

Using Supportive Team Building to Promote Improved Instruction, Student Achievement, and Collaboration in an Urban Professional Development School

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ABSTRACT: In this article, we provide a description of a unique model of teaching and learning, developed at an urban professional development school. We focus on an intensive collaboration between members of a high school mathematics department and one university faculty member, who collaborated to raise student test scores and build solidarity as a team. We describe the steady and committed manner in which all members worked to ensure improved student learning and create rich models for teaching, learning, and collaboration, identified as the heart of an effective professional development school.

What follows is a description of a model of teaching, learning, and collaboration, developed at an urban professional development school (PDS). We focus on one aspect of the partnership, which involved members of a high school mathematics department and one university faculty member, who collaborated to raise student test scores and build solidarity as a team. We describe the steady and intensive manner in which all members worked over a 4-year period to ensure improved student learning. In the process, the partners created new and rich models for teaching, learning, and collaboration, identified by Teitel (2003) as the heart of an effective PDS.

Sources include the perspectives of the PDS stakeholders: a university faculty member, target school administrators, preservice and in-service teachers in the targeted math department, and the university PDS coordinator, one of the authors of this article. PDS components examined here include its his-

tory, the collaboration, and the professional development that supported team building at the target school and offered new roles for teachers in the math department.

The Partners and Their History

The targeted high school in this PDS was a citywide school that served students in Grades 9–12. Students from all parts of the city were eligible to apply. Admission was based on middle school report card scores, standardized test scores, and personal interviews. More than 98% of the students were African American; 50% received free or reduced-price lunch. The average combined SAT score in 2005 was 774. Before the start of the partnership, the school had not met adequate yearly progress in math. The school staff included 3 administrators, 45 teachers, 2 counselors, and 1 school psychologist.

Twelve percent of the teachers were provisionally certified.

The university, located just a few miles away from the high school, had a strong commitment to the city and its schools. In 1999, the School of Education at the university expanded its master of arts in teaching (MAT) to include a program option designed to prepare teachers for urban schools. Candidates in the MAT were required to complete 39 credits and complete an internship (or student-teaching experience) in an urban school. Many of the MAT candidates completed their internships at the PDS described here. Two candidates became involved in the math collaboration.

The History of the Math Collaboration

The PDS was officially established in 2001, with funding from a Teacher Quality Enhancement Grant. In 2003, the school began a restructuring process that lasted for the next 5 years. The restructuring included changes in administrative leadership, a new college-preparatory curriculum, a reduction in student population, and major building renovations. The school adopted a “failure is not an option” attitude and set goals aligned with national PDS standards to improve student achievement (Abdal-Haqq, 1998). In the current era of high-stakes testing, in which test scores are an important measure of school and student success, the standardized test scores became a critical focus for the work of the PDS partners. This focus started with the math department. Scores on the state algebra test were low, and the school had not met AYP. The focus was in some ways different from other PDS priorities that have existed since the beginning of the movement, in the 1980s. According to Goodlad (1990), PDSs tend to be committed to training preservice and in-service teachers and not to promoting student achievement. The work at this urban PDS focused on both areas: preservice and in-service training and improved student achievement. As part of this

process, the school reached out to its partners for support and collaboration, perhaps with no expectation of the renewal and solidarity that a PDS partnership could develop and sustain (Shroyer, Yahnke, & Heller, 2007). In response to these goals, the math department and the university faculty member began what became a powerful collaboration, the focus of this article.

The First Collaboration: Team Teaching

The collaboration began rather unpretentiously. In 2003, the university faculty member provided a professional development seminar for the school’s math department. At the time, the math department chair at the school was new to her position and was looking for ways to support the department. Sensing the university faculty member’s willingness to help, the department chair invited her to provide professional development. At the same time, the university faculty member was supervising a teacher candidate from the university’s MAT program who was completing her internship at the school. Over the course of the year, the university faculty member became a familiar face in the department and began regularly meeting with the math chair to discuss a variety of math-related topics.

