

# Developing Communities of Instructional Practice

JONATHAN A. SUPOVITZ

*Consortium for Policy Research in Education, University of Pennsylvania*

*Many reforms today—including the small schools movement, efforts to build small learning communities, and teacher teaming structures—are based on the theory that organizing schools into smaller educational environments will help to build more collaborative and collegial communities of teachers, providing them with the autonomy and motivation to make better curricular and pedagogical decisions in the interests of their students and therefore improving student learning. Using multiple sources of data from a 4-year evaluation of a team-based schooling initiative in a medium-sized urban district, this study tests many of the assumptions underlying this theory. The results suggest that although these types of organizational reforms may succeed in improving the culture within which teachers teach, they alone are unlikely to improve instruction and student learning. The communities that develop are often not communities engaged in instructional improvement. For teacher communities to focus on instructional improvement, the author argues that communities need organizational structures, cultures of instructional exploration, and ongoing professional learning opportunities to support sustained inquiries into improving teaching and learning.*

If higher quality instruction improves student learning, then how can we develop better instruction, not just in one classroom or school but across an entire system of schools? This question cuts to the core of most educational reform debates. Many reformers have developed different strategies to address this challenge, but few have drawn clear and effective blueprints. This article tells the story of one school district's efforts to systematically improve instruction through the enactment of a teaming structure within its schools. Through this structure, district policy makers sought to take advantage of teachers' collective experience and familiarity with their students and focus teachers on the task of instructional improvement. Team-based schooling, they reasoned, would improve the culture of schooling, enhance the instructional practice of groups of teachers, and bring about higher levels of student learning.

The crafters of team-based schooling were implicitly testing a crucial theory of instructional improvement, one that is behind many reforms

today, such as efforts to build small learning communities within schools and the small schools movement. They posited that teachers would increase their instructional focus if they were organized into more intimate educational environments. Through these smaller group structures, teacher teams would develop more collaborative and collegial communities, what I will call communities of instructional practice. In communities of instructional practice, teacher teams continually explore their curricular and pedagogical strategies and the influences of these efforts on student learning. Grouping teachers in this manner, the theory goes, will not only maximize their collective knowledge and skills but also facilitate their learning of new knowledge and skills because adult learning is as much, if not more, of a group activity as it is an individual act.

In this article I tell the story of one district's efforts to develop communities of instructional practice in its schools. Specifically, I relate the findings of the Consortium for Policy Research in Education's (CPRE) evaluation of the Cincinnati Public Schools' ambitious experiment to engage teachers in group practice to improve their instructional practices and consequently increase student outcomes. Following this introduction, in section I, I describe the purpose and context behind the team-based schooling reform. In section II, I illustrate the theory of action of team-based schooling, both in the words of the education leaders of Cincinnati and through the research base for group practice. In section III, I briefly explain CPRE's evaluation and the methods used to conduct the analyses described in this article. In section IV, I detail the main findings of CPRE's evaluation. The article concludes with a discussion of the implications of these results for policy makers wishing to develop communities of instructional practice.

In writing this article, I have established three goals: (1) to contribute to what is known about the application of group practice to instructional improvement in schools; (2) to identify important and consequential dimensions of such practice; and (3) to describe the limitations of educational policy that relies primarily on organizational change to bring about improvements in instructional practice.

## SECTION I: THE LAUNCH OF TEAM-BASED SCHOOLING

In the 1996–1997 school year, the Cincinnati Public Schools (CPS), a medium-size urban district with 79 schools and just fewer than 50,000 students, undertook an ambitious comprehensive reform plan called *Students First*. The reform was designed to be a top-to-bottom restructuring effort focused on raising academic achievement, improving school safety, and reducing the dropout rate for all the district's students (Cincinnati Public Schools, 1996), of which roughly two thirds were Black and one third White. According to then-superintendent J. Michael Brandt, "We're not a Cadillac that

just needs a little fine-tuning. If we only tweaked around the edges we'd be sitting here five years from now and the results would be even worse" (Hendrie, 1996). The school board president at the time pronounced, "*Students First* is changing 'business as usual' in Cincinnati Public Schools" (Cincinnati Public Schools, 1997).

The district's reform blueprint included several components. As its primary instructional change policy, the CPS adopted team-based schooling, a school reorganization strategy in which teams of academic teachers take responsibility for developing appropriate instructional strategies to improve the performance of groups of students whom they teach over multiple years. The teams were to focus on the district's academic and behavioral standards, collaborate among themselves, work with parents and caregivers, and were held mutually accountable for their students' learning over time.

Team-based schooling was adopted, and the basic elements of its design were defined in the CPS's 1997 collective bargaining agreement with the Cincinnati Federation of Teachers (CFT). The codified guidelines for the reform included five key elements. First, teams, organized by the gateway grades (K-3, 4-6, 7-8, 9-10), were to be composed of 3-5 core subject academic teachers who were to stay with a group of students for at least 2 years. Second, teams were to develop a curriculum and select instructional methods and materials consistent with their school's program focus and also had power to decide how to schedule and group their students. Third, teams were to take responsibility for all students they served and work to ensure that they met the district and school learning objectives. Fourth, teams controlled funding for instructional supplies, materials, and personnel. Finally, teams were to stay together for several years to ensure maximum benefits from collaboration and longer term relations with students.

Other elements of *Students First* called for the setting of annual school targets for test performance, dropout rates, attendance, and disciplinary actions; the elimination of middle schools in favor of K-8 schools; a requirement for all nonmagnet schools to eventually embrace a whole-school change model; and movement toward a per-pupil budgeting system, whereby schools would have more autonomy over their spending decisions.

Cincinnati schools volunteered to become team-based. In 1998, eight schools adopted team-based schooling. In 1999, 12 additional schools became team-based. In 2000, 19 more schools adopted the initiative. As of the 2000-2001 school year, 41 CPS schools were team based. Both the CPS and CFT were strong advocates of team-based schooling and encouraged schools to adopt the initiative. The district offered schools several additional incentives for schools to adopt the initiative. Team-based schools were allowed greater flexibility for budgetary decision making and provided with additional release days for professional development and planning.

To become team-based, 80% of a school's faculty had to vote in favor of the initiative. In interviews, school faculty described a variety of motivations for adopting the reform. Some saw the district moving toward teaming and felt it was better to get on board early. As one school leader explained, "We saw the district moving in the direction of team-based schooling and we decided it was to our advantage to get on board sooner rather than later." Others sought the additional flexibility associated with being a team-based school. Others felt that district leaders "twisted their arms" to adopt the reform.

In practice, teams organized themselves in several different ways. In some cases, teams included teachers from the same grade level (i.e., all fourth-grade teachers), whereas in most cases teams were vertical (i.e., fourth-, fifth-, and sixth-grade teachers). Some teams interacted only as teachers, whereas others shared students. Some teams looped (i.e., teachers stayed with students for multiple years), whereas other teams had their members stay in fixed grade levels; others had mixed configurations. All teams had formal meeting time built into their schedules, but this differed widely by building and even within buildings. Typically, teams met once or twice a week for between 45 and 90 minutes. Other teams met informally far more frequently.

Each school in Cincinnati is governed by an Instructional Leadership Team (ILT), which acts as a governance structure for the school. The main foci of the ILT are decisions affecting the academic program and the climate of the school. Other ILT decisions take the form of recommendations to the school's Local School Decision Making Committee, which includes broader membership from the community. Team-based schools differed from other schools in the district in two important respects. First, in team-based schools, the ILT was made up of the leaders of each of the teacher teams in the school as well as the principal. Second, team-based schools were the first CPS schools given budget authority over expenditures for their school, and teams were given control over small budgets for supplies and other team expenses.

Teams received several formal professional development opportunities by the Mayerson Academy, an independent professional development provider for the district. In the summer before their schools became team based, school faculty members were paid to attend a 3-day training session. The training included specific sessions for team members, team leaders, and ILT members. Sessions primarily focused on team process skills. Additionally, team-based schools were given 6 early-release days and, in the year before a school converted to teaming, 2 additional release days. Teachers newly assigned to team-based schools after the school's conversion also received paid summer training prior to, or the summer following, their assignment to a team-based school. As teaming became more settled in the

district, Mayerson offered additional courses for credit for teams in the team-based schools. These included sessions on best practice, which were taught by “teams that are continuously improving their practice to improve student results,” conflict management, and school-based facilitator training for individuals in team-based schools to support team leaders and facilitate team meetings.

In addition to training at Mayerson, the district provided additional support to team-based schools through a district-organized structure called the Inter-School Council. The principal and the chair of the ILTs in each team-based school were invited to attend the monthly meetings. In addition, the project team from the district was available on request to visit schools to discuss any issues related to implementing the team-based concept. The meetings were designed to provide regular communication between the district and the team-based schools and opportunities for school leaders to share ideas and experiences.

Team-based schooling was not the only reform movement afoot in Cincinnati. At the time that team-based schooling was being implemented, the district was also working with New American Schools and requiring that all schools in the district implement a whole-school reform model. Consequently, team-based schools were also simultaneously adopting such models as Expeditionary Learning/Outward Bound, Co-NECT, Roots & Wings, and Paideia. Additionally, several years after initiating team-based schooling, the district also contracted with the Education Trust in Washington, DC, to implement Standards in Practice (SIP) in some of its schools. Thus, in some team-based schools, district-employed SIP coaches were working with teams to align assignments, standards, student work, and assessments.

