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**AN INVESTIGATION OF
THE NATIONAL STAFF DEVELOPMENT COUNCIL'S
STANDARDS OF STAFF DEVELOPMENT**

A Dissertation

Presented to

The Faculty of the School of Education

The College of William and Mary in Virginia

In Partial Fulfillment
Of the Requirements for the Degree
Doctor of Education


by
Wendy C. Krickovic
May 2002


**THE NATIONAL STAFF DEVELOPMENT COUNCIL'S
STANDARDS OF STAFF DEVELOPMENT**


by

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Approved May 2002 by


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Chriss Walther-Thomas, Ph.D.

Dedication

This dissertation is dedicated to two important people in my life: my grandfather, Thomas Alexander Clark, Sr., and my sister, Amy Chappell. My grandfather was the center of our entire family and, through his sacrifices, gave his children and grandchildren circumstances that would help fulfill their dreams. “Pop” instilled in me a passion for pursuing what is good and just. For me, that passion has been education. He would have been proud of his second granddaughter.

I also dedicate this work to my sister, Amy, who was hospitalized for much of the time I spent completing my coursework and this dissertation. The courage she displayed while facing numerous surgeries, complications, and recoveries was an inspiration to me. Her faith never faltered and I am grateful that she showed all of us the way to overcome a true challenge.

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My husband, Michael, did not know me before I began “working on my paper.” Even so, he has supported my work by allowing me to read, write, and type while he maintained the household chores. He also displayed great patience and support so that we could see this goal to the end. I thank him for helping me balance the things that were important while still maintaining my focus on the dissertation.

My friends and family also deserve credit for their support during this long and at times seemingly endless process. Although my work on the dissertation took me away from many social events and important times in others’ lives, the constant encouragement and understanding they gave is truly appreciated. The many postcards (from my grandmother), notes, and phone calls helped when my momentum was weakening.

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An Investigation of
The National Staff Development Council's
Standards of Staff Development

Abstract

The major purpose of this study was to examine the relationship between teaching practice, student achievement, and the degree to which professional development in low-achieving elementary schools in one suburban Virginia district met the National Staff Development Council (NSDC) standards. Research methods included a self-assessment survey developed by NSDC, teacher interviews, and analyses of student achievement scores using the Virginia Standards of Learning assessments. According to survey results, participating teachers agreed that the NSDC standards were reflected in professional development activities. The standards of Equity and Quality Teaching were reported to be implemented to the greatest degree in professional development activities, while Resources was the standard implemented the least. On both the self-assessment surveys and the interviews, teachers in 100% of the schools reported changes in their teaching of English as a result of professional development. The percentage agreeing that their teaching of mathematics had changed as a result of professional development was much lower (83% according to survey results and 50% according to teacher interviews).

A significant correlation was not observed between the survey results and teacher interviews. Further, a correlation between the level of implementation of the NSDC

standards and student achievement as measured by the Standards of Learning assessments was found to be not significant.

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**AN INVESTIGATION OF
THE NATIONAL STAFF DEVELOPMENT COUNCIL'S
STANDARDS OF STAFF DEVELOPMENT**

Chapter 1: The Problem

Introduction

Over the last 15 years, new standards for student learning have been introduced across the nation. As a result of this reform effort, greater attention has been focused on the role of teacher quality as it affects student achievement since the success of the standards-based movement depends in part on the ability of teachers to foster knowledge of standards among their students (Loucks-Horsley, Hewson, Love, & Stiles, 1998; National Commission on Teaching and America's Future [NCTAF], 1996; Sparks & Hirsh, 2000). Based on increased evidence that "... investments in teacher knowledge and skills net greater increases in student achievement than other uses of an education dollar" (Darling-Hammond, 1999, p. 32), the development of teachers is now considered an essential mechanism for refining education. Thus, nearly every proposal in the past decade to reform, restructure, or transform schools has included professional development as a necessary component (Hawley & Valli, 1999). Findings from modern-day improvement efforts indicate that "... no change in classroom practice - and thus no gain in student achievement - can be attained without intensive, ongoing quality staff development of the instructional force" (Annunziata, 1997, p. 289).

Virginia Standards of Learning

Like most other states, Virginia introduced standards into its curriculum to establish minimum educational goals that students would be expected to meet. Specifically, the Virginia Board of Education adopted the Standards of Learning (SOL) in the areas of English, science, mathematics, and social studies in 1995. Standards accountability is monitored through regular testing of student progress. Referred to as the

SOL assessments, these tests have been rated near the top of all states' standards movements. For example, one national study recently rated Virginia's standards and assessments as the fourth-best in the nation (Virginia Department of Education [VDOE], 2001). With SOL adoption came approval of the Standards of Accrediting Public Schools (SOA), which define criteria and minimum standards for school buildings and other components of educational programs within the state. This includes guidelines for instructional programs, staffing levels and positions, course and credit requirements for graduation, and community relations procedures (Szakal, 1997).

