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Closing the Gap: Enhancing Student Outcomes in an Urban Professional Development School

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Abstract: *The purpose of this paper is to provide an account of changes in student achievement at one urban elementary school involved in an eight-year partnership with a University. The school first became involved with the University through a research project designed to support the school's efforts at restructuring and soon became a full-fledged Professional Development School (PDS). Students' scores on high-stakes assessment measures were the primary data sources. These scores are presented in descriptive form—no statistical analyses were applied. Students' test scores increased over the years and were higher than the scores of students in comparable schools. Individual interviews were also conducted to obtain teachers' and administrators' perceptions of the effects of the partnership on student achievement. Interviews revealed that teachers and administrators perceived that students benefited in academic, social/affective, and general domains. Furthermore, they attributed gains in student achievement to their partnership with the University.*

The essential feature of successful school improvement in urban contexts . . . is that of linking the development of teachers to student work and learning achievement. This connection is the missing piece of the PDS framework for successful school development in urban contexts. (Murrell, 1998, p. 41)

The "No Child Left Behind Act" was signed into law by President George W. Bush on January 8, 2002. The basic premise of this act is that student achievement in "high needs schools" must improve in order to close the achievement gap between wealthy and lower socio-economic status students in America. Although Black-White and Hispanic-White achievement gaps narrowed in the 1970s and 1980s, they then widened in the late 1980s and 1990s and are still large (Lee, 2002). The fundamental principle behind the "No Child Left Behind Act" is that every child *can* learn and is expected to learn. Built into this Act is a commitment to improve teaching quality, improve education for English language learners, increase accountability, and improve student outcomes, especially in reading. Further, the Act includes a commitment to focus resources on proven educational methods that will help all children learn (www.whitehouse.gov/news/releases/2002; www.whitehouse.gov/infocus.education/teachers/execsummary.html).

We describe one urban elementary school's struggle for school-wide change designed to enhance academic outcomes for all students, including students with disabilities.

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Carter Elementary School (pseudonym) is considered a high needs school with a student population that is about 96% Hispanic. Approximately 43% of the students are limited in English proficiency. During an eight-year period, Carter School's test scores rose noticeably and the school is now considered a shining example of what is possible in low economic areas and with culturally and linguistically diverse students (e.g., in a nationwide analysis, they were selected as a "high flying" or high-performing school, Jerald, 2001). The purpose of this paper is to describe changes in student achievement at Carter after the school began collaborating with a nearby university, first through a research project and then as a full-fledged Professional Development School (PDS).

The PDS model was developed to provide a true spirit of collaboration among university and school personnel. During the reform efforts of the late 1980s, the PDS model was conceptualized by the Holmes Group as a way to strengthen the relationship between public schools and institutions of higher education, thereby improving education (Darling-Hammond, 1994; Holmes Group, 1986; Kochan & Kunkel, 1998). While there are a number of definitions of the PDS model, the most commonly used was formulated by the Holmes Group as a "school for the development of novice professionals, for continuing development of novice professionals, and for the research and development of the teaching profession" (p. 1). According to Goodlad (1988), the strength of such a model is that by combining and focusing resources to support a mutual concern, opportunities for real reform are increased.

PDSs are designed to benefit all those involved by creating different, expanded roles and new types of interaction among participants. University faculty members spend much more time in K-12 schools, gaining valuable knowledge of the realities of teaching in public schools. On the other hand, school personnel gain useful information about the latest research-based methods and are much more involved in the design, improvement, and implementation of teacher preparation programs. On-going professional development for practicing teachers and classroom-based research are both integral components of the PDS model, with the goal of improving instructional practice. Ideally, it is students who ultimately benefit most from these efforts.

Professional development schools in the urban context

PDS advocates, including the authors of the Report of the National Commission on Teaching and America's Future [NCTAF] (1996), envision professional development as a way to address the achievement gap in urban schools. Valli, Cooper, and Frankes (1997) noted that PDSs were conceptualized as a "way to educate everyone well" (p. 254). Essential to successful school improvement in urban contexts is the linking of the professional development of teachers to student learning and achievement. The Holmes Group (1990) dedicated a chapter to these issues in *Tomorrow's Schools,* entitled "Everyone's Children: Diversity, Equity, and Social Justice." They noted that "a major commitment of the PDS will be overcoming the educational social barriers raised by an unequal society" (p. 7). Yet critics claim that PDSs have not yet done enough to help transform urban public schools into multicultural, democratic learning communities and have failed to live up to the promise of ameliorating inequalities (Murrell, 1998; Valli et al., 1997; Zeichner, 1996). Valli et al. noted in their synthesis of PDS research that "a comparison between the equity goals outlined in the Holmes Report (1990) and the actual achievement of PDSs to date indicates a large gap between realities and expectations yet to be fulfilled" (p. 290).