It should also be noted that, from many teachers’ perspectives, teaming was not a new thing. Teacher collaboration and some team teaching were common educational practices in Cincinnati. In fact, some form of teaming was practiced by most teachers in elementary and middle schools. Teaming was less common in high schools. Overall, 79% of elementary teachers, 73% of middle school teachers, and 45% of high school teachers reported on a 1999 CPRE survey that they teamed with at least one other teacher. In most cases, the teaming in non-team-based schools is horizontal (teaming with teachers within a grade level), whereas teaming in team-based schools is mostly vertical (teaming across grade levels).

Finally, reforms never unfold in a vacuum. Given the tussle of local education politics, conditions can change dramatically. During the 4 years (1997–2000) that are covered in this article, a number of important events occurred in the district and community that influenced the milieu within which team-based schooling evolved. Included in these were a transition of the CPS superintendency from J. Michael Brandt, one of the architects of team-based schooling, to Steven Adamowski in 1998. Unexpected district-

wide budget cuts in 1999 had a substantial impact on the resources available in most schools and sometimes led to staff reductions that affected teams. Still other major changes, such as the district's K-8 reorganization and the planned shift to open enrollment for high schools, had serious implications for some team-based schools. Other developments in the district—the adoption of a new facilities plan that targeted some schools for eventual closure, the expansion of charter schools, and contentious contract negotiations between the district and the teachers' union in 2000—generated considerable anxiety and undermined morale among teachers. The overall climate of rapid change and uncertainty disturbed some teachers' confidence in the stability of their teams and in the future of the team-based reform.

## SECTION II: THE THEORY OF ACTION OF TEAM-BASED SCHOOLING

In this section, I discuss the theory of action behind team-based schooling from two perspectives. First, I report on the views of leaders of the educational community in Cincinnati at the inception of the reform. Second, I put their theory of action into the context of the research literature on group practice. As we will see, the literature base comes from several disciplines, including organizational sociology, business, and education.

### DISTRICT VISION OF REFORM

In 1997, CPRE researchers interviewed 14 leaders of the Cincinnati education community about team-based schools. Interviewees included leaders of the Cincinnati Public Schools, Cincinnati Federation of Teachers, school board members, and the Mayerson Academy, the district's main professional development provider. Interviewees were asked what the team-based schooling initiative was about, how it was supposed to work, what it was intended to accomplish, and how they would know if it was successful.

Education leaders emphasized improving student achievement and the quality of students' educational experiences as their overall expectations for team-based schooling. As to how this would come to be, leaders hypothesized that team-based schooling would impact the district in a variety of ways. The influences that were mentioned can be loosely organized around four inter-related themes: a more student-focused school culture, decentralized control, more focused curriculum and instruction, and increased accountability.

Leaders envisioned a series of influences that can loosely be called a more student-focused school culture. Under this element of their vision, a series of new relationships and norms would develop in team-based schools. Teachers would get to know students better, lose less time at the beginning

of the school year, and deal with discipline issues more effectively. Additionally, teachers would be more informed as they designed instruction, and, as they dug deeper into student impact data, they would be more effective in meeting students' needs. One leader stressed that teams would form communities, providing a greater reflection of the democracy in which we live.

Leaders described how they expected teaming to shift decision making about curriculum and instruction from the district to schools to teams of teachers, giving school staff a greater role in critical decision making about their work and greater control of their budgets. They saw this devolution of authority driving related changes in the central office while giving schools greater autonomy from the central office. In these ways decentralization, along with increased accountability, would lead schools and teams to allocate their resources more productively.

The education leaders also stressed that team-based schooling would increase teachers' focus on curricular and instructional issues. They felt that attention to the curriculum standards would increase, improving curricular planning and alignment. They expected that teachers would make more fine-grained decisions about configurations of students, resulting in more individualized instruction. They also expected that looping (teachers staying with the same group of students for multiple years) would push teachers to expand their curriculum knowledge.

Finally, the local leaders felt that team-based schooling would increase the accountability of teachers. They described how the new teams would give teachers a greater sense of students' accomplishments and encourage them to take more responsibility for the progress and success of individual students. Because each of the teams would be responsible for preparing students for one of the gateway grades at which promotion benchmarks must be met, all teachers would share the responsibility that had previously rested more heavily on those teachers assigned to the gateway grades. Further, it was envisioned that a culture of peer pressure and competition would emerge in the effective team-based schools, propelling teachers to higher quality instructional levels.

#### THE LITERATURE BASE FOR GROUP PRACTICE

Although Cincinnati's education leaders did not articulate it as such, the implicit theory of instructional improvement underlying the grouping of teams of teachers into organizational units as a means for improving educational outcomes comes from the organization literature on group practice.

Organizational theorists (Galbraith, 1994; Mohrman, Cohen, & Mohrman, 1995) argue that team-based work organizations are an effective response to the pressures of increasingly competitive environments and the rise of

knowledge-based work. Traditional approaches, which rely on hierarchically determined decisions, goals, rules, programs, and job descriptions, are seen as insufficient in the dynamic, complex, and demanding world now faced by many companies. Many economic and education researchers (e.g., Resnick & Hall, 1998; Thurow, 1999) have used the parallel of the U.S. economy's 20th century factory production and the traditional education model based on memorization in contrast to today's global economy and the more highly skilled and sophisticated workforce that our education system is required to produce to compete within it. A knowledge-based workforce, they reason, requires more collaborative work environments and schools equipped to prepare these workers.

The group practices that underlie learning organizations are seen as a means of producing more effective organizations. Deming (1986), in his work on total quality management, argues that quality is achieved through constant incremental improvement and that teams, including cross-functional teams, facilitate the necessary communication and feedback for ongoing organizational improvement. Senge's (1990) influential work focused on five disciplines that are characteristic of highly effective businesses. These include team learning, shared organizational vision, system's thinking, individual mastery, and mental modeling. Organizations excellent in learning have a rich constellation of teams and networks that span parts of the organization and connect knowledge and perspectives (Mohrman, Mohrman, & Lawler, 1992).

To develop effective group practices, individuals have to interact to form relationships in substantive and particular ways. Wenger (1998) developed a social theory of learning that he calls communities of practice. Using a case study of insurance claims processors, he articulates the attributes of communities of practice and identifies three key components. First, communities of practice mutually engage on the task at hand. Second, they communally negotiate the contours and focus of their joint enterprise. Third, they develop a set of shared repertoires to effectively address their work. Even in highly structured industries, highly practicing communities are constantly being refined and honing these elements. According to Wenger, a community of practice "is a matter of sustaining enough mutual engagement in an enterprise together to share some significant learning. From this perspective, communities of practice can be thought of as shared histories of learning" (p. 86).

Within education, a key rationale for teacher community is that it provides an ongoing setting for teacher learning (see, e.g., Darling Hammond & Sykes, 1999). McLaughlin and Talbert (2001), focusing on high school departments, argue that the development of professional communities is an effective way to improve instruction and prepare students for a productive place in today's complex and demanding society. Resnick and Hall (1998) developed a similar notion that they called learning communities. They argue that having all students meet standards requires a new form of learn-



ing, which they call knowledge-based constructivism and effort-based learning. They contend that for schools to provide this more challenging and complex education to students, they will have to become learning organizations that employ strategies such as interactive classroom coaching, common meeting times, classroom visitations, and frequent collegial conversations about student work.

Two other related trends in education have also become intermingled with this debate. First is team teaching, whereby teachers band together to teach children collaboratively. The “bold new venture” of team teaching goes back at least to the 1960s (Beggs, 1964). Team teaching, often interdisciplinary, is a common middle school teaching strategy (Merenbloom, 1991). Team teaching is seen as a way to improve teacher collegiality, enhance control over curricular and instructional decisions, and foster a school-based community (Corcoran, Walker, & White, 1988; Kruse & Seashore Lewis, 1997). Team teaching has generally produced disappointing results (Thomas, 1992). The early failures of teaming were attributed to a lack of organizational support, planning time, and role conflict (Cohen, 1976; Hargreaves, 1980). Friedman (1997) offers a detailed account of one teacher team that developed an innovative vocational design within an urban high school. Friedman argues that teaming requires changes to traditional teaching roles and school structures and that these changes are more complex than those typically envisioned by the proponents of teaming. The success of teaming therefore appears to depend on its ability to not be merely an organizational or structural reform but one that promotes and supports changes in how teachers teach.

The second trend within education is efforts to devolve decision making authority to schools and subunits within schools. Mohrman and Wohlstetter (1994) described the various types of devolved management structures that have been adopted in the past under the general rubric of school-based management. These reforms operate under the belief effective decision making should be rooted closest to those who are most knowledgeable of, and closest to, the students whom these decisions impact. School-based management has been implemented in various guises in the 1980s and 1990s (Weiss, 1992), most recently in the melding of local autonomy within a system of accountability (Fullan, 1994). This trend grows out of research on the relationships between local autonomy and the creation of professional communities with shared purpose and high levels of collaboration (Newmann & Wehlage, 1995). Other researchers (Lee & Smith, 1994) have established a relationship between small organizational units and improved student outcomes. This has led to central reform strategies based on localized and small learning communities (Christman, Cohen, & MacPherson, 1997).