Despite implementation of standards in 49 states, standards alone cannot improve student performance (Carr & Harris, 2001). Successful academic performance occurs when all aspects of the educational system are linked to standards (Carr & Harris, 2001). That is, "Student improvement most often occurs when curricula and instructional initiatives become an integrated whole, supporting and complementing each other" (NSDC, 1995, p. 45). This includes professional development efforts.

Virginia SOL Training Grant (1998-2000 and 2000-2002)

In an effort to assist Virginia school divisions in ensuring student success with the SOL, a \$30 million grant was approved during the 1998 session of the Virginia General Assembly. Further, in 2000 continued funding of the "Standards of Learning Teacher Training Initiative" was approved through a \$33.9 million grant to the state for the 2000-2002 biennium. The goal of the grant was to improve student achievement in the four core content areas and thus ensure each school's accreditation. Specifically, the funding provided by this direct aid to public education was to support ongoing professional development.

The “Challenge” School Concept

One suburban Virginia school district received \$911,000 from the SOL training grant to meet the instructional needs of more than 40,000 students over the two-year period of 1998-2000, and more than \$1,000,000 for the following biennium (VDOE, 1998, 2000). Leaders in the school district under study decided to concentrate efforts on identified “challenge schools” deemed most at risk for not receiving full accreditation status from the state based on the Standards of Accreditation requirements and, in particular, the Standards of Learning assessments. These challenge schools were defined as those with (a) a large percentage of lower socioeconomic students, (b) a student population with a wide range of academic needs, and (c) a history of low student performance that was not commensurate with expectations (personal communication, July 30, 1998). During the 1998-2000 period 18 of the district’s 60 schools were designated as challenge schools. Although all of the schools showed gains on SOL assessments during the 1998-2000 period, a considerable gap still existed between the current level of performance and accreditation requirements. Therefore, the focus on the challenge school concept was continued during the 2000-2002 biennium (personal communication, July 31, 2000).

Supervision and coordination of the challenge school project was the responsibility of the director of staff development in the district, the fifth largest school system in the state of Virginia. Under the director’s supervision, two professional development specialists were hired to support the schools in planning, implementing, monitoring, and evaluating professional development activities in the challenge schools. These specialists, who were housed in one of the challenge schools, served as peer

coaches, taught model lessons, developed instructional materials, and instructed teachers and administrators in best practices (personal communication, July 30, 1998).

Challenge schools received direct funding from the grant on a per-pupil basis to support professional development efforts (VDOE, 1998, 2000). After carefully reviewing SOL assessment data from the previous year's performance, annual plans for improved student achievement were developed by challenge school improvement teams through the grant. The office of staff development provided school planning teams with a district-developed menu of options to serve as a model of appropriate professional development efforts to be included in their plans. The district menu was created utilizing research and recommended best practices from the National Staff Development Council (NSDC). Specifically, the National Standards for Staff Development served as the framework by which the menu was developed (personal communication, July 30, 1998).

Need for Study

The efficacy of professional development efforts is frequently questioned at the national, state, and district level (Sykes, 1999). Thus, it is necessary to identify appropriate professional development practices to accomplish the goals of standards-based reform (Fine & Perry, 1997; Guskey, 2000; Hassel, 1999; Joyce & Showers, 1995; Killion, 1999; Sparks, 1994; Sparks & Hirsh, 1997; USDOE, 2000). Research-based guidelines set forth by the NSDC provide a framework by which this can be done (NSDC, 2001a). However, it is necessary to determine whether the existence of professional development as recommended by the NSDC standards actually leads to a change in teaching practice and, ultimately, an improvement in student achievement. At stake is not

only the use of the state grant money for professional development in the subject district, but also whether this effort is making a positive difference in student achievement.

Professional development data (i.e., types of professional development provided, level of participation, participant satisfaction) have been collected by district personnel. To date, however, the efficacy of these efforts as measured by a change in teaching practice and, ultimately, improvement in student achievement in the challenge schools has not been examined. If the SOL training grant is to be continued in this district, it is critical to explore the relationship between the implementation of national staff development standards and the ensuing effect on teaching practice and student achievement.

This study was conducted to gather information through paper-pencil surveys and face-to-face interviews for state authorities, local administrators and school board members about whether or not state funds for professional development are used in such a way as to have an impact on student achievement.

