

# UNION–MANAGEMENT PARTNERSHIPS, TEACHER COLLABORATION, AND STUDENT PERFORMANCE

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Using data from surveys, interviews, and student performance, the authors examine collaborative union–management partnerships between local union representatives, teachers, and school administrators working together in innovative ways to improve teaching quality and student performance. Based on data from 27 schools in a southern California school district, the authors find that the strength of formal union–management partnerships is a significant predictor of greater growth in student performance over time, and that this relationship is mediated by stronger educator collaboration at the school level, after controlling for poverty. The findings suggest that student performance can be significantly improved by institutional union–management partnerships and the increased school-level collaboration that results from them.

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For more than a decade, motivated by comparisons of U.S. public school student performance against international benchmarks, a debate has raged across the country regarding the best way to reform and improve U.S. public education. To date, extant solutions have been dominated by market-driven approaches—charter schools, vouchers, and privatization—or concurrently by top-down bureaucratic mandates for teacher accountability policies that rely heavily on high-stakes standardized testing. These approaches have created friction between teachers’ unions, administrators, school boards, parents, policymakers, and other stakeholders in public education and have fueled disagreements over how to improve the quality of teaching and learning for children. Yet within some districts and schools, union leaders and school administrators have found an alternate path to reform, not rooted in market solutions or in test-based teacher

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accountability policies but instead centered on building strong relationships that facilitate collaboration among educators and educational improvement for students.

Union-management partnerships are institutional arrangements that provide opportunities for union leaders, administrators, and teachers to work together identifying and solving problems, planning, and making decisions. Over the past few decades, unions have not been typically characterized as being at the forefront of public school reform. In fact, some scholars have suggested that the presence of unions is associated with reduced student performance (Hoxby 1996). In earlier research (Rubinstein and McCarthy 2012) we examined cases of school reform that resulted from collaborative partnerships between teachers' unions and administrators working together in innovative ways to improve teaching quality and student performance. We analyzed these cases to identify the common elements that all districts with long-term union-management partnerships shared. In this article we look deeper into these partnerships to examine the collaboration that occurs within schools between teachers and administrators. Specifically, in this study we explore the way partnerships can affect student achievement by fostering more productive collaboration within schools. We attempt to examine directly the mechanisms by which union-management partnerships can facilitate teacher collaboration and improve student performance.

We take an employment relations and organizational perspective, looking at schools as systems and examining industrial relations practices as antecedents to systematic change. The issue is not simply the presence of unions but the organizational systems and industrial relations in school districts—the mechanisms that encourage trust and collaboration and build strong networks among teachers and create strong partnerships with administrators. Indeed, numerous education researchers have encouraged greater levels of professional collaboration among teachers as a means of improving student achievement (DuFour and Eaker 1998; DuFour, Eaker, and DuFour 2008). While several studies have shown that greater levels of social capital (Leana and Pil 2006; Pil and Leana 2009) and collaboration (Goddard, Goddard, and Tschannen-Moran 2007) can have positive implications for student performance, we currently know little about the institutional antecedents to professional collaboration, particularly in the context of public schools.

We fill an important gap in the literature by examining union-management partnerships as potential catalysts for professional collaboration in public schools—specifically, the value that they can bring to organizational performance by creating a climate for collaboration and an infrastructure for problem solving with management. The industrial relations literature has a long tradition of exploring the impact of labor relations and union-management collaborative efforts on organizational performance. With a few exceptions (Johnson 1984; Kerchner, Koppich,

and Weeres 1997), these arrangements have not been extensively studied in public education. Further, there has been little exploration of the causal mechanisms by which labor–management partnerships affect student performance. Our study not only offers strong evidence that union–management partnership relations have important implications for education quality and student achievement but also suggests that these performance gains are attributable to greater workforce collaboration. Thus, as a central theoretical contribution, we reveal a mediating pathway through which institutionalized labor–management partnerships improve performance outcomes in organizations.