During the following school year (2004), the most important form of PDS support developed. Faced with teaching calculus for the first time, the math department chair requested assistance from the university faculty member. This request was met with the same willingness as before. The university faculty member suggested that they coteach the calculus course once a week. On the coteaching day, the university faculty member provided instruction for the students on topics that the math chair felt uncomfortable teaching because she lacked either the particular content or the pedagogical knowledge. In addition to teaching, the university faculty member observed the teacher in the classroom and then consulted afterward to provide feedback

and clarification about content and pedagogy. As part of the collaboration, they examined results of student assessments from teacher-generated benchmarks. They used data from the benchmarks to determine students' content misconceptions and methods for their rectification. From the start, this collaboration was a win-win-win situation for the students, the teacher, and the university faculty member. Students received more one-on-one assistance, were motivated by having a university professor as one of their teachers, and had the opportunity to experience the challenge of a new advanced math course. The university professor was reminded of the challenges of teaching high school math. This experience informed her instruction at the university, especially in her math methods courses. The high school department chair learned new content and pedagogy, which led to greater independence in teaching the course in subsequent years. These aspects of the collaboration provide examples of what Goodlad (1994) urged schools and universities to do: join together as equal partners in the simultaneous renewal of schooling and the education of educators.

The Second Collaboration: Team Building

During that same year, the math department received PDS funds to begin an Advanced Placement (AP) course. Since the members of the math department and university faculty member were already successfully collaborating, they worked together to develop the new AP course. At this time, the department consisted of six members, who varied in terms of background, experience, and teacher certification routes. Among them were two teachers with more than 20 years of experience, two teachers with fewer than 3 years of experience, a midcareer teacher, and an MAT teacher candidate who was working for a year under the tutelage of a mentor teacher.

Meeting after school and on weekends, the team first focused on vertical teaming,

an approach that aligns course curricula with AP course standards (College Board, 2008). Cooperation from all department members was essential because it allowed each person on the team to understand his or her part in the development of the program. The group used the backward mapping approach (Wiggins & McTighe, 2005) to determine topics that each course should contain to prepare students to be successful in math and take AP statistics. The group carefully worked to align the curriculum with local and national math standards (National Council of Teachers of Mathematics Standards, 2008). Additionally, the AP statistics teacher and the university faculty member participated in a regional College Board summer training institute in AP statistics, thereby providing evidence of the growing commitment of the PDS partners to one another.

In the words of the university faculty member,

the teachers often said that no one had ever consulted them about decisions for classroom instruction or curriculum. They just received edicts from higher ups at the system level. They told me they felt that I valued what they brought to the table, which I did. I wanted to be there to support and collaborate.

In 2005, after months of preparation, the department offered AP statistics—its first AP course. During this 1st year, using the same collaborative model used in the calculus course, the university faculty member provided support in the statistics classroom 1 day per week. This sustained effort of collaboration and coteaching provided the AP teacher with ongoing opportunities to learn and clarify content and pedagogy. Again, the university faculty member was able to model effective teaching in statistics and observe the teacher during instruction. The university faculty member consulted to provide clarification on content and pedagogy and interpret student achievement on teacher-generated benchmarks. This model provided support to an in-service teacher who was delivering new

content and pedagogy and the opportunity for students to take another advanced math course.

The Third Collaboration: Teamwork

That same year, in response to school and system goals for improved student achievement, the department took on the challenge of improving scores on a state algebra test required for graduation. Approximately 43% of the students at the PDS had passed the test in the prior year. The school system provided funding for the teachers to offer a Saturday academy for ninth-grade students. Part of the funding was designated to hire a math consultant. There was only one person for the job—the university faculty member.

Not surprisingly, the collaboration grew stronger as the university and school faculty planned and implemented the Saturday academy. The team spent 16 Saturday mornings teaching the students, followed by afternoons participating in professional development sessions. The approach that the group took was one of targeted mastery: Students were given a pretest of algebra skills, and, given their performances, teachers addressed specific skills in large- and small-group settings, as well as in one-on-one meetings with students.