Statement of Problem

Since the inception of the training grant in 1998, there has been a lack of evidence showing that professional development efforts, supported by the SOL Training Initiative grant, have helped improve student achievement in the participating district's challenge schools. A greater understanding of the kind of professional development that is meeting with success in the form of changes in teaching practice and improved student results on SOL assessments is needed. Although anecdotal and unidimensional reports in the literature are helpful in understanding common themes among successful professional development programs, stronger theories connecting practices with results are necessary if educators are to empirically document that what they do is beneficial to the

performance of students (Guskey & Sparks, 1996). Specifically, the participating school district's level of success in implementing of professional development to improve student achievement, as defined by the national standards, needs to be measured. If, indeed, national professional development standards are in place, are the challenge schools meeting with success as measured by a change in teaching practice and increased student achievement? In addition, because of the recent publication of the national standards, it is important to validate that their existence in professional development programs in schools leads to positive changes in both teaching practice and student achievement is great. To begin to address these issues, this study investigated:

- the perceptions of teachers in low-performing schools regarding the implementation of national standards of staff development as measured by their responses on a paper-pencil survey and through face-to-face interviews;
- the correlation between the NSDC self-assessment survey and teacher interviews;
- the degree to which professional development had an impact on teaching practice in mathematics and English;
- the correlation between student achievement as measured by third- and fifth-grade Standards of Learning assessments in 2001 and the degree to which professional development met the NSDC Standards.

Theoretical Base

A review of the literature related to effective professional development practices, detailed in Chapter 2, revealed that the body of research directly related to this area

consists primarily of descriptive studies that fall short of demonstrating how teacher learning increases student learning. Only in recent years have researchers begun to evaluate professional development at a level beyond teacher satisfaction and reports containing the number of practitioners participating in traditional staff development activities.

The conceptual framework used in this study is based on NSDC's recommendations for professional development activities that appear to lead to improved student achievement (see Figure 1). Beginning with the three boxes on the left (content, process, context), the model illustrates the 12 components necessary for quality professional development. These are based on the NSDC standards released in 2001. The hypothesis presented in this study was that the overall quality of professional development, as measured by the presence of the 12 NSDC standards, will shape the quality of teacher learning and practice and ultimately affect student achievement in a positive manner.

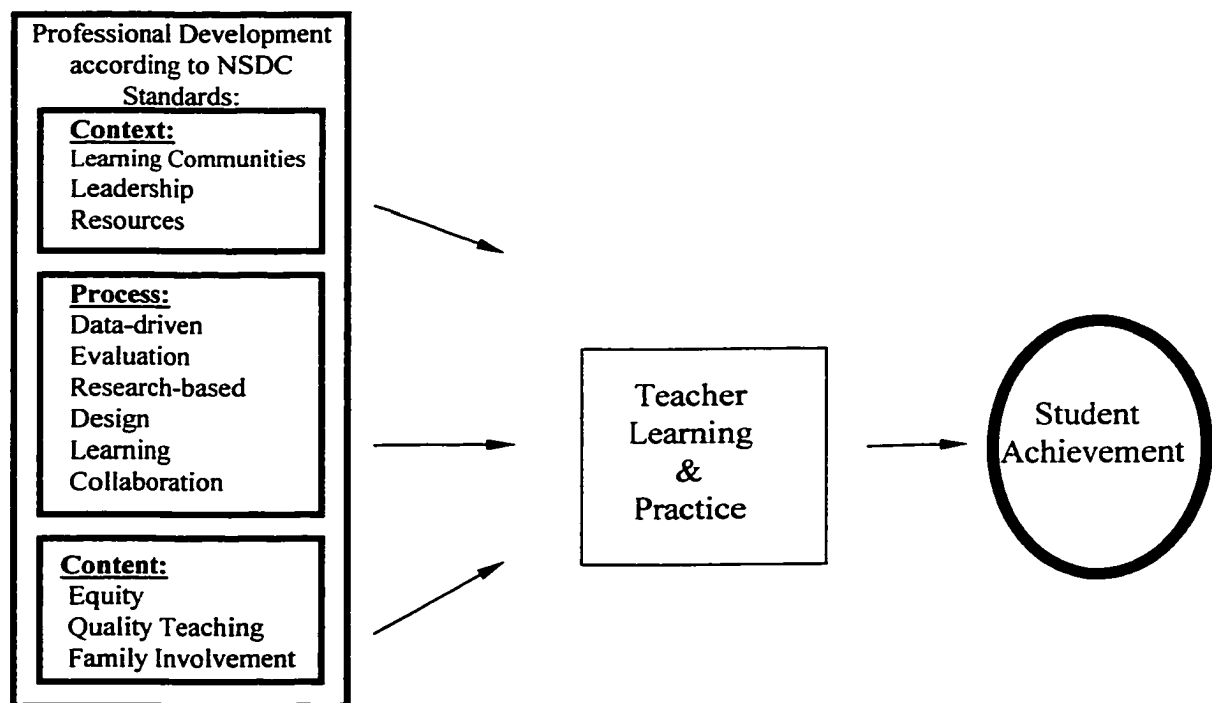


Figure 1. conceptual framework.