### **Union–Management Partnership Arrangements and Organizational Improvement**

The partnership approach to school improvement studied in this article can be positioned within the history of critiques and alternatives to more market-driven, top-down, management-led, and bureaucratic approaches to education reform (Ravitch 2013). Yet with a few exceptions (Beach and Kaboolian 2005; Koppich 2005; Bluestone and Kochan 2011; Rubinstein and McCarthy 2012), the school reform literature has seldom explored the improvements to education quality that result from institutional collaboration between teachers, their local unions, and administrators. The limited research that has been published focuses on cases and examples of collaboration that resulted in improvements to curriculum, instructional practice, professional development, mentoring, teacher evaluation, and quality. A number of common patterns among school districts with institutionalized collaborative partnerships have been identified (Rubinstein and McCarthy 2012). But the mechanisms by which public-sector union–management institutional collaboration affects student performance has received little attention in the literature to date.

Industrial relations scholars have long explored the ways that unions in the private sector improved organizational performance. Commons (1913) showed that union policies motivate managers to find ways to improve productivity, and other scholars saw collective bargaining agreements as a way to discipline management and the workforce (Slichter 1941; Slichter, Healy, and Livernash 1960). Going beyond the mere presence of unions as performance-improving, another stream of research examined examples of institutionalized union–management collaboration directed at improving private-sector organizational performance. Slichter (1941) studied union–management collaboration in the textile, apparel, and railway industries starting in the 1920s. These efforts expanded to more than 600 companies working closely with unions—including the United Auto Workers, United Steelworkers, United Electrical Workers, and the International Association of Machinists—during the 1940s to improve productivity and quality

through extensive problem solving in support of the war effort (Golden and Parker 1949; Slichter, Healy, and Livernash 1960).

Since the 1970s, U.S. industries in the private sector have created labor-management collaborative partnership arrangements to restructure their operations and improve organizational performance in the face of global competition (Freeman and Medoff 1984; Kochan, Katz, and McKersie 1986; Heckscher 1988; Levine and Tyson 1990; Cooke 1992; Appelbaum and Batt 1994; Eaton and Voos 1994; Schurman and Eaton 1996; Osterman 2000; Rubinstein 2001b; Eaton, Rubinstein, and McKersie 2004). These arrangements have been created in several sectors, including automotive (Adler 1995; MacDuffie 1995; Rubinstein 2000; Rubinstein and Kochan 2001); steel (Hoerr 1988; Ichniowski and Shaw 1999; Frost 2000; Rubinstein 2003); communications (Heckscher, Maccoby, Ramirez, and Tixier 2003); health care (Kochan, Eaton, McKersie, and Adler 2009; Litwin 2011); pharmaceuticals (Rubinstein and Eaton 2009); and computer and business equipment (Cutcher-Gershenfeld 1987). Studies across these industries have shown that formally expanding labor's role in problem solving and decision making added value to the organization and led to significant improvements in productivity and quality (Cutcher-Gershenfeld 1987; Appelbaum and Batt 1994; Ichniowski et al. 1996; Freeman and Rogers 1999; Appelbaum, Bailey, Berg, and Kalleberg 2000; Rubinstein 2000, 2001b; Rubinstein and Kochan 2001; Eaton, Rubinstein, and McKersie 2004; Rubinstein and Eaton 2009).

We believe these same principles will apply to public-sector union-management collaborative partnerships in education, and so schools that are able to establish stable partnership arrangements should experience greater performance from both teachers and students.

**Hypothesis 1:** There will be a positive relationship between institutional partnership and student achievement.

### **Partnerships, Collaboration, and Performance**

An extensive literature on collaborative team-based organizations points to an increase in horizontal coordination through information exchange that replaces the hierarchical control systems of scientific management, resulting in greater responsiveness and flexibility (Aoki 1990; Womack, Jones, and Roos 1990; MacDuffie and Krafcik 1992; Tsai 2002; Brass, Galaskiewicz, Greve, and Tsai 2004.) This trend is particularly true in industries such as education, where work is knowledge-intensive and where quality, innovation, and rapid response to customer needs are important (Aoki 1990). In these organizations, workers' tacit knowledge becomes linked to that of workers in other units, informal communication networks become critical for coordination, and knowledge leading to innovation crosses departmental boundaries (MacDuffie 1995). Collaborative work systems break down organizational silos through the use of teams and other formal and informal collaborative practices, increasing lateral communication, information and

knowledge sharing, and innovative organizational responses (Trist 1981; Mintzberg 1983; Shimada and MacDuffie 1986; MacDuffie and Krafcik 1992). Further, reduced hierarchy supports more democratic patterns of decision making (Sackman and Nie 1970; Keen 1991; Taylor and Van Every 1993).