Student Outcomes

Despite frequent claims about the effectiveness of PDS partnerships, few studies have actually chronicled their successes and even fewer have addressed student achievement. In a 1998 review of the literature, Teitel noted a paucity of quality studies about the effects of PDSs and called for substantive evaluation of the PDS model. Most of the documentation Teitel found focused primarily on pre-service teachers and relied upon self-report data, usually a survey instrument,

as the principal data source. Teitel found almost no information on the impact of PDSs on students. What he did find was buried amid other data (i.e., math score gains in one urban elementary PDS in Michigan: Judge, Carriedo, & Johnson, 1995; gains in writing scores on state achievement tests as the result of a writing buddies program in a PDS: Wiseman & Cooner, 1996). Also in 1998, Zetlin, MacLeod, & Michener described findings from their work in five urban schools with language minority populations. Teachers reported accelerated student learning, gains in social skills, and increased motivation, but no actual test scores were provided.

The number of articles about PDSs has increased dramatically since 1998. A large number of studies still continue to focus on pre-service teachers' thoughts and experiences rather than student outcomes (e.g., Neubert & Binko, 1998; van Zandt, 1998). Although research on PDSs has increased and many of those involved feel strongly that their partnerships are improving the learning of prospective and experienced teachers, teacher educators, and K-12 students, credible evidence to document these changes is still sparse (Teitel, 2001). Houston, Hollis, Clay, Ligons, and Roff (1999) found higher test scores, teachers spending more time responding to student signals, checking student work, encouraging self-management, praising student behavior and performance, as well as correcting student performance through a PDS model. The Teacher Education Research Group (1999), however, found no significant differences on the achievement data and slightly more positive attendance and graduation rates when 21 PDSs with state and county averages were compared for trend-line analysis of attendance, graduation rate (for high schools), and achievement. The PDS impact on students and student learning is still unclear. The lack of research on the effects of participation in PDSs on students' affective and cognitive development, particularly culturally and linguistically diverse students, is troublesome (Abdal-Haqq, 1998; Valli et at., 1997; Teitel, 2001).

The purpose of this paper is to provide an account of changes in student achievement over an eight-year period in an urban PDS. We report standardized test scores over the years, compare the school's scores with those of similar schools, and describe teachers' perceptions of student learning. Our report is descriptive only—no statistical analyses were conducted. We sought to answer the question: Is the PDS model a viable way to improve student outcomes and help narrow the achievement gap for culturally and linguistically diverse students in high-need urban schools?

Methods

Participants

Overview of the Students

Carter Elementary School is located in Region I of a large metropolitan school district in the southeastern United States. The student population was approximately 1,000 throughout the years of this study, with more than 91% of the students of Hispanic ethnicity. The percentage of students with limited English proficiency grew from 36.1 during the 1993/1994 academic year to 47.1 in 2000/2001. In addition, 75% or more of the students received free or reduced lunch each year, reaching a high of 80.9% in 2000/2001. The number of students with learning disabilities ranged from a low of 40 in the first year of the study to a high of 70 eight years later (Miami-Dade County Public Schools District & School Profiles). See Table 1 for more details.

Overview of the Teachers

The number of teachers at Carter Elementary remained fairly constant from 1994 to 2001, with a mean of 49 each year. The ethnicity of teachers was on average 49% Hispanic, 27% White non-Hispanic, and 23% Black non-Hispanic. The percentage of teachers new to the school ranged from 4.2 to 16.0 (see Table 2).

Procedures

PDS Model at Carter

Carter began its relationship with the University when the assistant principal called a University researcher in the spring of 1993 and asked for help as the school transitioned

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Table 1. Carter Elementary Demographic Information: Students

Academic Year	Total # of Students in Carter Elementary School	Total # of Students with Specific Learning Disability	% of Hispanic Population	% of Students on Free or Reduced Lunch	% LEP (Limited English Proficient)
1993–94	937	40	91	74.7	36.1
1994–95	989	64	94	77.0	38.0
1995–96	1035	62	94	77.8	40.6
1996–97	952	48	96	76.5	48.9
1997–98	988	49	95	76.6	47.0
1998–99	1001	61	96	77.8	42.9
1999–00	983	71	97	76.2	44.9
2000–01	948	73	96	80.9	47.1

to an inclusive special education service delivery model. Thus, Carter became involved in a research project designed to support school restructuring. The university team assisted a small cadre of teachers that included general education teachers and the special education teachers who co-taught with them. It was in large part due to the success of these efforts that the partnership grew and Carter eventually was selected to become one of the University's first PDSs in the spring of 1995 (for a discussion of the factors that facilitated the start of the PDS partnership, see Klingner, Ahwee, van Garderen, & Hernandez, 2002).