Based on the Cincinnati education leaders’ description of the theory of action of the team-based schooling reform and informed by the literature

base, the premise of team-based schooling is that schools, with district support and professional development guidance and constructed of targeted teaching teams, will develop more collaborative cultures and more targeted instructional practices. This collaboration and instructional focus will, in turn, result in higher levels of student performance.

The purpose of this article is to test the key tenets of this theory. Through empirical analyses based on data from Cincinnati, I address the following questions:

1. Did teaming influence the culture within which teams operate?
2. Did teaming change teachers' instructional practices?
3. Did teaming improve student learning, as measured by standardized test performance?

### SECTION III: EVALUATION METHODS

In this section, I describe the data sources used to answer the research questions for this study and the analytical methods used to analyze these data.

#### DATA SOURCES

The data for this article come from CPRE's evaluation of team-based schooling (Supovitz, 1998; Supovitz & Watson, 1999; Supovitz & Watson, 2000). Data that informed CPRE's evaluation came from six primary sources. First, CPRE administered an annual survey to all teachers and administrators (approximately 3,000) in each of the 79 schools in the district. Because the district provided staff meeting time each spring for completion of the survey, responses rates were high, 81% in 1998, 87% in 1999, and 84% in 2000. Second, the CPRE research team conducted a series of interviews with district administrators and other members of the Cincinnati education community about the reform and the context under which it was rolling out.

Third, CPRE researchers visited a sample of team-based schools each year from 1997–1998 to 1999–2000. Depending on the school size, researchers spent approximately 4 to 7 days at each site interviewing team members and administrators and observing classroom instruction, team meetings, and ILT meetings. Fourth, each summer and at times during the school year, CPRE research team members attended several sessions of the Mayerson Academy's professional development activities designed specifically for faculty of team-based schools. Fifth, CPRE research team members collected and analyzed a variety of documents relevant to team-based schooling, including a sample of team portfolios, team meeting minutes, district documentation of the team-based

school initiative, school budgets, Interschool council minutes, staff attendance documentation, and CPS research and evaluation reports.

Finally, CPRE analyzed student test results from both district and state assessments. Using student-level data from Grades 3–8, we constructed models that compared team-based and non-team-based schools' performance and examined the relationships between team instructional practices and student achievement. Although high school achievement data were available, we did not use them for these analyses because, beginning in the eighth grade, students were given multiple opportunities to pass the same test. Therefore, ninth graders taking the test included only those who did not pass at the end of the eighth grade, and so on until graduation.

## ANALYTICAL METHODS

Much of the analyses in this article are based on a series of survey scales constructed from the population survey completed by Cincinnati teachers in the springs of 1998, 1999, and 2000. Many of the survey scales have been previously validated (Consortium for Policy Research in Education, Research for Action, & OMG Center for Collaborative Learning, 1998; Sebring et al., 1995), whereas others were constructed through confirmatory factor analysis (Supovitz, 1998).

In all, we constructed three types of scales from survey items. First, using items that were asked of teachers in both the team-based and non-team-based schools, we constructed school culture scales that represented different dimensions of school culture. These were used to compare the culture of team-based and non-team-based schools over time. Second, we constructed two individual-level teacher instructional practice scales that we used to compare the teachers in team-based and non-team-based schools. Third, using the survey data solely from the teachers in the team-based schools, we constructed team average scales of three dimensions of team instructional practice. The scales that are used as the basis for analysis in this article are briefly described below. The items that underlie each scale, their reliabilities, and the methods by which the scales were constructed are described in Appendix A.

### *School Culture Scales*

The school culture scales were developed from survey items administered in both team-based and non-team-based schools.

1. Peer Collaboration (four items)—Gauge the extent of faculty cordiality and collaboration around instructional, curricular, and administrative issues

2. **Collective Responsibility** (seven items)—Measure the level at which school faculty feel responsible for the student body and the broader school environment beyond their specific students or assignments
3. **Deprivatization** (five items)—Assess the extent to which teachers observe each other and receive suggestions or other feedback from colleagues
4. **Reflective Dialogue** (nine items)—Identify the extent of teachers' meaningful interactions with colleagues related to instructional and curricular issues
5. **Faculty Influence** (eight items)—Classify faculty involvement in a variety of school-related decisions, including staffing, finance, and other planning areas

#### *Instructional Practice Scales*

These scales were developed from survey items administered in both team-based and non-team-based schools.

1. **Individual Teacher Instructional Practice** (eight items)—Assess the frequency that individual teachers employ instructional preparation and practice strategies
2. **Group Instructional Practices** (seven items)—Measure the frequency individual teachers worked with at least one other teacher in their school on instructionally related issues

#### *Team Instructional Practice Scales*

The team instructional practice scales were developed from survey items administered just in team-based schools.

1. **Academic Preparation Strategies** (six items)—Gauge the frequency that teams work together in preparation for instruction
2. **Student Grouping Strategies** (three items)—Appraise the extent to which teams flexibly group students for specific instructional purposes
3. **Team Teaching Practices** (two items)—Evaluate the frequency that team members co-teach and observe each other's instruction

Using these survey scales, a variety of analyses were completed using appropriate statistical methods. *T*-tests were used to compare the means of team-based and non-team-based teachers. Chi-square analyses were used to examine

differences in the proportion of teams in low-, moderate-, and high-use instructional practice categories over time.

To compare the performance of students in the team-based and non-team-based schools, ordinary least squares (OLS) regression analyses were conducted at Grades 4 through 8 in five subjects: reading, writing, mathematics, science, and citizenship. Student performance beyond Grade 8 was not used because after Grade 8 students are given repeated opportunities to pass the high school graduation test. Each model took the following form:

$$\begin{aligned}
 &2000 \text{ standardized achievement for particular subject} \\
 &= \beta_0 + \beta_1 (1999 \text{ standardized achievement in subject}) \\
 &\quad + \beta_2 (\text{student gender}) + \beta_3 (\text{student ethnicity}) \\
 &\quad + \beta_4 (\text{student lunch assistance}) \\
 &\quad + \beta_5 (\text{attendance in team-based school})
 \end{aligned}$$

To facilitate interpretation in both 1999 and 2000, achievement scores were standardized. Although these models represent a mixture of student- and school-level variables, I have not used multilevel modeling because the results are minimal and, even so, are likely to overrepresent the effects of more complex modeling strategies.

To examine the relationship between team instructional practices and the achievement of students on that team, I conducted a series of hierarchical linear models (HLM). At the student level, the models controlled for student achievement in 1999, student ethnicity, gender, and lunch assistance. At the team level, the models controlled average team member experience and team practice. The team practice measure was the team average of teams' use of the three group instructional practice scales—academic preparation strategies, collective team practices, and team student grouping strategies. More particularly, the models were specified as follows:

Level 1: 2000 standardized student achievement for particular subject

$$\begin{aligned}
 &= \beta_0 + \beta_1 (1999 \text{ standardized student achievement in subject}) \\
 &\quad + \beta_2 (\text{student gender}) + \beta_3 (\text{student ethnicity}) \\
 &\quad + \beta_4 (\text{student lunch assistance})
 \end{aligned}$$

Level 2:  $\beta_0 = \gamma_1$  (Team average experience)

$$\quad + \gamma_2 (\text{team instructional practice})$$

Again, student achievement scores were standardized to facilitate interpretation.

## SECTION IV: RESULTS

In this section, I describe many of the results of CPRE's evaluation of team-based schooling in Cincinnati. The section is patterned to address the three main research questions of this article: (1) Did teaming influence the culture within which teams operate? (2) did teaming change teachers' instructional practices? and (3) did teaming improve student performance?

### EFFECTS OF TEAM-BASED SCHOOLING ON SCHOOL CULTURE

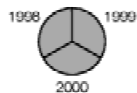
The crafters of team-based schooling theorized that teaming would influence the culture of schools within which the reform was enacted because teachers would feel more involved in decisions at their school and collaborate more. To test this hypothesis, I compared the culture of team-based and non-team-based schools on the five dimensions of school culture that were queried through the annual survey. These included faculty influence, peer collaboration, deprivatization, collective responsibility, and reflective dialogue. These scales are described in greater detail in the previous section of this article.

The results of 3 years of comparing the teachers (including both regular education and special education) in the team-based schools with those in the non-team-based schools on the five scales of school culture are shown in Figure 1. Each pie chart shows the results for that school culture scale of statistical tests of difference between teachers in the team-based and non-team-based schools in 1998, 1999, and 2000. The shaded slices indicate the years in which the teachers in the team-based schools had statistically significantly higher levels of that scale than did the teachers in the non-team-based schools. In no cases did the teachers in the non-team-based schools have significantly higher levels on a scale than did the teachers in the team-based schools. Areas not shaded indicate no statistical differences between teachers in the two types of schools. Because patterns were different at different grade levels, the results are decomposed for teachers in the elementary grades (K-6), middle grades (7-8) and high school grades (9-12).<sup>1</sup> The actual scores for each of the scales over time and the tests of statistical significance can be found in Appendix B.