Applying this framework to education, we view school quality not simply as a function of individual teachers but also as a result of the interaction of teachers with one another and with administrators—the collaborative network among educators within schools. Indeed, considerable evidence indicates that quality improvement in an educational environment is based on improving curriculum and instructional practice and on analyzing student performance and making adjustments to improve learning. This all requires input, cooperation, and coordination—in essence, a highly collaborative organization. For example, Goddard, Goddard, and Tschannen-Moran (2007) found a significant positive association between greater collaboration for school improvement and student performance, and Leana and Pil (2006) showed that performance and performance improvement were greater in elementary schools in which teacher social capital was high. Similarly, Moolenaar, Slegers, and Daly (2011) found that teachers reported stronger climates for innovation in schools in which teacher communication networks were denser in informal advice-seeking ties.

Yet while these studies have linked social capital and student performance in public schools, they have not examined the links between union-management partnership arrangements, school-level collaboration, and student performance. And the education literature is largely silent on the question of the antecedents to collaboration and the building of social capital. Similarly, with some exceptions (Rubinstein 2000; Rubinstein and Kochan 2001; Eaton, Rubinstein, and McKersie 2004; Kochan, Eaton, McKersie, and Adler 2009; Rubinstein and Eaton 2009), most of the research on private-sector labor-management partnerships has focused on the institutional arrangements and outcomes but less on the specific ways in which collaboration has changed how the organizations have functioned, employees have communicated, and work is coordinated.<sup>1</sup> Thus, although there is a growing consensus that collaborative work systems include features that increase lateral coordination between employees and more vertical involvement in decisions previously reserved for management (Ichniowski et al. 1996; Gittel 2002), few studies have explicitly examined the changes in the structure of collaboration between employees and between employees and management that have led to improved organizational performance.

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<sup>1</sup>As an exception, studies on the private sector have shown that organizations' communication networks can be shaped by the relationship between management and the union (Rubinstein, 2000, 2001a, 2003; Rubinstein and Kochan, 2001; Rubinstein and Eaton 2009). This work looked primarily at corporate-level union-management institutional partnerships, however, and not at the collaboration they foster at the operational level.

We suggest that union-management partnerships may fundamentally change the nature of collaboration between professionals at the workplace level and that this in turn affects performance. Drawing from the industrial relations literature, for example, we find evidence that partnerships enhance organizational outcomes by 1) organizing more human resources toward improvement efforts (MacDuffie 1995; Freeman and Rogers 1999); 2) providing solutions directly from employees who are closer to the problems (Appelbaum and Batt 1994; Rubinstein and Kochan 2001); and 3) gaining greater support for the implementation of decisions from those who participated directly in making them (Rubinstein, Bennett, and Kochan 1993; Freeman and Rogers 1999). Performance improvement is also due in part to the institutional networks union-management partnerships create across organizations, linking people in ways that facilitate coordination and responsiveness (Kaufman and Levine 2000; Rubinstein 2000, 2001b; Rubinstein and Kochan 2001).

Our observations and interviews across numerous school districts revealed that school-level partnerships often create structures/institutions that facilitate denser and more productive collaboration among site professionals. For example, we observed that in schools with strong labor-management partnerships, teachers and administrators often organized joint committees to solve problems and make decisions important to the functioning of the school. Further, principals and union building representatives met weekly on collaborative leadership teams to discuss substantive school issues, to solve problems, and to engage in site-based decision making, including textbook adoption, school schedules, and the hiring process for each school.