At first, the partnership was characterized by uncertainty about what it actually meant to be involved in a PDS. Therefore, the Carter PDS model emerged "from the ground up." One of the partnership's first actions was to institute the University/Carter Advisory Committee, made up of general and special education teachers, administrators, a parent, and university professors. The committee met regularly and focused on identifying needs, problem-solving, and developing goals as part of an action plan. Early activities by the University consisted of (a) teaching an on-site course to prepare teachers to be clinical educators (i.e., to have university students in their classrooms), (b) placing a cadre of eight interns in the school, and (c) assigning a professor-in-residence to the school (the first author of this paper, who herself had been a special education teacher and who had been involved in the research to support inclusion from the beginning).

The professor-in-residence spent approximately one day each week at the school. The activities of the professor-in-residence were determined collaboratively through a process of identifying and prioritizing needs and matching these with the skills and expertise of the professor-in-residence (who specialized in reading, methods for addressing the needs of culturally and linguistically diverse stu-

Table 2. Carter Elementary Demographic Information: Teachers

Academic Year	Total # of Teachers	# of K-6 GE Teachers	# of ESE Teachers	% of Teachers New to School	Ethnicity of ESE and GE Teachers		
					W	B	H
1993–94	47	45	2	No Data	16	11	20
1994–95	49	45	4	12.2	17	11	21
1995–96	50	46	4	16.0	16	13	21
1996–97	48	45	3	10.4	13	11	24
1997–98	49	46	3	8.0	14	11	24
1998–99	52	48	4	4.2	12	11	29
1999–00	50	47	3	10.0	10	12	28
2000–01	50	45	5	8.0	10	13	27

dents, and learning disabilities). For example, to help teachers meet the district's requirement that they earn an endorsement in Teaching English to Speakers of Other Languages (TESOL), the professor-in-residence taught three on-site TESOL courses for teachers and pre-service teachers (university education students). The school also targeted literacy as an area of concern because of their low reading scores on standardized tests. Thus, the professor-in-residence made it a priority to facilitate teachers' learning and implementation of research-based practices designed to support reading in heterogeneous, culturally and linguistically diverse classrooms. Towards this end, the professor-in-residence (a) provided in-service workshops, (b) demonstrated the practices in teachers' classrooms on a regular basis, (c) observed teachers implementing the practices and provided feedback, and (d) facilitated teachers' sharing their expertise with one another. All the while, the professor-in-residence and interested teachers conducted research on the effectiveness of these practices in their classrooms (see Klingner et al., 2002; Klingner & Vaughn, 2000; Klingner, Vaughn, & Schumm, 1998) and the sustainability of the practices (see Klingner, Arguelles, Hughes, & Vaughn, 2001; Klingner, Vaughn, Hughes, & Arguelles, 1999; Vaughn, Hughes, Schumm, & Klingner, 1998). The three instructional strategies taught by the professor-in-residence and research teams included:

Collaborative Strategic Reading (CSR) is effective for students with and without disabilities in general and special education diverse classrooms (Klingner & Vaughn, 1999, 2000; Klingner et al., 1998). Students apply comprehension strategies while reading content area text in small cooperative learning groups. The primary goals of CSR are to improve students' reading comprehension and increase their conceptual learning. CSR combines methods found to be effective for English language learners: comprehension strategy instruction (Anderson & Roit, 1996; Chamot & O'Malley, 1996; Hernandez, 1991; Klingner & Vaughn, 1996) and cooperative learning (Durán & Szymanski, 1995; Jacob, Rottenberg, Patrick, & Wheeler, 1996; Long & Porter, 1985).

Partner Reading is a multilevel activity that is ideal for large, heterogeneous classrooms (Delquadri, Greenwood, Whorton, Carta, & Hall, 1986; Mathes & Fuchs, 1993; Mathes, Fuchs, Fuchs, Henley, & Sanders, 1994). Students read together in pairs, building fluency and comprehension. During each session, students take turns reading to each other, retelling what they read, summarizing main points, and predicting what will happen next.

Making Words (Cunningham & Cunningham, 1992; Cunningham & Hall, 1994a, 1994b) is a teacher-guided, active learning practice that was developed to help students become more aware of common word patterns as well as improve spelling and decoding skills. The teacher guides students through the lessons by directing them to spell different words using individual letter sets, modeling correct spelling using large letters and a pocket chart, and pointing out different spelling patterns.

Data Sources

Our primary data sources were student scores obtained from their performances on the Stanford Achievement Test (SAT) and the Florida Comprehensive Achievement Test (FCAT). Individual interviews were also conducted to obtain teachers' and administrators' perceptions of the effects of the partnership on student outcomes.