For all teachers there is strong and persistent evidence that there are differences between team-based and non-team-based schools on three of the five scales. Teachers felt more involved in a variety of school-related decisions (faculty influence), had higher levels of collaboration with their peers (peer collaboration), and reported significantly more interaction with

## All Teachers

### Faculty Influence



### Peer Collaboration



### Deprivatization



### Collective Responsibility

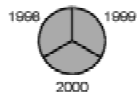


### Reflective Dialogue



## Elementary Teachers

### Faculty Influence



### Peer Collaboration



### Deprivatization



### Collective Responsibility

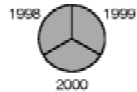


### Reflective Dialogue



## Middle School Teachers

### Faculty Influence



### Peer Collaboration



### Deprivatization



### Collective Responsibility

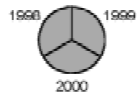


### Reflective Dialogue



## High School Teachers

### Faculty Influence



### Peer Collaboration



### Deprivatization



### Collective Responsibility



### Reflective Dialogue



Figure 1. Mean comparisons of team-based and non-team-based teachers' responses on survey scales by grade level. Gray shaded areas indicate that team-based teachers scored significantly higher on that scale in that year than did non-team-based teachers.

their peers (deprivatization). Only in 1998 did teachers in the team-based schools report sharing a greater sense of responsibility for the school community beyond their individual students (collective responsibility). This is perhaps a by-product of the structure of the school community as teams rather than as a collective whole. Perhaps most notable is the absence of differences between team-based and non-team-based schools on the reflective dialogue scale, which measured the extent that teachers had meaningful discussions around curricular and instructional issues. If teaming was frequently influencing instructional practice, one would expect it to influence this measure.

The patterns on the school culture variables for all teachers mask some differences between K-6th-, 7th-8th-, and 9th-12th-grade teachers. High school teachers in the team-based schools were more likely to report higher levels of peer collaboration than were elementary or middle grade teachers, who only reported a higher level of peer collaboration in 1 of the 3 years. Differences between team-based and non-team-based teachers on the scale of deprivatization, a measure of the extent that teachers interacted with their peers, were more pronounced in middle and high school grades but less so in the elementary grades. This result may be due to the more open nature of the elementary school environment. Differences in collective responsibility were found in 2 of the 3 years at the high school but only in 1 of the 3 years between team-based and non-team-based teachers in the elementary and middle grades. Finally, differences in reflective dialogue, a measure of the extent to which teachers have meaningful interactions around instructional issues, was more prevalent in team-based high schools but not at the middle or elementary grades.

#### RELATIONSHIP BETWEEN TEAMING AND TEACHERS' INSTRUCTIONAL PRACTICES

I examined the effect of teaming on teachers' instructional practices in four ways. First, I compared the individual instructional practices of teachers in team-based and non-team-based schools in 2000. Second, I compared the group instructional practices of team-based and non-team-based teachers in 2000. Third, within team-based schools, I looked at the trends in average group practice on three dimensions of group instructional practice from 1999 to 2000. Because a third cohort of schools became team-based in 2000, for this trend analysis I only looked at the 20 schools in the first two cohorts of team-based schools. Finally, I recoded the group practice scales into three levels of use (low, moderate, and high) to better understand the proportions of teams practicing at these three levels of group practice and whether there were changes in levels of group practice from 1999 to 2000.



Table 1 shows a comparison of team-based and non-team-based teachers' individual and group instructional practices in 2000. The measure for individual practices—instructional practices that teachers used individually but not as a group—is a scale made up of eight survey items that ask teachers about the frequency with which they practice activities that are related to instruction, such as using test data, student work, or both, to plan for instruction; using rubrics to assess student work; and examining the alignment between the district's standards, curriculum, assignments, and student work.

Overall, there were no differences between team-based and non-team-based teachers on the measure of individual instructional practices. However, this overall lack of difference masks statistically significant differences between the individual instructional practices of secondary teachers. Both middle-grade and high school teachers in team-based schools in 2000 had significantly higher levels of individual instructional practices than their peers in non-team-based schools. The overall lack of difference is attributable to the fact that there were no differences between the individual instructional practices of elementary teachers in team-based and non-team-based schools, the largest subgroup. It is also important to note that ele-

**Table 1. Mean comparisons by grade level for 2000, team-based and non-team-based teachers grouped by type of instructional practice (with standard deviations in parentheses).**

	Individual Instructional Practice		Group Instructional Practice	
	Team-based Teachers ( <i>n</i> = 1,307)	Non-Team-based Teachers ( <i>n</i> = 1,052)	Team-based Teachers ( <i>n</i> = 1,320)	Non-Team-based Teachers ( <i>n</i> = 1,084)
All Teachers ( <i>n</i> = 2,359)	3.81 (0.85)	3.81 (0.91)	3.39 (0.87)	3.37 (0.91)
Elementary Teachers (K–6) ( <i>n</i> = 1,426)	3.95 (0.77)	3.92 (0.82)	3.52 (0.85)	3.51 (0.88)
Middle Grade Teachers (7–8) ( <i>n</i> = 534)	3.78*** (0.89)	3.48 (1.02)	3.32* (0.89)	3.15 (0.95)
High School Teachers (9–12) ( <i>n</i> = 530)	3.45*** (0.90)	3.13 (0.98)	3.15*** (0.84)	2.78 (0.81)

*T*-test comparisons made between respondents in each subgroup. \*\*\* $p \leq .001$ , \* $p \leq .05$ . Sample sizes vary slightly by subgroup due to missing values.

mentary teachers reported higher levels of individual instructional practices than did middle or high school teachers, almost 4 (which translates to once or twice weekly) on the 5-point scale. In both team-based and non-team-based schools, middle grade teachers reported lower levels of these instructional practices, whereas high school teachers reported substantially less attention to the types of individual instructional practices that were assessed.

The right side of Table 1 compares the 2000 survey responses of teachers in team-based and non-team-based schools about their group instructional practices. The measure of group instructional practices measures the frequency that individual teachers worked with at least one other teacher in their school on instructionally related issues. The patterns of group instructional practice were similar to those found in the measure of individual instructional practice. There was no overall difference between team-based and non-team-based teachers, which was largely driven by similarities in group practices of elementary teachers in both team-based and non-team-based schools. Both middle-grade and high school teachers in team-based schools in 2000 employed the identified group instructional practices significantly more frequently than did their counterparts in non-team-based schools. As with individual instructional practices, there was a pattern across all schools between frequency of use of group instructional practices and grade level; elementary teachers reported more frequent use of group instructional practices than did middle school teachers, and high school teachers reported the least use of these practices.

Thus far we have examined the individual and group practices of teachers in both the team-based and non-team-based schools to look for differences between them. But I was also interested in the group instructional practices of the teams within the team-based-schools to determine whether the use of these group practices was increasing as teams matured. To address this question, I used three dimensions of group instructional practice that were represented by team average responses to a series of survey questions. The first scale, academic preparation strategies, was made up of six survey items that asked teachers about the frequency that, as a team, they did a variety of activities related to instructional planning and preparation. The second scale, collective teaching practices, was made up of two questions about teams' coteaching and observing of each others' instruction. The third scale, student grouping strategies, measured the frequency that teams purposefully and temporarily regrouped students for particular instructional purposes. These kinds of student grouping strategies are distinct from what we traditionally think of as tracking in that they are flexible, temporary, and targeted for particular instructional purposes. These scales are described in greater depth in the evaluation methods section of this article, and the individual items are listed in Appendix A.

The average team scores on the three scales of group instructional practice—academic preparation strategies, collective teaching practices, and student grouping strategies—in 1999 and 2000 for all teams and for elementary, middle, and high school teams are shown in Table 2. Scores for all three scales are on a 5-point range from *Never* to *All or most of the time*. Overall, teams’ use of academic preparation strategies remained static from 1999 to 2000. Only high school teams, who reported lower use of academic preparation strategies, had slightly more frequent uses of these strategies from 1999 to 2000, but these differences were not statistically significant. There were also no differences in the frequency that teams used collective teaching practices from 1999 to 2000. All three grade-level groupings of teams reported similar frequencies of use of collective teaching practices from 1999 to 2000.

The frequency with which teams employed student grouping strategies was also similar in 1999 and 2000. Only high school teams reported a statistically significant more-frequent use of student grouping strategies from 1999 to 2000. At all other grade ranges, team use of student grouping strategies remained the same during the 2 years of the study.