In the case of the school district we studied for this article, six schools with high poverty rates came together to form the South Side Collaborative—a cohort of schools that explicitly focused on collaboration-driven improvement for low reading levels among the high population of English language learners (ELL). Professionals from these schools traveled around the country together to research reading programs and professional development. The local union actually increased its membership dues to pay for substitute teachers so South Side faculty could be released to take the professional development training. The teachers and administrators in each of these six schools collaborated to choose new reading programs themselves rather than having the district make that decision for them. Collaboration within and across these schools embraced not only improving curriculum and instructional practices but also working together on recruiting, hiring, compensating, and retaining high-quality teachers as well as expanding research-based professional development. Teachers began to meet in “vertical teams” across grade levels to work on connecting and coordinating the reading curriculum from year to year. The implementation by these educators was so successful that student reading performance showed significant improvement. Between 1999, when the efforts on the

South Side began, and 2011, all six schools saw a significant growth in achievement as measured by California's Academic Performance Index (API) test that measures skills in English/language arts, math, science, and history/social studies.

In this way, the labor-management partnership engendered a culture of inclusiveness in decision making and the foundation for strong ongoing school-level collaboration that supported student achievement. In addition, the local union in the district organized formal training sessions several times a year in order to prepare its building representatives for their roles as union leaders operating in partnership with building principals. Approximately 50% of the building representatives attended this training each year. Further, the union held monthly building representative meetings that included updates on the partnership so the business of the union was integrated with participation in managing the district through the partnership. This extensive involvement of union members and leaders in the partnership at the school level appeared to have created a strong network of teacher-and-administrator and teacher-and-teacher collaboration that contributed to improved communication, coordination, and problem solving. In other words, the partnership seemed to support strong collaboration norms within schools.

For example, here is a quote from a union leader:

Teachers and administrators got together and worked on the evaluation piece for the SIG grant [school improvement grant] which included school-wide goals—so each teacher, regardless of the subject they taught, would have English and math goals that would be embedded within the curriculum. So that caused conversations about integration of subjects to happen for the first time in a school that was very siloed—where math and science and English didn't talk to each other. . . . On their evaluation was a standard—how are they using data to drive their curriculum, and how did that tie into their English and math school-wide goals. And they had to have a portfolio that had proof of that. Well, they shared those documents [in the portfolio] with each other, so they were sharing best practices and the documents they were using to satisfy the evaluation. . . . However, it also seeded ideas within each other's practice by doing that, causing them to have greater collaboration across the subjects, integrating each other's practices, integrating curriculum across the board. That is powerful in the sense that because math and English became school-wide scores you changed the mentality of the teacher to worry about the whole learning experience of the student rather than a subject piece of what the student is learning, and that translated into higher scores, and best practices. . . . The partnership structures were instrumental in creating the dialogue needed to work on the evaluation changes required by the SIG requirements.

Thus we see school-level collaboration as a mediator between strong union-management partnerships and student achievement (see Figure 1). In other words, while Hypothesis 1 predicts that strong partnerships have a positive impact on student achievement, we believe this happens through the collaboration that partnerships foster at the school level and that partnership

*Figure 1.* Conceptual Model

and collaboration are not independent predictors of student achievement. We model partnerships as the antecedent of collaboration by creating a climate in schools that fosters and supports open communication and collaboration among educators, and we suggest that this collaboration in turn has a positive impact on student achievement.

**Hypothesis 2:** The relationship between institutional partnership and student achievement will be mediated by teacher collaboration.

## Methods

### Research Setting

Our research was undertaken in the ABC Unified School District, a California urban public school district. The school district is noteworthy for the strong union–management collaborative partnership arrangement that has existed between district management and the AFT local union, which was formed after a tumultuous strike in the mid-1990s. Over the past half-decade, the school district as a whole has distinguished itself as a high performer, with a student body consisting of approximately 20,800 ethnically and linguistically diverse students. As with many urban school districts in the United States, many from the student body are financially disadvantaged (roughly 45.5% qualify for the federally funded free or reduced-price lunch program). The district houses 30 schools, of which 19 are elementary schools, five are middle schools, and five are high schools. One school is an adult school offering remedial education and career development for older students in the surrounding community. The district employed slightly more than 1,100 full-time educators during the period covered in this research.

Three schools were removed from our sample because of demographic peculiarities of the student body. One school was an elite high school that served especially gifted students with an extensive acceptance process. Another school represented the opposite extreme—a high school designed to serve students with disciplinary problems, such as those with histories of violence or drug use. Given the peculiarities of their student populations, we treated these two sites as outliers and removed them from our sample. We also removed the adult school from our sample, in light of the nontraditional student population and the fact that the school did not administer standardized tests, which we used to assess school performance (see below).