Primary Data Sources

Student scores on the two achievement tests were obtained through various avenues. The district's Office of Educational Planning provided copies of Carter's, other Region I schools', and the district's scores on the assessment measures as well as school demographics (i.e., the percentage of Hispanic students, the percentage of students with limited English proficiency, and the percentage of students who received free or reduced lunch) from 1993 through 2001 (Miami-Dade County Public Schools District & School Profiles 1993–2001). Additionally, the state annually assigns grades to all schools across the state based on their students' performances on the Florida Comprehensive Achievement Test (FCAT), the Florida

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Writes Test, and a host of other factors (e.g., attendance and the percent of students who take the tests). We obtained these grades from The Miami Herald (June 25, 1999). Scores not available through this method were obtained from the following websites: www.FIRN.edu and http://dcps.dade.k12.fl.us. This information was then entered into descriptive tables.

Individual Interviews

Individual interviews were conducted in either informal or semi-structured formats over the years. Informal interviews were conversational in style and mostly concerned with the kinds of support administrators and teachers needed for their school, students, and in their classrooms. The semi-structured interviews followed a predetermined list of questions with follow-up probes. These questions were designed to elicit teachers' perceptions about the efficacy of certain instructional practices for improving student outcomes as well as how effectively they were implemented into their curricula.

More extensive interviews were conducted in certain years. In 1996, researchers carried out individual interviews with all 47 teachers at Carter Elementary to obtain their perceptions of their school's professional development relationship with the University and its perceived effects on student outcomes. General education, special education, and special area (i.e., art, music, PE, English for Speakers of Other Languages, and Spanish) teachers were included. Each interview lasted between 20 and 30 minutes and was tape-recorded and transcribed soon afterwards.

Additional interviews were conducted during the fall of 1999 to obtain a better understanding of what had happened at Carter Elementary over the years since the partnership had begun. Questions focused on teachers' and administrators' perceptions of their professional development partnership with the University, and how that partnership affected their students. A protocol was developed based on participants' roles. Interviewees answered seven questions about the conditions that enabled the partnership to begin and continue; the changes Carter underwent as a result of the partnership; the positive and negative impacts of the partnership on administrators, teachers, and students; and the major external events that may have influenced the partnership. Each interview lasted no longer than thirty minutes. A total of 33 individuals involved in the school's professional development program since its start participated. Twenty-eight of these 33 individuals were present and former special education and general education teachers, four were present and former administrators, and one was a parent liaison (and parent of a student with learning disabilities as well as the parent representative on the advisory committee).

Data Analysis

Individual interviews were analyzed following certain aspects of the guidelines suggested by Miles and Huberman (1994). Individual interviews were first transcribed into electronic formats. After the principal investigator read the transcripts, she researched possible organizational frameworks and determined whether further data sources were needed. This latter step was ongoing and occurred throughout the project.

Three researchers independently extrapolated themes from the transcripts of interviews (Strauss & Corbin, 1990) and subsequently met in a group to compare themes, resolve disagreements, and develop a common set of revised themes (Vaughn, Schumm, Klingner, & Saumell, 1995). With the final set of themes, two researchers separately coded participants' responses and then came together to discuss their codes. Initial interrater reliability rate was .96; the two researchers discussed their few differences and established 100% agreement.

Results

We first report student outcome data at Carter as well as scores across comparable schools. We next describe relevant themes extrapolated from the interview data over the years. Themes were organized into the academic, affective/social, and general domains.

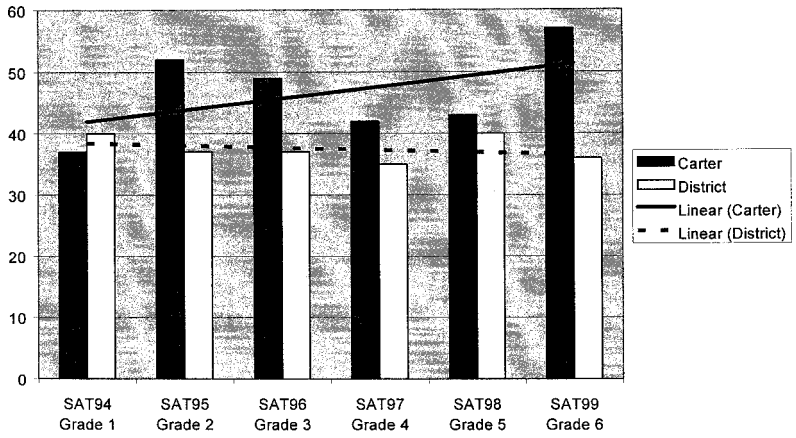

Figure 1. SAT Comparison Chart: Carter and District Grade Level Scores (Same Students)

Student Outcome Data

We looked at student achievement scores in two ways. First we looked at the trajectory of change over the years from 1993 to 1999 on the Stanford Achievement Test. Then we compared Carter's scores with those of similar schools in their region. In 1999, the state transitioned from the Stanford Achievement Test to the Florida Comprehensive Achievement Test as their high stakes assessment measure.