What the Approach Was Not

This approach was not business as usual and not a mere rehashing of the algebra curriculum. The approach was different because the team of teachers was considered not only a unit but also individuals, who were asked the following: Based on the pretest, what content do the students need to learn? What do they need collectively and individually? How can teacher strengths and expertise be matched to the different parts of the curriculum? In response to these questions, the teachers organized themselves to teach toward their individual strengths. They placed students in flex-

ible groups according to the results of pretest performances. One teacher taught problem-solving approaches to algebra; another taught skill building; and a third taught technological skills, such as using a graphing calculator. As a result, each student had the opportunity to experience the material through three different approaches. The university faculty member worked alongside the students during the Saturday sessions. After each session, the group debriefed on the basis of feedback from the university faculty. For the final component of each day, the university faculty member provided professional development. Topics of focus for professional development included examining student misconceptions in algebra, using rubrics to score responses, analyzing student work and providing feedback, and identifying anchor papers.

Students took their state test in May, and the results were shared the following August at the faculty back-to-school retreat. That the algebra test score percentages had nearly doubled was exhilarating. Inquiries about student success led to a series of debriefings and then to discussions about next steps for members of the math department. They wanted to continue their momentum. As part of their plan, the department took on new projects, as described in the fourth part of the collaboration.

The Fourth Collaboration: Team Lesson Study

Motivated by the success of the Saturday academy, the math department began to participate in lesson study at the start of the 2006 school year. This project served two purposes: First, it provided every math teacher in the department (even those who had not taught in the Saturday academy) with the opportunity to collaborate for improved teaching and learning; second, it provided a public forum for administrators and teachers from other schools to come and study the success of this department.

The lesson study required a large commitment. With one exception, all teachers

taught algebra, which immediately gave the team a common purpose. The department had a common planning time, and all members committed to planning together every day. According to a 1st-year teacher (the intern from the previous year who had been hired at the PDS), that time was sacred: "We knew that our common planning time was not to be used for phone calls, other meetings, or any other activity. And we all made and kept the commitment." With common planning time, the team could develop all algebra lessons together and debrief after the lessons were taught.

The process of the lesson study included several components. First, the members planned a lesson collaboratively; then, one teacher taught the lesson while members of the department observed it. Afterward, the team met to discuss the planning, delivery, and impact of the lesson. Once the team had agreed on lesson revisions, another teacher re-taught the lesson to a different class, and again, the department observed. This intensive work proved helpful to members of the department. According to the 1st-year teacher, "I was learning many new approaches and could pick and choose the ones that worked best for me and for my students. I felt supported by everyone. There was nothing stuffy about it."

For the in-service teacher who had taught algebra for nearly 30 years,

the way that we were working was new. We were all learning together, and we worked well together, and it was not about the number of years someone had. I had to share with others. I found that everyone was willing to be criticized and I learned new ideas from other teachers. And when I had had enough, I could tell them that too. It was great to be working professionally. We were talking about math, and we were talking about kids.

According to the midcareer teacher,

we began to talk about other courses that we taught, and began to share ideas about those as well. And my room became the resource room. Everyone would bring

materials that they wanted to share and leave them on a big table in the back of the room. This was an incredible resource for all of us.

However, it was more than the physical resources; she also spoke of the human resources: "We began to care about each other. Whenever anyone was being observed, we would check to make sure the teacher had everything ready for the lesson. We were always checking on each other."

The university faculty member participated in the lesson study as well. She believed that this project epitomized a department that had renewed and transformed itself into a team committed to improved teaching and improved student achievement.

Support for All Team Members

Most striking about the experiences was that everyone reported feeling highly supported throughout these projects. What parts of this experience can be attributed to the PDS partnership? When the teachers were asked this question, they agreed that the PDS partnership—specifically, the approach of the PDS university faculty member—provided "a seed of support and teamwork" that then grew within each of them. Contrary to what much of the literature says about teacher training, these opinions suggest that PDS partnerships can support the professional development of all teachers—preservice, novice, and veteran (Teitel, 1998). Criticisms of PDSs often center on the lack of meaningful, differentiated, teacher-directed experiences that meet the needs of all teachers. The model that has developed at this urban PDS has provided multiple opportunities for every teacher. Specifically, the professional development included departmental and individual assistance from the university faculty member. As stated previously, the work done as a department included AP training, vertical team meetings, resource collection, and professional development after each Saturday session. Focusing on standards-based instruction and curriculum

alignment was the key component of the professional development. Individual assistance came in the form of observation feedback and modeling of instruction. According to Teitel (2003), teachers are the key to educational renewal, and continuous inquiry into practice is the key to successful teacher development and growth. It is clear that the commitment that these teachers made to inquiry resulted in significant individual and collective growth and renewal.