The sample used for our analysis therefore consisted of 27 schools, which together employed roughly 930 teachers.

### **Institutional Partnership**

The school district in which our study was carried out has been committed to extending labor–management partnership from the district level to the school level. A large part of this effort involved increasing communication frequency between school union representatives and principals. We administered a survey in the 2011 school year asking union representatives to approximate how frequently they communicated with their principal about professional issues. Specifically, they were asked to generalize whether their communication with their principal occurred primarily “daily,” “weekly,” “monthly,” or “not at all.” We coded the responses at the school level on a scale of 1 to 4, where “not at all” was coded as 1, primarily “monthly” communications were coded as 2, primarily “weekly” communications were coded as 3, and primarily “daily” communications were coded as 4. We received surveys from 25 of the 27 schools in our sample, for a response rate of 93%.

Communication frequency between union representatives and principals provided an indirect measure for school-level institutional partnership. In an effort to assess institutional partnership more directly and to add a management perspective to the assessment by union representatives, we also asked the school district’s superintendent to rate the quality of labor–management partnership at each of the district’s schools. The superintendent had been a vocal proponent of partnership building and had stayed abreast of partnership-building efforts across the district’s schools. Her survey consisted of a single question, which asked her to rate each of the district’s schools on a scale of 1 to 4, with 1 representing low institutional partnership and 4 representing high institutional partnership. Partnership was defined as a collaborative institutional relationship between the school-union representative and the school principal, which emphasized shared decision making and student achievement. The superintendent rated each of the 27 schools in our sample.

The communication frequencies reported by union representatives had not been shared with anyone in the school district. Yet union representatives’ reported communication frequencies correlated strongly with the superintendent’s assessments of school-level partnership ( $r = .68$ ). In particular, union representatives reported much higher communication frequencies in schools rated by the superintendent as high in partnership. Therefore, we assessed school-level institutional partnership according to 1) the frequency of professional communication between labor-union representatives and principals, as reported by union representatives and 2) the superintendent’s rating of school institutional partnership. We combined the variables by taking the average across the two scores. The superintendent’s

rating was used for the two schools with missing data on union representative-principal communication frequency. Thus we derived a measure of institutional partnership for all 27 schools retained in our sample.

### **Mediator Variable**

This study hypothesized that the effects of labor-management partnership on performance would operate through a stronger collaborative climate at the school level. To measure collaborative climate, we used two survey items from a short climate survey administered by district leadership to all teachers in January 2011. Responses were coded on a scale from 1 to 4: 1 indicated that a collaborative norm was not at all characteristic of a particular school, and 4 indicated that a norm was highly characteristic of the school. We note that these scales forced respondents to *not* take a neutral position. However, Alwin and Krosnick (1991) found that neutral options did not improve scale reliability.

1. The development of the school plan is meaningful and collaborative.
2. Our school initiatives are meaningful and developed collaboratively.

These two survey questions have strong face validity and covaried strongly ( $r = .95$ ). The overall response rate across the schools retained in our sample was 69%. We averaged individual scores to the school level for our analyses, giving equal weight to each item.

### **Dependent Variables**

The California API is used as a composite measure that reflects students' achievement in a variety of assessments, including the California Standards Tests (CSTs), the California Alternate Performance Assessment (CAPA), the California Modified Assessment, and for high school students, the California High School Exit Examination (CAHSEE). Graduation and dropout rates are also factored into the scores. State officials in California have used API scores as a primary means by which they monitor and rank the relative performance of schools and school districts and publicize district and school-level scores, which they report online. API scores range from 200 to 1,000. For this study, we examined API Performance Improvement, which represents the overall change in a school's API score from the 2011 school year to the 2012 school year.