Changes from 1993 to 1999

We were not able to obtain mean schoolwide scores on the SAT for every year, but we did acquire mean grade level scores across the years for Carter, and district-level mean scores from 1994 to 1999 (the last year the test was given). We present these data in two ways. First, we compare the same group of Carter students' scores with district averages, from first through the sixth grades (1994–1999). (Note that during this period some students left the school and others came in, and so the averages were not computed from the same students each year.) Then we show how one grade level (sixth) compared over the years. We plotted these data onto bar graphs and added trend lines (see Figures 1 & 2).

In 1994, the district average for first-graders on the SAT (40) was slightly higher than that of Carter's first-graders (37). As these students progressed through the grades, the district average stayed about the same (37, 37, 35, 40, 36, respectively), while Carter's scores increased, with some fluctuation

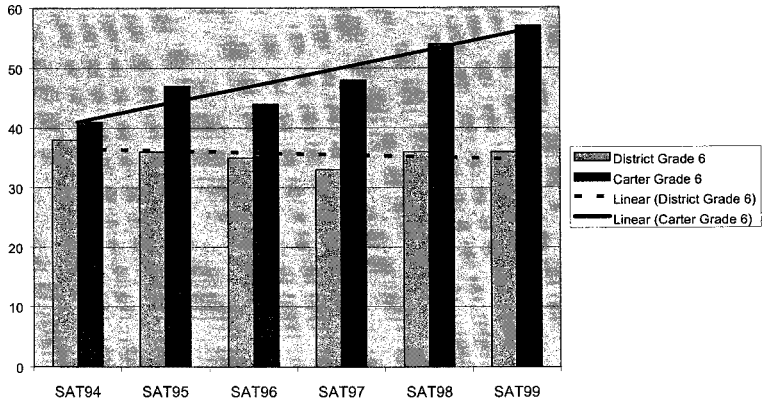

Figure 2. District and Carter 6th Grade SAT Comparison

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(52, 49, 42, 43, 57). In other words, Carter students initially achieved at the same level as the district but soon achieved at a higher level (57th percentile compared with the 36th percentile in grade 6; see Figure 1).

In 1994, Carter's sixth-graders achieved an SAT score of 41. The following year the sixth-graders' mean score was somewhat higher (47), followed by a slight dip to 44 in 1996. Over the next three years, however, their scores rose steadily (48, 54, and 57). During this same period, district means stayed about the same (ranging from 33 to 38) (see Figure 2).

Overview of Comparable Schools

In Carter's region, 13 schools with similar demographics were identified for comparison purposes. These schools were selected based on several criteria. Like Carter, each school had a Hispanic population of 90% or more and 70% of the student population received free or reduced lunch (see Table 3).

On the reading comprehension sub-test of the SAT, only one school outperformed Carter's score of 43 in 1995 (Roosevelt, with a score of 45). In 1996 and 1997, no schools achieved scores higher than Carter's scores of 44 and 43, respectively, but two schools had the same score in 1996 (Nixon and Roosevelt) and one school had the same score in 1997 (Ford). In 1998 and 1999, Carter students outperformed all other comparable schools in the region.

The Florida Comprehensive Achievement Test (FCAT) was first given in 1999. The FCAT Reading mean scale scores for comparable schools in the region ranged from 235 to 291, with Carter's students achieving the highest (n = 291). In 2000, however, Carter's FCAT Reading mean scale score dropped to 278, but it was still higher than the district's mean score (n = 274). Ford, Reagan, Eisenhower and Adams Elementary Schools outperformed Carter Elementary with scores of 279, 288, 280, and 290, respectively. In 2001, Carter increased its score to 296 and had the second highest score in the region (McKinley scored 312).

Based on test scores and other factors mentioned above, in 1999 Florida began assigning grades to all schools in the state

Table 3. Comparison of Carter's Test Scores with Those of All Similar Schools in the Region

Schools	% of Hispanic	% of LEP	% Free or Reduced Lunch	School Grades			FCAT Reading Mean Scale Scores			SAT Reading Composite			
				99	00	01	99	00	01	95	96	97	98	99
Carter	97	44.9	76.2	C	A	A	291	278	296	43	44	43	42	45
Bush	93	48.2	92.3	F	D	D	235	245	241	29	31	29	28	28
Ford	95	41.5	69.6	D	A	A	274	279	287	42	42	43	40	38
Adams	83	42.4	83.5	D	C	C	284	290	282	35	34	39	36	39
Reagan	97	25.6	79.0	D	A	B	267	288	285	42	42	39	39	39
McKinley	97	41.9	81.1	D	D	A	287	263	312	40	38	36	36	38
Nixon	96	32.9	74.2	C	C	D	281	270	279	39	44	41	39	36
Clinton	91	38.1	90.9	F	D	A	242	249	266	30	35	32	26	26
Kennedy	91	39.8	74.4	D	C	C	262	275	279	37	34	36	30	35
Eisenhower	95	27.8	74.2	D	C	A	278	280	278	33	36	33	34	39
Truman	96	43.0	90.3	D	C	C	256	269	269	35	35	35	33	35
Grant	92	32.1	74.2	D	C	A	261	267	289	35	38	35	35	36
Roosevelt	94	38.1	74.0	C	C	A	283	273	286	45	44	39	40	42
Washington	97	49.6	84.7	D	D	C	264	253	260	34	40	35	30	29