Professional Development: In Their Words

PDSs have often been credited with impacts on teacher learning that include the following (Abdal-Haqq, 1998): intellectual stimulation and energy, growth from engaging in nontraditional roles, less isolation, less powerlessness, improvements in classroom practice, greater feeling of professionalism, increased risk-taking behaviors, and growth in content knowledge.

How did the experiences in this PDS promote such learning? In their words, these partners emphasized the sense of renewal that the projects had offered. They articulated that the experiences provided them with new knowledge, skills, and perspectives about their work as math teachers. Beyond the daily operations of their classrooms, the teachers learned the value of teamwork and collaboration in developing new approaches to teaching and learning, a major goal of all PDS schools.

For the university faculty member, the PDS was not a place for ivory tower discussions; instead, it provided opportunities for deep discussions about content knowledge, theory, and their application. The partnership gave her a chance to test in the real world the subject matter of her university courses in methods of teaching math. She reported obtaining a great deal of pleasure from her interactions with the teachers, who described her work as “supportive and informative,” helping them to be better teachers. Her experience supports the notion of the importance of the role of university faculty in developing strong partnerships with urban schools. According to

Valli, Cooper, and Frakes (1997), research on PDSs has not focused enough on the role of university faculty in a PDS relationship. The in-service teachers had the opportunity to mentor new teachers in this process and to learn new content. They also grew professionally in their relationships with the principal, who saw them as leaders in the department. In the subsequent school year, these teachers demonstrated schoolwide leadership by taking responsibility for coordinating mandatory state examinations in all subject areas.

The midcareer teacher, also the AP statistics teacher, reported a strong sense of accomplishment through hard work with a team of people who were working toward a common purpose. She also began teaching a math methods course at the university—first in a team-teaching model with the university faculty member and then, the following semester, on her own.

The former MAT candidate—who had left a career in engineering and completed a 1-year internship at the school, working with a mentor teacher—was able to share her knowledge of new strategies obtained in the MAT program. She had the opportunity to become immersed in the experiences of seasoned faculty, and she received the levels of support beyond her expectations. According to PDS research, there is considerable evidence that teachers consider their student-teaching or practice-teaching experiences to be the most powerful element in their professional preparation (Goodlad, 1990). For this teacher, her experiences were powerful. She was hired at the end of the school year to work full-time at the school. Since this time, she has become a school leader in lesson study.

In 2004, the team worked together to support a second intern, who entered teaching through an alternative certification route and was hired as the teacher of record while earning his MAT. The university faculty member, also his instructor for his math methods course, supported him in class at the university and in his classroom. This experience could not have been predicted or planned; rather, it was something that grew from this partnership.

For the principal, changes occurred regarding his knowledge of math instruction and his perspective on the teachers in the department. During the Saturday academy, the principal attended many sessions. Because it was Saturday, the atmosphere was more relaxed. The principal witnessed a focused team effort with none of the normal school-day distractions. According to one teacher,

all the students were doing was math, math, math. With the principal as a participant in some of the classes, he saw the results of our collaborative efforts. He went back and forth between observer and participant alongside the students. They loved having him as a student in the class. Because we were each teaching in our area of expertise, he saw strengths and a level of commitment that he had not seen before.

The principal also became involved with the lesson study project. He visited the study sessions and math classrooms, often bringing visitors. He became so familiar with the curriculum that he would quiz the students in the cafeteria during lunch about their algebra knowledge. The math department chair cited the biggest change—namely, that the administrators began to “value our opinions. The principal now knows that I know what the teachers in our department are doing each day, and when he wants to know what he should look for, he comes to me for answers.”

An essential element for PDS success is an administrator who not only recognizes the value of PDS collaboration but also makes an active commitment to support those conditions necessary for success (Hobbs, Bullough, Kauchak, Crow, & Stokes, 1998). The administrators at this PDS clearly fit this description.