What proportion of teams have high levels of group instructional practice and are these proportions increasing over time? Although Table 2

**Table 2. Mean comparisons by grade level and across years for team-based teachers on instructional practice scales (with standard deviations in parentheses).**

	Academic Preparation Strategies		Collective Teaching Practices		Student Grouping Strategies	
	1999 ( <i>n</i> = 123)	2000 ( <i>n</i> = 137)	1999 ( <i>n</i> = 123)	2000 ( <i>n</i> = 143)	1999 ( <i>n</i> = 123)	2000 ( <i>n</i> = 137)
All Teams ( <i>n</i> = ~268)	3.22 (0.58)	3.25 (0.59)	2.23 (0.76)	2.28 (0.70)	2.97 (0.86)	3.08 (0.75)
Elementary (K–6) Teams ( <i>n</i> = ~155)	3.28 (0.58)	3.29 (0.64)	2.22 (0.71)	2.24 (0.69)	3.21 (0.79)	3.20 (0.76)
Middle Grade Teams (7–8) ( <i>n</i> = ~51)	3.35 (0.60)	3.32 (0.50)	2.44 (0.84)	2.47 (0.69)	3.04 (0.80)	3.00 (0.77)
High School Teams (9–10) ( <i>n</i> = ~60)	2.89 (0.48)	3.10 (0.51)	2.05 (0.79)	2.24 (0.72)	2.18 (0.65)	2.82*** (0.66)

*T*-test comparisons made between respondents in each subgroup. \*\*\**p* ≤ .001  
Sample sizes vary slightly by subgroup due to missing values.

demonstrates teams' average use of group instructional practices over time, it does not show the distribution of teams' frequency of use of each of the three dimensions of group practice. The data presented in Table 3 show the proportion of teams at each grade level with low, moderate, and high frequency of use of the three dimensions of group instructional practice over time. The data in Table 3 were produced by taking team average scores for each of the three scales and recoding them to a 3-point scale reflecting low-, moderate-, and high-frequency use of the collective items for that scale.<sup>2</sup>

Most teams, about 60%, reported moderate use of academic preparation strategies. There were no statistically significant changes in the frequency that teams employed academic preparation strategies from 1999 to 2000. High school teams reported the only discernable change, reporting more frequent (but not statistically significant, given the small number of teams in the sample) use of academic preparation strategies from 1999 to 2000.

Overall, there were also no significant changes in the frequency that teams reported using collective teaching practices from 1999 to 2000. Across all teams in both years, about 70% of the teams reported low use, about a quarter reported moderate use, and only 5% reported high use. Middle grade (Grades 7–8) teams reported somewhat more frequent use of collective teaching practices than did either elementary or high schools teams.

Student grouping strategies were also largely stagnant from 1999 to 2000. In both years, about 25–30% of teams reported low use, about 45% reported moderate use, and about 30% reported high use. Elementary teams reported somewhat more frequent use than did middle or high school teams. It was only within high school teams that there was significant growth in the frequency of use of student grouping strategies. A significant shift is apparent at all levels of high school team use of student grouping strategies.

Thus, the overall pattern apparent from Table 3 is that only about one quarter of teams overall are engaging in high levels of group instructional practice. There is also some variation both across the grade levels of teams and the dimensions of group instructional practice. About one third of elementary and middle grade teams can be characterized as high practicing, whereas only about 20% of high school teams can be thus described. Additionally, teams are more likely to frequently engage in academic preparation strategies and student grouping strategies than they are to employ collective teaching practices.

#### IMPACT OF TEAMING ON SCHOOL-WIDE ACHIEVEMENT

Given that only about one quarter of teams are engaged in high levels of group instructional practice, it is perhaps not surprising that there were no discernible patterns of higher student performance in team-based schools

**Table 3. Percentages of teachers in low, middle, and high practice groups by grade level from 1999 to 2000.**

Grade Level	Scale	Low Use		Moderate Use		High Use	
		1999 ( <i>n</i> = 123)	2000 ( <i>n</i> = 137)	1999 ( <i>n</i> = 123)	2000 ( <i>n</i> = 143)	1999 ( <i>n</i> = 123)	2000 ( <i>n</i> = 137)
All Teams ( <i>n</i> = 268)	Academic Preparation Strategies	11	9	61	58	28	33
	Collective Teaching Practices	72	70	24	25	5	6
	Student Grouping Strategies	30	23	43	47	27	30
Elementary (K–6) Teams ( <i>n</i> = 155)	Academic Preparation Strategies	8	7	62	57	30	36
	Collective Teaching Practices	74	73	22	24	4	4
	Student Grouping Strategies	18	17	47	48	35	35
Middle Grade (7–8) Teams ( <i>n</i> = 51)	Academic Preparation Strategies	8	4	52	65	40	31
	Collective Teaching Practices	56	62	36	31	8	8
	Student Grouping Strategies	24	27	52	46	24	27
High School (9–10) Teams ( <i>n</i> = 54)	Academic Preparation Strategies	25	17	67	57	8	27
	Collective Teaching Practices	79	69	17	22	4	8
	Student Grouping Strategies*	75	33	21	47	4	20

Chi Square test comparisons made between respondents in each subgroup. \* $p \leq .05$

Sample sizes vary slightly by subgroup due to missing values.

when they were compared with non-team-based schools. To investigate the relationship between team-based schooling and student achievement, I constructed a series of OLS regression models that examined individual-level student performance in Grades 3 through 8 in writing, reading, mathematics, science, and citizenship. To facilitate interpretation in both 1999 and 2000, achievement scores were standardized. Each model thus attempted to isolate the influence of teaming on student achievement in the 1999–2000 school year. Table 4 shows the coefficients for attendance in team-based schools for each of the 25 regression models.

There is no clear pattern discernible from Table 4. Of the 25 regression results, 3 are statistically significant in favor of students in team-based schools, 7 are significant in favor of students in non-team-based schools, and in 15 cases, there is no statistical difference between the two groups. Given the large sample sizes and consequent likelihood of statistical difference, it is noteworthy that the magnitude of the differences are strikingly small, in most cases less than .1 *SD* between the performance of the students in the team-based and non-team-based schools.

#### RELATIONSHIP BETWEEN TEAM INSTRUCTIONAL FOCUS AND STUDENT ACHIEVEMENT

Given the lack of relationship between teaming and school achievement, do we even know that team instructional focus is related to student perfor-

**Table 4. Coefficient and standard error associated with team-based schooling variable for each academic subject and grade level.**

Subject	Grade 4 ( <i>n</i> = 2,868)	Grade 5 ( <i>n</i> = 2,584)	Grade 6 ( <i>n</i> = 2,628)	Grade 7 ( <i>n</i> = 1,918)	Grade 8 ( <i>n</i> = 2,034)
Writing	-.18*** (.03)	.05 (.03)	-.09** (.03)	-.19*** (.04)	.04 (.03)
Reading	-.003 (.02)	-.01 (.03)	-.02 (.03)	.04 (.04)	.003 (.04)
Mathematics	-.03 (.02)	.001 (.03)	-.09*** (.03)	.09** (.03)	.03 (.02)
Science	-.02 (.03)	-.007 (.03)	-.06* (.03)	.06** (.02)	.03 (.02)
Citizenship	-.09** (.03)	.05 (.03)	-.10*** (.03)	.003 (.03)	.08** (.03)

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

Sample sizes vary slightly by subgroup due to missing values.

mance? In this section I shed light on this question by constructing a series of models that look at the relationship between team instructional practices and the achievement of students on that team. This analysis links the individual-level 2000 achievement data of students on a team with the team average survey data from 2000. Because of the nested relationship of students within teams, the analysis employs hierarchical linear modeling, which is generally acknowledged in educational research as a more precise way to estimate the effects of reforms that cross multiple levels of the educational system.

In all, 25 models were constructed, one for each grade level and subject. The coefficients for the team group instructional practice variable can be seen in Table 5. Overall, there is a clear pattern of a relationship between the degree of team use of group instructional practice and student achievement. In 14 of the 25 tests there was a positive and statistically significant relationship between group instructional practices and student achievement. In only one case (seventh-grade mathematics) was the relationship negative and significant.

Across subjects, the most persistent patterns were in writing, where the relationships between group instructional practice and student achievement were significant in all but Grade 8. Effects were least detectable in science and reading, where only two of the five grades tested revealed significant relationships between group instructional practice and student achievement.

The magnitude of effects ranged from just under .25 *SD* (fourth-grade writing) to .05 *SD* (fifth-grade citizenship). Most of the significant effects

**Table 5. Coefficient and standard error for hierarchical linear models relating team instructional practice and student achievement.**

Subject	Grade 4 (teams = 26) (students = 509)	Grade 5 (teams = 23) (students = 450)	Grade 6 (teams = 23) (students = 444)	Grade 7 (teams = 24) (students = 404)	Grade 8 (teams = 22) (students = 781)
Writing	.23** (.07)	.15* (.07)	.16* (.07)	.09~ (.05)	.02 (.11)
Reading	.02 (.06)	.05 (.05)	.09~ (.05)	.08~ (.05)	-.08 (.06)
Mathematics	.07~ (.04)	.13* (.06)	.19*** (.04)	-.12* (.06)	.01 (.05)
Science	.03 (.07)	.17** (.06)	.21*** (.05)	-.03 (.07)	-.06 (.06)
Citizenship	-.01 (.06)	.05~ (.03)	.11* (.05)	.03 (.05)	.08~ (.05)

\*\*\* $p \leq .001$ ; \*\* $p \leq .01$ ; \* $p \leq .05$ .; ~ $p \leq .10$

Sample sizes vary slightly by subgroup due to missing values.

were about .10 *SD* in size. In other words, each standard deviation more frequently a team employed group instructional practices was associated with about .10 *SD* higher test performance. Although these effects are not huge, they do significantly distinguish between the student performance of high-practicing and low-practicing teams.