through their A+ Plan. In this first year, not one of the comparable schools received an A or B, and only three schools received a grade of C: Carter, Nixon, and Roosevelt. In 2000, most of the schools received an average grade of C while three schools excelled with As: Carter, Ford, and Reagan. Overall, all schools received a higher grade than the previous year and none of the schools were assigned Fs. In 2001, Carter was one of seven schools to be awarded the highly sought-after A.

Also, other research projects over the years focused on specific instructional practices taught through our professional development program and found enhanced student outcomes due to these practices (e.g., Klingner et. al., 1998; Klingner & Vaughn, 2000; Vaughn et al., 1998).

Teachers and Administrators' Perceptions of Student Outcomes

Over the years, teachers and administrators have responded to questions or simply offered their opinions regarding the impact of the University's involvement with their students. Their responses have fallen into three categories: academic, social/affective, and general. The dates following the quotes indicate in which year the interview was conducted.

Improved Academic Outcomes

It was clearly the perception of Carter's teachers and administrators that their students were making accelerated progress because of their involvement with the University. One teacher expressed the views of many, "They have improved greatly. Now they like to think, they pay more attention, and they learn a lot" (1996). Another teacher explained that not only do students benefit from their teachers learning new skills, but "they also benefit directly from in-class demonstrations and feedback provided by the professor-in-residence" (1996). Carter administrators and faculty specifically attributed an improvement in students' test scores to the partnership. As one teacher exclaimed, "How has Carter changed as far as our students? Look at our test scores and it says it all right there; we don't have to say another thing! It's brought in new techniques for the older teachers like myself. We are extremely motivated" (1999). Another teacher revealed the following:

> (The partnership) has been very helpful, especially in this type of environment. We have some Spanish-speaking kids and Making Words really helps them with applying the vocabulary. And the different strategies they (the university professors) teach, we implement in our classes and it's definitely moving our students along and (improving) our Stanford scores. The reading scores have gone up. (1999)

An assistant principal provided the most detail about how the partnership affected student achievement:

> Certainly we have experienced increased student achievement and our state test scores do indicate that. Our school received the State of Florida School Recognition Program for increased student achievement, so we are experiencing a lot of success with our students and I think a big key to that is through instruction and through the strategies, bringing research into practice. So many times teachers read magazines and journals about these great techniques, but through the partnership we have actually had modeling of these techniques. We have someone actually come in and say, 'Okay this is how you make it happen and this is how you put it all together,' because sometimes when you just read something you say, 'How in the world am I going to do this?' I think that the partnership has assisted teachers in that. Also, I think the University offers us plenty of support and when the district's new Comprehensive Reading Plan came out, our teachers were very concerned and (the professor-in-residence) worked closely with us to present an in-service so the teachers could see how that program plus the strategies they learned through (the University) meld together and how it wasn't something that was so brand new. It had been something they had been doing all along. (1999)

One teacher described the recognition the school would be receiving for its increased student achievement:

> We are 1 of 20 schools that is receiving incentive pay . . . $97,400, something that we are receiving from the State of

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> Florida because our scores showed such improvement on the FCAT that we were recognized by the State of Florida. On Dec 1st the State Commissioner of Education, the Mayor, our State Representative, our County Commissioner, the School Board representative in this area, and two of our regional directors will be here for (the State Commissioner) to sign this big check and present it to the school and all of the teachers will receive a week's pay bonus. (1999)

Social and Affective Benefits

Teachers agreed that students "simply enjoy using the strategies" (1996, 1999). "They are enjoying it more, so that affects their attitudes" (1996). Some teachers also noticed improved self-esteem amongst their students with disabilities (1999). Furthermore, involvement with the University exposed students to other adults besides their teachers (1996). Students learned to "communicate with a lot of people. Anyone who comes in and teaches them, makes them very quickly switch over [to] receive information from that person. [Then] they don't feel awkward when other people are coming to work with them." Another social benefit stemmed from the strategies facilitating greater participation among students because the University promoted collaboration in inclusion classrooms (1996). The strategies fostered cooperative learning (1996, 1999). For example, one teacher noted, "A lot of the techniques involve cooperative learning so they work together and learn to give each other positive feedback instead of negative feedback . . . I think it's necessary for children—a lot of times they don't get that even at home, getting along together. It's a very important part of making society. They need to grow in peace, so we need to practice these skills (e.g., cooperative work)" (1996).