### **Control Variables**

A variety of student, teacher, and community-level characteristics affect student outcomes. Research has consistently shown that the socioeconomic characteristics of the student body play a powerful role in determining school outcomes, including performance on standardized tests (e.g., Leana and Pil 2006; Ravitch 2011). We control for poverty by the percentage of

*Table 1.* Descriptive Statistics

<i>Variable</i>	<i>Observations</i>	<i>Mean</i>	<i>SD</i>	<i>Min.</i>	<i>Max.</i>
Institutional partnership	27	3.19	.64	1.5	4
Collaboration climate	27	3.18	0.57	2.395	3.91
Poverty	27	52.99	27.95	13.2	100
API (2010)	27	818.78	85.16	636	968
API improvement (2011–2012)	27	14.52	17.87	–18	58

students in each school who qualify for the free or reduced-price lunch program. Other characteristics relating to teachers, students, and the surrounding community can also affect student achievement outcomes. In line with earlier studies in education (Leana and Pil 2006; Goddard et al. 2007), and in an effort to account for other possibly omitted variables, we also control for baseline API performance, or the performance score that a school earned in the previous year (i.e., 2010).

### **Qualitative Data**

Over the course of several years studying this district, we conducted more than 100 interviews with current and former superintendents, current and former union presidents, school board members, central office administrators, school principals, union building representatives and executive board members, teachers, support staff, and members of the business community. In addition, we reviewed archival data including contracts, memorandums of understanding, student performance data, and internal reports. Further, we attended school board meetings, partnership retreats and training sessions, union meetings, school-level partnership meetings, and professional development training, as well as actual classes taught by faculty in the schools.

### **Results**

Descriptive statistics for all the measures included in this study are in Table 1. The poverty rate (percentage of students on free or reduced-price lunch) varies across the schools in the district from roughly 13 to 100%. Although not shown, the average API scores in the 2011 and 2012 school years were roughly 834 (SD = 76.36) and 849 (SD = 66.39), respectively. Improvement in API scores over that period (i.e., the difference between 2012 and 2011) ranged from –18 API points to 58 API points, with an average gain of 14.52 API points (SD = 17.87). Correlations are presented in Table 2.

Our regressions are presented in Table 3. To help ensure robust results, regressions have been bootstrapped (2,000 repetitions). We first present the relationship between our control variables and student achievement.

Table 2. Correlations

	<i>Institutional partnership</i>	<i>Collaboration climate</i>	<i>Poverty</i>	<i>API (2010)</i>	<i>API improvement (2011–2012)</i>
Institutional partnership	1				
Collaboration climate	.64*	1			
Poverty	.28	0.2906	1		
API (2010)	-.29	-0.31	-0.88*	1	
API improvement (2011–2012)	.51*	0.61*	0.36	-0.59*	1

Note: Correlations use unstandardized variables. Two-tailed test.  $N = 27$ .

\* $p < .05$ .

Table 3. Predictors of API Improvement

<i>Variable</i>	<i>Model 1</i>	<i>Model 2</i>	<i>Model 3</i>
<b>Controls</b>			
Poverty	-13.18* (6.62)	-13.93* (5.53)	-13.87** (4.48)
API baseline (2010)	-22.29*** (6.39)	-20.94*** (5.20)	-19.92*** (4.09)
<b>Predictor</b>			
Institutional partnership		6.93* (3.25)	2.81 (3.69)
<b>Mediator</b>			
Collaboration climate			6.89* (2.94)
Constant	14.52 (2.64)	14.52 (2.40)	14.52 (2.11)
Adjusted $R^2$	.42	.55	.64
$N$	27	27	27

Note: Standardized coefficients shown. Models bootstrapped at 2,000 repetitions. Bootstrapped standard errors in parentheses.

\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ .

Socioeconomic status and baseline achievement scores both show strong, highly significant associations with student achievement in expected directions. The negative association between socioeconomic status and student achievement underlines the (often neglected) reality that school performance outcomes are powerfully driven by the socioeconomic conditions of the surrounding community. Entered in model 2, our measure of institutional partnership bears a positive and significant association with performance improvement from 2011 to 2012 ( $p < .05$ ). The institutional partnership variable also adds considerably to the explained variance, moving the Adjusted  $R^2$  from .42 to .55.