#### SUMMARY

The results of this study point to a provocative story. The team-based schooling initiative seems to have had clear effects on the culture of schools. Teachers in the team-based schools felt more involved in a variety of school-related decisions and reported higher levels of interaction and collaboration with their peers than did teachers in the non-team-based schools. However, these school culture characteristics did not translate into greater instructional focus. Overall, neither the individual nor group instructional practices of teachers in the team-based schools were significantly different than those of teachers in the non-team-based schools, although there were statistical differences (at lower average levels) for teachers in the middle and high school grades. The caveat to these results is that because schools volunteered to be team based, the practices of their staffs may have differed to begin with.

Within the team-based schools, only about a quarter of the teams across the district were frequently practicing the three dimensions of group practice—academic preparation strategies, collective teaching practices, and student grouping strategies—that were measured. Further, these levels of group practice were static from 1999 to 2000, suggesting that teams were not substantially deepening their practice over time.

The low levels of group practice within the team-based schools may explain why there was no clear pattern of statistically significant differences in student achievement between the team-based and non-team-based schools. However, further exploration of the variations in performance of students on teams with different levels of implementation of group instructional practices indicated that the students on teams with higher use of group instructional practices performed better than did students on teams with low levels of group instructional practices, after controlling for the background characteristics of students. This result suggests that widespread achievement effects may become apparent if more teams are able to use group instructional practices more frequently.

#### SECTION IV: DISCUSSION

At its heart, Cincinnati's reform is an ambitious effort to change the culture within which teaching and learning—for both teachers and students—takes



place. By creating structures for teachers to collaborate together on their work, district leaders sought to encourage teachers to learn about and enact their craft as groups, rather than as individuals. In many respects the lessons from this story are applicable to other education reform efforts that adopt similar strategies. In fact, the change strategy that underlies Cincinnati's efforts to use team-based schooling to reform the instructional practice of its teachers—to develop what I call communities of instructional practice—is at the root of many of today's reform efforts, including the small school movement as well as efforts to develop small learning communities and restructure schools as learning organizations. In schools structured as learning organizations, learning, not just teaching, becomes a requirement of teachers' jobs. The idea behind this approach is that people get better at what they do (i.e., learn to do their jobs more effectively) by continually exploring and refining ways to perform better. And further, people explore most effectively in groups and by the dynamics of group interactions than they do by isolated exploration. At their core, these are all enactments of the theory that the development of learning communities within schools will improve instructional practice and translate into higher levels of student learning.

The lessons of Cincinnati's experience can therefore inform other reformers who seek to create communities of instructional practice. Reformers should note that the structural supports created by Cincinnati's leaders did produce positive cultural environments within the team-based schools. And the cultures that teams did develop were generally constructive for their members. Data from CPRE's evaluation showed that teaming was popular with teachers and changed the way they viewed their work and the environment within which they taught. In interviews, teachers repeatedly reported that they enjoyed working together and appreciated the increased peer interaction in the workplace. As one elementary teacher stated, "I really have gotten to know my colleagues better. We share both successes and failures. There is more group decision-making." Another teacher commented in this vein, "Morale is higher because we can use team members as a sounding board. To know you have somebody to fall back on is nice." Survey data showed that teachers in the team-based schools collaborated more with their peers and felt more involved in their schools than did teachers in the non-team-based schools.

In most cases, however, the communities that teams developed did not revolve around instructional practice. Teacher meetings were typically taken up by district and school paperwork and other requests. Teams reported spending about 25% of their time on administrative work, 30% on student discipline issues, 20% on paperwork from their school and district, and the remaining time on teaching and learning issues. Thus, if teams met an average of 2 hours a week, then they were only spending 30 minutes a week

on instructional issues. Teachers recognized this shortcoming. As one elementary teacher observed, “Team issues are administrative, not academic. It has nothing to do with planning instruction. [There is] all this paperwork coming down from the district and school level.” But team leaders, uncertain about their authority to change the practices of team members, seemed unwilling and unable to focus the work of their teams. As one team leader exclaimed,

I could have insisted on certain things, like sharing examples of student work, but I don’t see that as my role. I don’t feel I have the right to challenge teachers about their practice. My role is to set a tone, an expectation of being professional.

Although there were many teams that did have sophisticated and effective group instructional practices, the evaluation data indicated that only about a quarter of teams were able to reach high levels of group instructional practice.

One important reason why teams generally did not develop communities around instruction was that few teams had access to opportunities and experiences that would model for them how to engage in the disciplined investigations necessary to develop and sustain communities of instructional practice. Virtually all the professional development available to teams focused on team processes, not instructional content. Continuous well-ordered engagement in the ways that instructional strategies mix with curriculum to produce increasingly higher quality student work that represents standards for student performance does not develop organically but needs to be taught, modeled, and nurtured through ongoing, content-based, localized professional development. One of the provocative findings from CPRE’s evaluation, although not fully explored, was the powerful relationship between teams that used the Education Trust’s Standards in Practice coaching model and higher levels of student performance. This result suggests that models such as Standards in Practice, which provide teachers with training and coaching to investigate the relationships between the standards, their lessons, and the work of their students, are effective professional development models to enact the potential created by team-based structures.

The experience of Cincinnati also points to the limitations of traditional policy making to bring about deep changes in the instructional practice of teachers. The team structures, enacted in policy, created the forms and mechanisms through which teams could change their instructional practice. The evidence suggests that these efforts provided just a bare foundation for communities of instructional practice to develop and only weakly influenced the instructional cultures, content knowledge, and pedagogical strategies of most teachers—the things that seem most likely

to produce improved outcomes for children. Although organizational changes are the most natural and visible structures for policy makers to modify, it is far more difficult for them to fundamentally change the behaviors and activities that occur within these frameworks. Policy changes that modify organizational structures certainly contribute to changes in the cultures within, but they may not meaningfully transform those cultures. And although administrators exhorted teachers to change their practices, they for the most part were unable to do so in any deep and meaningful way.

So what does it mean for teachers to develop communities of instructional practice? Developing richly textured communities of instructional practice requires more than just the adoption of new organizational structures. As the data from this research show, meeting frequently with other teachers, sharing students over time, and controlling discretionary resources may have changed the way that teachers spent their time and gave them increased feelings of collaboration and collective responsibility, but it did not bring them closer to the kinds of instructional practices that are associated with greater student learning.

In this study I identified three particular attributes of communities of instructional practice that are empirically related to student performance. First, effective communities prepare for instruction collaboratively, taking advantage of preparation as a learning opportunity. They examine and discuss student work in relation to standards and how it is differentially produced through a variety of instructional approaches. Second, community members sometimes teach together, often observe each other in the act of teaching, and always feel safe in doing so. Based on these common experiences, they offer constructive criticism of each other's strategies. Third, communities flexibly and purposefully regroup their students to take advantage of both the strengths of team members and the advantages of small student groups for particular instructional purposes.

But at a deeper level, these types of practices are manifestations of a more fundamental engagement in group instructional practice. These practices are emblematic of an ongoing exploration into what improves student learning. These kinds of practices are more than just changes in the tasks that teachers perform; they are transformations in the way teachers engage in their work and with each other around instruction.

Enabling transformation requires teachers to have structured opportunities to help them to explore the relationship between their practices and student learning, that they experiment with a variety of strategies that deepen their understanding of the craft of teaching, and that they use the team as a vehicle to bring together and enact the knowledge of its individuals for the purpose of improving the learning of its students. It is in this more disciplined, purposeful group exploration of the instructional strat-

egies that most effectively serve their students that results in an effective community of instructional practice.

For communities of instructional practice to develop, I posit that three conditions must be fulfilled. First, groups need structures that provide them with the leadership, time, resources, and incentives to engage in instructional work. Second, groups need to develop a culture of instructional practice, one that encourages them to continuously and safely identify, explore, and assess instructional strategies that show promise of success with their students. Third, they need a particular kind of professional development to enable them to engage in a continuous honing of their skills and strategies. Some of this work necessarily comes from the group itself, but other important parts must be facilitated by supporting administrative structures (whether it be school, district, or other intermediary structures).

So how can policy makers more effectively change the instructional cultures of schools? How can they transform the practices of teachers? How can they budge the belief systems that operate deep within teachers and schools? Many who think deeply about education policy advocate the power of incentives (see, e.g., Elmore, 1996; Fuhrman, 1999; Fuhrman & O'Day, 1996). For district policy makers, who are relatively close to and highly visible from the classroom, a range of additional tools are available. These include a clear articulation and continuous restatement of expectations, a commitment to continuous capacity building, a reallocation of fiscal and other resources, the staging of powerful and symbolic acts, and the alignment and coherence of various policy strategies. To move beyond mere rearrangements of organizational structures, local policy makers must capitalize on a wider array of tools and techniques, those more commonly wielded by politicians and other leaders.

Despite the shortcomings associated with this particular case, reforms that foster instructional communities within schools are a promising strategy to nurture teachers' development of more powerful instructional practices. There are many advantages to organizing teachers into groups. Chief among them are increased opportunities for adult interactions and the potential to build a culture of continuous learning that can produce communities of instructional practice. However, the act of grouping teachers, by itself, is unlikely to produce the powerful interactions around instruction that we seek. Building on the lessons of team-based schooling, policy makers—who also provide teacher groups with content-based professional development around instructional preparation and practice and leverage the advantages of teacher teams through a host of policy mechanisms, incentives, and leadership tools can increase the likelihood that teams will transform into communities of instructional practice, with powerful positive consequences for the performance of both teachers and students.