General Benefits

Teachers and administrators perceived that students benefited from the partnership in general ways (1996, 1999). The principal noted that students' attendance had increased because of the school's involvement with the University. She said:

> When you have an exciting program, an interesting program, a hands on program, students come to school everyday, and really that's the key to our success with student achievement. Our student attendance is extremely high and that's due to the kind of program we have. I often tell both teachers and parents that it doesn't matter how many computers you have or what kind of program you're offering if kids are late or not in school often. Those kinds of things don't really matter if the children aren't here to receive the instruction. (1999)

Teachers believed that the partnership resulted in students receiving the 'best' education. One teacher articulated that "the children in my room in kindergarten certainly benefit from being involved with the University . . . because of the very inventive programs [they] are offering, we will continue to have the best for our children from kindergarten right up through the sixth grade" (1996). Similarly, the principal valued that her teachers were "on the cutting edge as far as teaching techniques." She said:

> It was very interesting to us that the school district came out with a 'brand new,' quote unquote, reading program a year or so ago and some of the teaching techniques that the school system is showcasing are the same techniques our teachers learned five years ago when (University faculty) first did their research project. So we were certainly well ahead of what we needed to learn and be able to do in order to help our students succeed. (1999)

Discussion

We investigated what happened to students' test scores over the years when Carter Elementary joined forces with a University through a research project and then became a PDS. Although many articles have been published about the benefits and challenges of PDS relationships, little research has been conducted about the impact of such partnerships on students. Ultimately, the goal of our efforts must be improved student achievement (Guskey, 2000). We sought to find out if the PDS model is a viable way to narrow the achievement gap for culturally and linguistically diverse students in high-need urban schools.

We believe that the PDS model *is* a feasible way to bring about gains in student achievement, but with some caveats. During the eight-year period Carter was involved with the University, students' scores on high stakes tests rose noticeably and the school is now considered a shining example of what is possible in low economic areas and with culturally and linguistically diverse students (e.g., in a nationwide analysis, they were selected as a high-performing school; also, they received accolades through their state's School Recognition Program). Surely many factors contributed to this improvement. Yet it is significant that Carter administrators and teachers firmly believe that student achievement increased *because* of their involvement with the University. They give credit to the instructional practices they learned through professional development activities, the presence of University faculty to provide guidance, the infusion of energy and new ideas provided by pre-service teachers, and their involvement in research with the University. For a more detailed discussion of these factors, see Klingner et al. (2002).

Differences between Carter's and Typical Urban PDS Models

We believe that the PDS model must be given much of the credit for the improvement in student achievement at Carter, but recognize that the PDS model implemented there was not typical in some ways. Differences included (a) how the partnership began, (b) the extent to which research was a focus, (c) the cohesion of the professional development model and the importance given to it, and (d) the goodness-of-fit with the professor-in-residence.

First of all, Carter did not become a PDS in a typical way. Rather than University personnel taking the lead, Carter administrators initiated contact, approaching researchers because they thought they had something to gain by doing so. Because school personnel were happy with what they were getting from their relationship with select University faculty, they wanted to expand their involvement. And because University researchers were pleased with the commitment and enthusiasm they witnessed at Carter, they saw the school as ripe for transition to a broader level of engagement. It should be remembered that Carter administrators' and teachers' intensive collaboration with the University research team was the precursor to the school becoming a PDS.

Perhaps because of how the Carter PDS partnership began, those involved considered research and inquiry to be of great importance—teachers and professors seemed to take for granted that this was the way it should be. Also, throughout the years of the PDS partnership, research efforts were supported by federally funded grants to investigate the instructional practices and the professional development model at Carter. Teachers were ready collaborators and participants. This is in stark contrast with what Valli et al. observed when they noted that "unfortunately, the nature of research and inquiry remains the least elaborated aspect of PDS work" (p. 281) or what Moore and Hopkins (1993) found when they reported that research was viewed as the least important aspect of PDS work by teachers. When interviewed in 1996 about the role of research in a PDS, Carter teachers reported that it was very important and that they played a key role. The following three quotes are representative:

1. Research is very important, because we need to find out what is working and what is not working. Teachers as well as (University professors) need to follow up on their research and see if there's a different approach we can use, or what is benefiting or not benefiting the students. I think that research plays a key role in the development of education.
2. I think that research does play a key role in the Professional Development School. I feel the teachers play a key role as well because nobody knows a classroom better than the teacher who is in it. . . I think we are behind the research 100%. I think teachers should mind what they are doing and understand what they are doing and know why they are doing it. Once they demonstrate what they are doing, then I think we all work together as one family so that we can get the job done.
3. There are a great deal of roles teachers can

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play (as part of a PDS). We could be part of research, for example. Teachers themselves could be part of research; their class, the children in their classes could be part of research. They themselves could be on the research team with the University. They could be involved on various levels, individually, classroom, school, and university.

