apart from the presence of a strong professional community in schools. For example, teachers are less likely to spontaneously collaborate in schools where professional communities, although present, are based on compliance, and implementation-oriented rather than respect for diversity of opinions (Hargreaves, 1994; Kelchtermans, 2006; Leonard, 2002) or where professional communities promote "individualism" rather than collectivism (Achinstejn, 2002). This may also be the case where school leadership does not believe that the time spent on collaboration is worthwhile (Leonard, 2002). Lastly, certain structural features of schools, including school enrollment and level of teacher racial/ethnic diversity, likely enhance or undermine true collaboration among teachers (Achinstejn, 2002; Leonard, 2002).

3. New teachers who joined the school after fall 1998 were included in the census of teachers that was conducted in the spring of 1999.

4. Part A of the teacher questionnaire asked teachers about their classroom characteristics including the racial and ethnic composition of children in each class. In Part B,

teachers were asked about various aspects of the school environment within which they work. Part B of the teacher questionnaire also contained information about teachers' demographic and educational backgrounds. A third part (Part C) of the questionnaire was given only to teachers who have taught a sampled child.

5. The EFA is conducted with an oblique rotation (promax). Oblique rotation method is favored over orthogonal rotation method because unlike orthogonal rotation, which assumes factors to be uncorrelated, oblique rotation method allows factors to be correlated (Conway & Huffcutt, 2003; Fabrigar, Wegener, MacCallum, & Strahan, 1999).

6. To further examine the robustness of the factors, we tested the two-factor solution through confirmatory factor analysis. We fit models with goodness of fit and CFI indices above .98 and RMSEA below .06. The results from the EFA and CFA were used to create factor scores. The EFA and CFA scores are correlated above .97 in each time period for the first factor, and they are correlated above .9 for the second factor. This suggests that the factor scores created from the EFA represent constructs that fit the data well.

7. In separate analyses (not shown) we test our models with additional control variables such as percentage of students in a teachers' class who identify themselves as African-Americans or Latino/a, percentage of students in a teachers' class who are identified as limited proficient in English (LEP). We also include control variable such as teachers' age, teachers with master's or more educational qualification, number of hours the teacher teaches per day, whether a school provides incentives to its teachers, and whether a school has adequate safety measures in place. Tables with results from these models are available from the authors upon request.

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APPENDIX A. MEASURES OF TEACHER SATISFACTION

1. I really enjoy my present teaching job
2. I am certain I am making a difference in the lives of the children I teach
3. If I could start over, I would choose teaching again as my career

Responses to the above three questions are captured through a five-point response scale:

1 = "STRONGLY DISAGREE"

2 = "DISAGREE"

3 = "NEITHER AGREE NOR DISAGREE"

4 = "AGREE"

5 = "STRONGLY AGREE"

APPENDIX B. MEASURES OF COLLECTIVE PEDAGOGICAL TEACHER CULTURE

1. Teacher's perception that staff have school spirit
2. Teacher's perception that administrators communicate a mission
3. Teacher's perception that teachers agree on school mission
4. Teacher feels accepted and respected as a colleague
5. Teacher feels that staff are continually learning and seeking new ideas.

Responses to the above three questions are captured through a five-point response scale:

1 = "STRONGLY DISAGREE"

2 = "DISAGREE"

3 = "NEITHER AGREE NOR DISAGREE"

4 = "AGREE"

5 = "STRONGLY AGREE"

6. Frequency that teachers meet to collaborate on lesson planning
7. Frequency that teachers meet to collaborate on curriculum development
8. Frequency that teachers meet to discuss a child

Responses to the above three questions are captured through a five-point response scale:

1 = "NEVER"

2 = "ONCE A MONTH OR LESS"

3 = "TWO OR THREE TIMES A MONTH"

4 = "ONCE OR TWICE A WEEK"

5 = "THREE OR MORE TIMES A WEEK"