## APPENDIX A: SURVEY SCALES

Many of the survey items are the same as those used by the Consortium on Chicago School Research (CCSR) in their ongoing examination of school reform in the Chicago public schools (Sebring et al., 1995). In 1997, many of these items were also used by CPRE in its evaluation of the Philadelphia Public Schools' Children Achieving initiative (Consortium for Policy Research in Education, Research for Action, & OMG Center for Collaborative Learning, 1998). The advantage of using existing survey items is that they have been extensively tested and refined. Additional items specific to Cincinnati's team-based schooling reform were developed in 1997 in conjunction with the CPS, CFT, and the district's Interschool Council, which consisted of leaders of the district's first cohort of eight team-based schools.

Based on factor analyses conducted for both the CPRE and CCSR research, these survey items have been grouped together to construct scales representing different and important dimensions of school culture. The scales measure teachers' attitudes about their school culture on a series of dimensions that are relevant to team-based schooling. A scale score was constructed for each respondent by aggregating that individual's responses on a series of related survey items. Thus, for example, a scale to measure teachers' collaboration with their peers contained four survey items, each on a 4-point scale, so that the minimum possible score for that scale was 4 and the maximum possible score was 16.

In all, five scales were constructed from survey items. The items used for each scale and the Cronbach alpha reliability of the scale are listed in the following sections. Unless otherwise indicated, all items are on a 4-point scale ranging from *strongly agree* to *strongly disagree*.

## SCHOOL CULTURE SURVEY SCALES

## 1. Peer Collaboration (alpha reliability: .74)

*Extent of faculty agreement to the following statements:*

- a. The principal, teachers, and staff collaborate to make this school run effectively.
- b. Teachers design instructional programs together.
- c. Teachers at this school make a conscious effort to coordinate their teaching with instruction at other grade levels.
- d. Most teachers in this school are cordial.

## 2. Collective Responsibility (alpha reliability: .94)

*How many teachers in this school:*

- a. Help maintain discipline in the entire school, not just their classroom?
- b. Take responsibility for improving the school?

- c. Set high standards for themselves?
- d. Are eager to try new ideas?
- e. Feel responsible for helping students develop self-control?
- f. Feel responsible to help each other do his/her best?
- g. Feel responsible that all students learn?

3. Faculty Influence (alpha reliability: .85)

*Extent of faculty agreement with the following statements:*

- a. Teachers are involved in making the important decisions in this school.
- b. Teachers have a lot of informal opportunities to influence what happens here.
- c. Are active in decision-making and/or planning committees (e.g., ILT, planning teams, or other committees).

*Extent of influence teachers have over school policy in the following areas:*

- d. Determining teaching assignments.
- e. Determining the school schedule.
- f. Planning how discretionary school funds should be used.
- g. Determining which books and other instructional materials are used in classrooms.
- h. Determining the content of professional development programs.

4. Deprivatization (alpha reliability: .75)

*How often teachers have:*

- a. Received meaningful feedback on your performance from colleagues?
- b. Visited other teachers' classrooms?
- c. Had colleagues observe your teaching?
- d. Received useful suggestions for curriculum materials from colleagues?
- e. Invited someone to help teach your class(es)?

5. Reflective Dialogue (alpha reliability: .83)

*Extent of faculty agreement with the following statements:*

- a. Many teachers express their personal views at faculty meetings.
- b. Faculty meetings are often used for problem solving.
- c. Teachers in this school regularly discuss assumptions about teaching and learning.
- d. We do a good job of talking through views, opinions, and values.
- e. Teachers talk about instruction in the teachers' lounge, faculty meeting, etc.

*Frequency which faculty have had conversations with colleagues about:*

- f. What helps students learn best.
- g. Development of classroom.
- h. The goals of this school.
- i. Managing classroom behavior.

## INSTRUCTIONAL PRACTICE SURVEY SCALES

1. Individual teacher instructional practices (alpha reliability: .88)  
*How frequently teachers have done the following:*
  - a. Used student data from test results to plan for instruction.
  - b. Used student work to plan for instruction.
  - c. Examined your teaching materials/assignments in relation to the district's standards.
  - d. Pointed out to students' connections between your subject and other subjects they are studying.
  - e. Used rubrics to assess student work.
  - f. Used the pacing guides to plan for instruction.
  - g. Used the district's standards to design teaching materials/assignments.
  - h. Examined students' work in relation to the district's standards.
  
2. Group instructional practices (alpha reliability: .90)  
*Frequency that teachers have done the following with at least one other teacher in their school:*
  - a. Developed and taught interdisciplinary projects.
  - b. Communicated with other teachers about individual students to adjust the way you interact with that student.
  - c. Communicated with other teachers about individual students to adjust the way you instruct that student.
  - d. Shared teaching materials/assignments.
  - e. Used the district standards to design teaching materials/assignments together.
  - f. Planned instructional strategies together.
  - g. Examined student work together.

## TEAM-LEVEL INSTRUCTIONAL PRACTICE SURVEY SCALES

1. Academic Preparation Strategies (alpha reliability: .87)  
*Frequency that team has done the following:*
  - a. Developed and shared assessment tools and practices.
  - b. Discussed the Promotion or Credit Granting Standards.
  - c. Examined student work in relation to the Promotion or Credit Granting Standards with team members.
  - d. Identified and implemented individual intervention strategies for students who needed additional assistance.
  - e. Reviewed curricula across grades for alignment with state and district standards.
  - f. Met with parents/guardians to discuss a student.

2. Collective Team Practices (alpha reliability: .82)

*Frequency that team has done the following:*

- a. Co-taught classes.
- b. Observed other team members' classes.

3. Student Grouping Strategies (alpha reliability: .73)

*Frequency that team has done the following:*

- a. Had individual students move to other teachers' classes for part of a day.
- b. Grouped students by skill level.
- c. Reduced student/teacher ratios for instruction by using all team members.

APPENDIX B

**Mean comparisons of team-based and non-team-based regular education and special education teachers' responses on survey scales by grade level (with standard deviations in parentheses)**

Grade Level	Year	School Type	Scale				
			Faculty Influence	Peer Collaboration	Deprivatization	Collective Responsibility	Reflective Dialogue
All Teachers	1998	Team-based	3.05*** (0.60)	3.06*** (0.61)	3.60*** (1.24)	3.52* (0.82)	2.85 (0.56)
		Non-team-based	2.80 (0.64)	2.91 (0.63)	3.33 (1.23)	3.41 (0.88)	2.81 (0.58)
	1999	Team-based	3.04*** (0.59)	3.03* (0.61)	3.53** (1.20)	3.56 (0.84)	2.86 (0.55)
		Non-team-based	2.86 (0.63)	2.96 (0.63)	3.36 (1.19)	3.55 (0.88)	2.84 (0.55)
	2000	Team-based	2.95** (0.64)	3.06* (0.60)	3.51** (1.20)	3.61 (0.85)	2.94 (0.54)
		Non-team-based	2.88 (0.65)	3.01 (0.62)	3.38 (1.17)	3.61 (0.86)	2.91 (0.56)
Elementary Teachers (K-6)	1998	Team-based	3.21*** (0.56)	3.28*** (0.52)	3.57 (1.16)	3.89*** (0.67)	3.03** (0.49)
		Non-team-based	2.88 (0.63)	2.97 (0.62)	3.45 (1.20)	3.53 (0.87)	2.88 (0.55)
	1999	Team-based	3.13*** (0.53)	3.08 (0.56)	3.60~ (1.11)	3.74 (0.83)	2.95 (0.51)
		Non-team-based	2.94 (0.63)	3.04 (0.62)	3.48 (1.18)	3.68 (0.86)	2.92 (0.54)
	2000	Team-based	3.03* (0.60)	3.12 (0.59)	3.57 (1.17)	3.76 (0.85)	3.01 (0.51)
		Non-team-based	2.96 (0.64)	3.10 (0.59)	3.52 (1.15)	3.73 (0.82)	3.02 (0.52)



**Mean comparisons of team-based and non-team-based teachers' and special education teachers' responses on survey scales by grade level (with standard deviations in parentheses)**

Teacher Grade Level	Year	Teacher School Type	Scale				
			Faculty Influence	Peer Collaboration	Deprivatization	Collective Responsibility	Reflective Dialogue
Middle Grade Teachers (7-8)	1998	Team-based	3.25*** (0.48)	3.02 (0.60)	4.13*** (1.22)	3.46 (0.68)	2.80 (0.52)
		Non-team-based	2.74 (0.63)	2.91 (0.64)	3.30 (1.35)	3.36 (0.86)	2.72 (0.61)
	1999	Team-based	3.04*** (0.60)	2.97 (0.68)	3.51~ (1.22)	3.48 (0.81)	2.79 (0.55)
		Non-team-based	2.76 (0.63)	2.90 (0.61)	3.30 (1.26)	3.42 (0.82)	2.79 (0.53)
	2000	Team-based	3.04*** (0.66)	3.10** (0.64)	3.69*** (1.24)	3.65~ (0.88)	3.00*** (0.56)
		Non-team-based	2.77 (0.65)	2.95 (0.64)	3.30 (1.28)	3.53 (0.82)	2.82 (0.55)
High School Teachers (9-12)	1998	Team-based	2.74*** (0.59)	2.78 (0.61)	3.33* (1.24)	3.01 (0.83)	2.62 (0.58)
		Non-team-based	2.51 (0.60)	2.69 (0.62)	2.99 (1.20)	3.01 (0.81)	2.56 (0.58)
	1999	Team-based	2.84*** (0.60)	2.94*** (0.58)	3.41*** (1.29)	3.37** (0.79)	2.76*** (0.55)
		Non-team-based	2.58 (0.57)	2.71 (0.59)	3.03 (1.14)	3.17 (0.81)	2.60 (0.53)
	2000	Team-based	2.69** (0.62)	2.92*** (0.57)	3.32*** (1.24)	3.39*** (0.77)	2.77*** (0.57)
		Non-team-based	2.55 (0.58)	2.68 (0.62)	2.93 (1.19)	3.09 (0.80)	2.55 (0.53)

T-test comparisons made between TBS and non-TBS respondents in each subgroup.  
 \*\*\* $p \leq .001$ , \*\* $p \leq .01$ , \* $p \leq .05$ , ~ $p \leq .10$ .