Our second hypothesis predicted that school collaboration would mediate the relationship between institutional partnership and student achievement. We tested mediation following Baron and Kenny (1986) and Preacher and Hayes (2008). Baron and Kenny noted that mediation is

Table 4. Indirect Path for Mediated Model

Variable	Value (SE)	LL 95% CI	UL 95% CI
Collaboration climate	4.12* (1.79)	.60	7.64

Note: Confidence intervals bootstrapped at 2,000 repetitions.

supported when the independent variable associates with the mediator variable and the direct effect of an independent variable on the dependent variable becomes zero (full mediation) or reduces significantly in size (partial mediation) after the statistically significant mediator variable is introduced. Our measure for institutional partnership showed a strong association with our mediator variable, collaboration climate ( $p < .01$ ), satisfying Baron and Kenny's first requirement. As shown in model 2, institutional partnership also associated with performance, satisfying their second requirement. When entered alongside institutional partnership and control variables (model 3), collaboration climate shows a positive significant association with performance improvement, while the institutional partnership variable loses significance. This satisfies their third requirement and lends support for full mediation.

Preacher and Hayes (2008) emphasized the importance of testing the significance of the indirect effect directly—that is, the reduction of the effect on the primary independent variable on the outcome after controlling for the mediator variable. The indirect effect of the mediator variable with bootstrapped effect sizes and confidence intervals is presented in Table 4. Specifically, following Preacher and Hayes, we calculated the indirect effects using coefficients from the final step in our regression model (i.e., model 3) and used bootstrapping procedures to derive 95% confidence intervals (CIs) for the indirect effect estimates. An indirect effect is significant (at the .05 level) when zero is not included in the 95% CI, as is the case in Table 4 (CI = .59, 7.64). These findings reconfirm support for our second hypothesis, that the effects of institutional partnership on student achievement operate through (are mediated by) stronger collaboration among educators at the school level.

## Discussion

### Partnerships and Performance

This article makes important contributions to both industrial relations and education scholarship. The goal of this study was to explore the impact of union–management partnership arrangements on student performance through educator collaboration. We were interested in exploring how industrial relations affected educator behavior and in turn student learning. While industrial relations scholarship has a strong tradition of examining union–management partnership and organizational performance (Ichniowski et al. 1996), there has been little research on the mechanisms

by which these arrangements affect performance. Although earlier industrial relations research has observed performance benefits to labor-management partnerships, prior research had not empirically explored mediating pathways that lead to these positive outcomes. Our study makes a unique contribution to this literature by empirically examining collaboration (specifically, participation in organizational decision making) as a process variable through which institutionalized labor-management partnerships improve performance.

Similarly, as noted above, the education literature has long recognized the importance of educator collaboration on student achievement, linking social capital to performance outcomes in schools (Leana and Pil 2006; Goddard et al. 2007; Pil and Leana 2009). However, that literature has not gone far in unpacking institutions that support effective collaboration—identifying, for example, the antecedents or catalysts to effective collaboration. Moreover, the role that institutionalized partnerships (specifically, teacher union representatives collaborating with their principals) play, has, to our knowledge, never been examined. We find that stronger school-level labor-management partnerships are associated with greater growth in student performance over time and that the effect of the partnerships is mediated by stronger educator collaboration at the school level. Including institutional partnership and collaboration climate (our mediating variable) increased the explained variance by 22% ( $R^2$  improved from .42 to .64). Interpreting our coefficients, a one-standard-deviation increase in collaboration climate corresponds with approximately a 9% increase in API improvement from 2011 to 2012. Our results thus suggest that labor-management partnerships enable social environments that support quality teaching and student achievement.

Our findings have strong practical relevance at a time when teachers' participation in decision making has been increasingly constrained by administrative controls and policies (e.g., charter schools and incentive pay, teacher evaluation systems based on standardized testing, the U.S. Department of Education's Race to the Top program) that promote competition between teachers and schools rather than collaboration. In that discourse, teachers' unions have typically been characterized as unavoidable obstacles in school reform initiatives—something to be overcome or at least pacified by administrators as they attempt to overhaul their district's norms and practices. This research tells a counter-story, pointing to the leadership role that unions can play in school reform by creating institutional partnerships with administrations that lead to greater collaboration among educators. Our findings also underscore the importance of taking a systems perspective when considering strategies for organizational improvement, and they contribute to a growing literature (e.g., Beach and Kaboolian 2005; Koppich 2005; Bluestone and Kochan 2011) that shows the critical importance of institutionalizing broad stakeholder participation when trying to promote high-performing schools.