Professional development for practicing teachers was a fundamental component of the partnership from the beginning at Carter (not an add-on or afterthought). It was because the professional development program provided to a small cadre of inclusion teachers was so successful that the Principal wished to expand this program and make it available to all teachers in her school. Therefore, the Principal's *first* request of the new professor-in-residence when the school became a PDS was to provide workshops on the same instructional practices and follow-up support to everyone. This request became a priority. What began as strategies designed to promote learning primarily for students with LD became instructional practices believed to increase achievement for *all* students (Schumm & Vaughn, 1995; Vaughn et al., 1998). Over the years, the methods for providing professional development and enhancing the sustainability of the practices continued to be investigated and refined (Klingner et al., 1999; Klingner et al., 2001).

Another difference had to do with the match between the students and teachers at Carter. Almost all of the students and about half of the teachers were Hispanic. Also, the professor-in-residence spoke Spanish and was of mixed Hispanic ethnicity. She had taught for ten years in schools with similar demographics and had expertise in literacy and English language development. Thus, the professor-in-residence was a "good fit" for this particular school.

Limitations

This study investigated the professional development model at one school only. Thus, generalizations to other settings are not possible. However, to the extent that the experiences of those at Carter "ring true" to others involved in similar work, the lessons we learned can apply and be of value. Yet, as discussed above, we question how typical our model was and acknowledge that there were some definite differences.

We wonder how much the improvement in student achievement was due to the implementation of the specific instructional practices we selected and how much can be attributed to the PDS model. After all, we had carefully chosen research-based practices with substantiated effectiveness (Vaughn et al., 1998). Yet we believe it is noteworthy that it was the PDS model that became the *vehicle* for teaching these practices to all of the teachers in the school.

It is also difficult to tease out the relative contribution of the federally funded research projects conducted at Carter over the years versus the involvement of Carter as a PDS. When asked about this, the stakeholders at Carter said they believed that yes, the research project was what got them started and was very important, but it was becoming a PDS that took them to the next level and led to whole-school change.

Implications

The greatest implication from this research would seem to be that for stakeholders involved in urban PDSs to be effective in improving student outcomes, they should consider developing a clearly articulated professional development program that (a) is centered upon research-based practices, (b) includes adequate support for teachers, (c) values and builds on teachers' expertise, and (d) incorporates a strong research component through which the effectiveness of practices is evaluated. If the lessons from Carter hold true, professional development and research should be considered as important as the preparation of new teachers, intertwined in a balanced model where everyone involved learns from everyone else for the betterment of each. School change is a complex process that occurs at multiple levels.

We agree with Murrell (1998) who describes "a new conceptual framework for PDSs in urban settings" as "having high expectations for students, cultural congruence of instruction, culturally inclusive curriculum, knowledgeable teachers, and appropri-

ate instructional strategies" (p. 42). Yet we would take this framework even further. Murrell describes *what* our goals should be but not *how* we should get there. We would add foci on professional development and research as methods for accomplishing these goals. The professional development program should involve teachers as key collaborators whose professional judgments are valued. In our work at Carter, we brought in research-based practices but neither we nor the school's administration mandated them in a prescriptive way that invalidated and disempowered teachers. Our focus was on developing a community of learners where risk-taking and experimentation were encouraged and peers supported each other (Klingner et al., 2001; Pugach, 1999; Putnam & Borko, 2000). Research was not considered something that university professors were imposing on the school, but rather, a necessary component of school change established in conjunction with needs identified by school personnel.

Future Research

Additional investigations that examine student outcomes along with the implementation of research-based practices at other professional development schools would add to our understanding of the feasibility and viability of the PDS model as a way to enhance student outcomes. Were outcomes at Carter the fortuitous result of the combination of several factors that would be difficult to replicate, including the unique combination of skills and personalities of the research teams, the professor-in-residence, the administrators, and key teachers? Or would other universities and schools who attempt to implement this model achieve similar outcomes? What does it take to achieve success and close the achievement gap across multiple sites?

Conclusion

In conclusion, we believe that the PDS model can be an effective way to bring about school change and affect student outcomes. School change at Carter took place on multiple levels and was characterized by close interaction among all involved (Englert & Tarrant, 1995; Fullan, 1991). Carter personnel clearly came to see themselves in a different light through their interactions with the University. Not only were they involved in extensive professional development, they also participated in numerous research projects over the years. They became more sophisticated in their understandings of research, and more informed consumers as well as participants in the process. They *requested* more professional development in research-based practices (knowing full well what that meant in terms of their own commitments) and prided themselves in being on the cutting edge of practice. One teacher succinctly explained this change:

> I think being a PDS gave us professional awareness. When I first came to Carter, everybody was teaching, everybody was working, but we were teaching on an island all by ourselves. Now there's professional awareness. People think of teaching as a profession, about where they are going, what is happening to the profession. There's a lot of talk about what is going to happen to this program and that program, what we are doing, how effective we are, how effective we are not. We became aware of who we are as teachers.

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