Other Possibilities

The essence of this kind of multilevel professional development experience is rich and rewarding for all partners. Teitel (1997) pointed out that it is not uncommon for teachers in PDSs to take on more nontraditional roles, to

become boundary spanners. In interviews, the teachers indicated that they were being intellectually stimulated through their collegial interactions with peers, preservice teachers, and the university faculty member. An example of a boundary spanner is the AP teacher who began teaching courses in the MAT program at the university.

Members of the target school math department have begun to attend professional conferences related to STEM (science, technology, engineering, and math). They have also shared their collaborative approach to curriculum and instruction with teachers and administrators at local and state levels.

These partnership projects involved what Cuban (1988) called first- and second-order changes. First-order changes increase the efficiency of operations. For the target school, these changes involved using new instructional approaches that targeted student learning needs and matched curriculum to teacher content strengths. Teachers in the math department were able to transfer this model to their Monday–Friday classroom instruction. Teachers rotated in and out of one another’s algebra classes to provide instruction in their areas of expertise. Additionally, the principal did not have to oversee the operations of the math department; he trusted the department chair and the teachers to accomplish their work. All these changes increased the efficiency of the school operations. Second-order changes are those that restructure the organization by fundamentally altering existing authority, roles, and uses of time and space (Cuban, 1988). The roles of authority clearly shifted from principal to department chair to classroom teacher. At some point during this experience, all teachers experienced a role of authority in the project. The project provided multiple roles for all partners. Perhaps the biggest shift was that the principal became a student of algebra, working alongside the students on Saturday mornings. The principal also welcomed the expertise of his teachers and university partner as the authorities for content and pedagogy. Finally, the university faculty member in essence became a part of the high school staff, another example of a shift in roles.

Sustainability

The projects described in this article have been and continue to be fueled by fiscal and human resources. In 2006, during the year that the lesson study project began, the math department received funding to expand the Saturday academy to include all ninth graders and upper-level students who had not yet passed the state algebra test. This news was greeted with both enthusiasm and anxiety. The teachers worried about whether they would be able to have the same results a second time around. The scores for the 2nd year, reported in 2007, did increase—so much so that the school had the highest scores in the city, outscoring neighboring highly resourced districts.

Also in 2006, the partnership received funding from the state's higher education commission to expand the academy to include social studies and English, also state-tested subjects. In subsequent years, a major challenge to this expansion has been the recruitment of teachers willing to work on Saturdays in subjects that already have acceptable scores on state tests. Additional challenges include student attendance and development of departmental solidarity. In the practice of inquiry, the partnership is currently investigating the possibility of implementing different delivery systems, by comparing the advantages of a Saturday academy to an after-school academy. A final challenge is that of fiscal support.

Urban Partnership Reminders

Researchers warn that the restructuring of schools and teaching does not necessarily lead to improved learning, especially for marginalized students (Lipman, 1997). Kimball, Swapp, LaRosa, and Howick (1995) warned that simply raising test scores is not enough; partners in PDSs must question what *student success* means. Increases in standardized test scores or more of the same is not the goal of PDSs (Trachtman, 1996). The initial success of this PDS involved state tests required for graduation. Future PDS goals should provide

opportunities for students to achieve success in other ways. Current efforts are focused on AP program expansion and after-school club offerings.

In her work on PDS partnerships, Darling-Hammond (1994) reminded educators of the important PDS goal of teaching for understanding so that all students can be successful. Additionally, a PDS must be a learning-centered community that supports the integrated learning and development of students, teachers, preservice candidates, and partners, through inquiry-based practice. PDS partners must share a common vision of teaching and learning, grounded in research and practitioner knowledge. According to Darling-Hammond, learning supported by this kind of community results in changes and improvement in individual practice and in the policies and practices of the partnering institutions (National Council for Accreditation of Teacher Education, 2001a, 2001b).

This PDS collaboration began in a rather simple way, with an invitation to a university faculty member to provide a professional development seminar. During a 3-year period, with a steady and committed team, the collaboration grew to become what Darling-Hammond (1994) asserted a PDS should be: an effort to move teaching to a profession that not only sets its own standards of practice but is accountable to students, parents, and communities. ^{SUP}

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