*Members of the CPRE evaluation team that conducted fieldwork for the evaluation that contributed to this article included Susan Watson and Thomas Corcoran at CPRE at the University of Pennsylvania, Iris DeLoach Johnson of Miami University in Ohio, and Robert Floden of Michigan State University. Seong-Jung Joo at the University of Pennsylvania conducted much of the quantitative analysis of the survey data for the evaluation. CPRE's evaluation of team-based schooling was financed by the Cincinnati Public Schools. Ideas expressed and conclusions reached in this article are those of the author alone.*

*Notes*

1 Schools in Cincinnati are organized around many different grade configurations. I therefore avoid talking about elementary, middle, and high schools and instead talk about

elementary, middle, and high school grade teachers. The Grades K–6 teachers in a K–8 school, for example, are included in the elementary grade results, whereas the Grade 7–8 teachers in the same school are included in the middle grade results.

2 The original 5-point scale on the survey consisted of (1) *Never*, (2) *Rarely*, (3) *Sometimes*, (4) *Often*, and (5) *All or most of the time*. Team average responses below 2.51 were recoded as low. Responses between 2.51 and 3.5 were recoded as moderate. Responses above 3.5 were recoded as high.

## References

- Beggs, D. W. (Ed.). (1964). *Team teaching: Bold new venture*. Indianapolis, IN: Unified College Press.
- Christman, J., Cohen, J., & MacPherson, P. (1997). Growing smaller: Three tasks in restructuring urban high schools. *Urban Education*, 32(1), 146–165.
- Cincinnati Public Schools. (1996). *Strategic plan, 1996–2001*. Cincinnati, OH: Author.
- Cincinnati Public Schools (1997). *Measuring up. Annual performance report for 1996–1997*. Cincinnati, OH: Author.
- Cohen, E. G. (1976). Problems and prospects of teaming. *Educational Research Quarterly*, 1(2), 49–63.
- Consortium for Policy Research in Education, Research for Action, & OMG Center for Collaborative Learning. (1998). *Children achieving: Philadelphia's education reform, progress report series 1996–1997: A second-year evaluation*. Philadelphia: The Children Achieving Challenge.
- Corcoran, T. B., Walker, L. J., & White, J. L. (1988). *Working in urban schools*. Washington, DC: Institute for Educational Leadership.
- Darling Hammond, L., & Sykes, G. (Eds.). (1999). *Teaching as the learning profession: Handbook of policy and practice*. San Francisco: Jossey-Bass.
- Deming, W. E. (1986). *Out of crisis*. Cambridge, MA: Center for Advanced Engineering Study.
- Elmore, R. F. (1996). Getting to scale with good educational practice. *Harvard Educational Review*, 66(1), 1–24.
- Friedman, V. (1997). Making schools safe for uncertainty: Teams, teaching, and school reform. *Teachers College Record*, 99(2), 335–370.
- Fuhrman, S. H. (1999). *The new accountability* (CPRE Policy Briefs No. RB-27). Philadelphia: University of Pennsylvania, Consortium for Policy Research in Education.
- Fuhrman, S. H., & O'Day, J. A. (Eds.). (1996). *Rewards and reform: Creating educational incentives that work*. San Francisco: Jossey-Bass.
- Fullan, M. (1994). Coordinating top-down and bottom-up strategies for education reform. In R. F. Elmore & S. H. Fuhrman (Eds.), *The governance of curriculum. Yearbook of the Association for Supervision and Curriculum Development* (pp. 186–202). Alexandria, VA: Association for the Supervision of Curriculum and Development.
- Galbraith, J. R. (1994). *Competing with flexible lateral organizations* (2nd ed.). Reading, MA: Addison-Wesley.
- Hargreaves, D. H. (1980). The occupational culture of teachers. In P. Woods (Ed.), *Teacher strategies: Explorations in the sociology of school* (pp. 125–148). London: Croon Helm.
- Hendrie, C. (1996, October 23). Cincinnati eyes top-to-bottom restructuring. *Education Week*, 16(8), 14–15.
- Kruse, S. D., & Seashore Louis, K. (1997). Teacher teaming in middle schools: Dilemmas for a schoolwide community. *Educational Administration Quarterly*, 33(3), 261–289.

- Lee, V. E., & Smith, J. B. (1994). High school restructuring and student achievement: A new study finds strong links. In *Issues in restructuring schools* (Issue Report No. 7). Madison, WI: Center on Organization and Restructuring of Schools.
- McLaughlin, M. W., & Talbert, J.E. (2001). *Professional communities and the work of high school teaching*. Chicago: University of Chicago Press.
- Merenbloom, E. Y. (1991). *The team-process: A handbook for teachers*. Columbus, OH: National Middle School Association.
- Mohrman, S. A., Cohen, S. G., & Mohrman, A. M. (1995). *Designing team-based organizations: New forms for knowledge work*. San Francisco: Jossey-Bass.
- Mohrman, A. M., Mohrman, S. A., & Lawler, E. E. (1992). The performance management of teams. In W. Bruns, (Ed.), *Performance measurement, evaluation, and incentives* (pp. 217–241). Cambridge, MA: Harvard Business School Press.
- Mohrman, S. A., & Wohlstetter, P. (Eds.). (1994). *Organizing for high performance*. San Francisco: Jossey-Bass.
- Newmann, F. M., & Wehlage, G. G. (1995). *Successful school restructuring. A report to the public and educators by the Center on Organization and Restructuring of Schools*. Madison, WI: University of Wisconsin, Board of Regents.
- Resnick, L. B., & Hall, M. W. (1998). Learning organizations for sustainable education reform. *Daedalus*, 127(4), 89–118.
- Sebring, P. B., Bryk, A. S., Easton, J. Q., Luppescu, S., Thum, Y. M., Lopez, W. A., & Smith, B. (1995). *Charting reform: Chicago teachers take stock*. Chicago: University of Chicago, Consortium on Chicago School Research.
- Senge, P. (1990). *The fifth discipline: The art and practice of the learning organization*. New York: Doubleday.
- Supovitz, J. (1998). *Team-based schooling in Cincinnati: The first year*. Philadelphia: University of Pennsylvania, Consortium for Policy Research in Education.
- Supovitz, J., & Watson, S. (1999). *Team-based schooling in Cincinnati: The second year*. Philadelphia: University of Pennsylvania, Consortium for Policy Research in Education.
- Supovitz, J., & Watson, S. (2000). *Team-based schooling in Cincinnati: The third year*. Philadelphia: University of Pennsylvania, Consortium for Policy Research in Education.
- Thomas, G. (1992). *Effective classroom teamwork: Support or intrusion*. London: Routledge.
- Thurow, L. C. (1999). *Building wealth: The new rules for individuals, companies, and nations in a knowledge-based economy*. New York: HarperCollins.
- Weiss, C. (1992, April). *Shared decision making about what? A comparison of schools with and without teacher participation*. Paper presented at the meeting of the American Educational Research Association, San Francisco.
- Wenger, E. (1998). *Communities of practice: Learning, meaning, and identity*. Cambridge, UK: Cambridge University Press.

JONATHAN A. SUPOVITZ is a research assistant professor at the University of Pennsylvania and a senior researcher at the Consortium for Policy Research in Education (CPRE). Dr. Supovitz is a principal investigator of several research and evaluation projects at CPRE. These include CPRE's research on strategies for instructional improvement in low-performing high schools in high accountability states and the national evaluation of the America's Choice comprehensive school reform design. His current research focuses on how educational leaders use a variety of forms of evidence to inform decision making and how school and district leaders construct policies and

strategies to support instructional improvement in schools. Recent publications include *Translating Teaching Practice into Improved Student Achievement* (NSSE Yearbook, 2001); *Instructional Leadership in Standards-Based Reform* (CPRE, 2001); and *The Longitudinal Impact of Inquiry-Based Professional Development on Teaching Practice* (Educational Policy, 2000). Dr. Supovitz teaches courses on evidence-based leadership and the policy and instructional uses of assessment at the Graduate School of Education at the University of Pennsylvania.