Like all research, our study has limitations. One limitation concerns the generalizability of this work. All the schools we studied were from a single school district, and this district has sustained a union–management partnership for more than a decade. This research needs to be replicated in other districts, including those without a union–management partnership arrangement, and in nonunion charter schools as well. Also, we were limited by the sample size (27 schools) that we were able to include in our study. In future research we need to expand the number of schools in the sample. Further, while we were able to measure performance change across school years, a longitudinal study that included multiple years of school partnership and climate data would help increase our confidence in causality. In addition, though our research looked at school partnerships and their relationship to school-level collaboration norms, there are even more opportunities for greater nuance—for example, how partnerships affect the structure of participation within grade levels (elementary and middle school) and within academic departments. Finally, our performance outcome measures were based largely on standardized test scores—measures common in both educational and policy research. These measures are important, but they likely do not tell the whole story, and thus we need to complement them with other measures of student achievement and learning.

### Conclusions

This research suggests that union–management partnerships can significantly improve student performance through their effects on school-level collaboration. The research presented in this article builds a strong case for efforts to expand collaborative partnerships as a vehicle for school reform and improvement. As noted, more studies need to be done to confirm these results—more schools and more districts, including those without partnership arrangements, need to be examined.

Although the ABC Unified School District is not typical of school districts across the country, having established a union–management partnership that has survived for more than a decade, it faces challenges that are common to many school districts. As noted, it is a high-poverty district with 46% of students on free or reduced-priced lunch and a high percentage of English language learners. Whereas poverty remains a key predictor of student achievement, our data suggest that student performance can be significantly improved by institutional union–management partnerships and the increased school-level collaboration that results from them, even in high-poverty schools. Schools with stronger partnerships had significantly higher scores on California’s standardized tests, even after we controlled for poverty. The effect of poverty on student achievement cannot be ignored, yet some of the organizational and industrial relations solutions studied here focus attention on what teachers and administrators can uniquely do in high-poverty schools to improve learning. If a partnership can succeed in a district with these

challenges, it should be possible elsewhere, including in other high-poverty districts. We intentionally chose this district because of this anomaly—being poorly resourced, with strong performance gains and an effective union-management partnership that changed its employment relations framework. We felt this was a great case for theory generation. The shared interests between the district administration and the local union in surmounting the challenges the district faced have held this partnership together, and these challenges can be found in public schools across the country.

We believe this research provides an alternative direction for improving U.S. public education. Tests can reveal deficiencies in student knowledge but can offer little more beyond alerting parents and teachers to a problem. Further, neither charter schools nor teacher evaluations based on test scores are necessarily designed to find solutions to remedy those gaps in student achievement. These partnerships use collaboration as a means to find and implement solutions to problems, and since teacher participation is essential to the process, ownership of solutions and decisions is widespread. Because partnerships are problem-focused, we suggest that they have the capacity to take the critical next steps and provide solutions that improve teaching and student learning.

It is unlikely, however, that collaborative school reform can be sustained or institutionalized without widespread support from state and federal policy. If policymakers and educators want to create and support more long-term partnership arrangements in U.S. school districts, we suggest that they provide incentives for districts to establish union-management partnerships and collaborative approaches to developing curriculum and instructional practice, teacher evaluation, professional development, mentoring, and peer review. School reform must not be just top down; ways must be found to build upon, support, and cultivate local district innovation as well. Research on union-management partnerships and collaborative reform in the U.S. steel industry in the 1990s, for example, showed that the most effective improvements benefited from policies and contract language that enabled innovation from within organizations rather than from policies and contract language that were overly prescriptive (Rubinstein 2003). The lesson for public school reform is that innovation around collaborative partnerships should be developed locally around the needs and cultures of local school districts and local unions with support from the state and federal levels. States could offer leadership training and skill development in partnerships and collaborative management for local districts. In this way they could build local capacity and facilitate organizational change and innovation.

We hope this study encourages more research on the impact of institutional union-management partnerships on teacher collaboration, teaching quality, and student performance and that it contributes in some way to broadening the debate on effective approaches to school reform. At this moment, it is hard to imagine more important priorities for our economy and society.



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