Research Questions

The following research questions were examined in this study:

1. According to teachers' responses on the National Staff Development Council's self-assessment survey, were the NSDC standards reflected in professional development activities of elementary "challenge" schools?
2. According to teachers' responses during interviews, were the NSDC standards reflected in professional development activities of elementary "challenge" schools?
3. Is there a correlation between the NSDC self-assessment survey and teacher interviews?
4. According to the results from the NSDC self-assessment survey and the teacher interviews, did teachers change the way they taught English as a result of professional development?
5. According to the results from the NSDC self-assessment survey and the teacher interviews, did teachers change the way they taught mathematics as a result of professional development?
6. Is there a correlation between the 2001 Standards of Learning mathematics and English assessments at the third- and fifth-grade levels and the NSDC self-assessment survey?

Definition of Terms

Challenge Schools

Participating challenge schools, as defined by the public school system in Virginia in which this study took place, met the following conditions in 1998: (a) the schools had a large percentage of lower socioeconomic students, (b) students demonstrated a wide

range of academic needs, and (c) student performance had historically not been commensurate with expectations (personal communication, July 30, 1998). Out of 60 schools in the district, 18 challenge schools were identified in 1998 as meeting these criteria. Twelve were elementary schools, three were middle schools, and three were high schools.

National Staff Development Council Standards

Originally adopted in 1995, the intent of the NSDC standards was for them to be used by schools and districts to improve the quality of staff development efforts in order to increase student learning. Standards were organized into three categories: context, process, and content. The original document, containing a total of 27 standards, was published in three editions were published: one for elementary schools, one for middle, and one for high schools (NSDC, 1995).

The standards were revised in 2001 (NSDC, 2001a) as follows: reduced to 12 standards, one edition for all school levels, an increased focus on technology, and a rationale for each standard along with case studies that demonstrate how the standards work (Hirsh, 2001a; NSDC, 2001a). Three standards are addressed in the area of context: learning communities, leadership, and resources; six standards fall under process: data-driven, evaluation, research-based, design, learning, and collaboration. Finally, three standards are recommended in the area of content: equity, quality teaching, and family involvement (NSDC, 2001a).

Professional Development

As used in this study, the terms professional development and staff development are used interchangeably. Professional development is defined by Guskey (2000) as, “...

those processes and activities designed to enhance the professional knowledge, skills, and attitudes of educators so that they might, in turn, improve the learning of students” (p. 16). Professional development models of today are characterized by intentional, on-going, and systemic routines (Sparks & Hirsh, 1997).

Virginia Standards of Learning (SOL)

The Standards of Learning are the state-adopted “... minimum grade level and subject matter educational objectives that students are expected to meet in Virginia public schools. Along with the Standards of Quality and the Standards of Accreditation in Virginia, the SOL are the legal foundation for curricula similarities among the Commonwealth’s schools” (Virginia Commission on the Future of Public Education [VCOFPE], 1998, p. 13). The SOL were adopted in 1995 by the Board of Education in four core content areas: mathematics, English (reading and writing), science, and history and the social sciences.

Virginia Standards of Learning Assessments

The goals of the Standards of Learning assessments, or tests, are (a) to provide information on the progress of students and schools in Virginia toward meeting achievement levels on the SOL; (b) provide information that can be used to improve instructional programs; and (c) provide assurance as to the quality of public education (VDOE, 2001). The tests are administered in grades 3, 5, 8, 11, and end of course.

Delimitations/Limitations

The difficulty in evaluating professional development at a level beyond teacher satisfaction involves untangling the influence of other factors that are inherent in the classroom setting (Clark & Astuto, 1994; Darling-Hammond, 2000; Darling-Hammond

& Ball, 1997; Evaluation and Policy Information Center [EPIC], 1999; Fullan, 1999; Hawley & Valli, 2000; Killion, 1998, 1999; King & Newmann, 2000; National Commission on Teaching and America's Future, 1996; Scribner, 1999; WestEd, 2000a). For example, this study was limited in that it did not control for all the factors that might affect student achievement, including individual characteristics of participating teachers. Further, the educational and personal backgrounds of participants were not examined. Consequently, the teachers involved in this study may differ from those in areas in which generalizability is sought. Additionally, the Standards of Learning assessments are relatively new and are specific to the state of Virginia.

Because the data collected for this study came from a sampling of schools in a suburban public district in the state of Virginia, additional limitations to this study exist. Specifically, transferability of the findings to other settings must be done with caution after comparing the context of this study's sample to other contexts. Further, the implementation of national standards of staff development was determined through self-reported methods and therefore may not reflect actual events.

Chapter 2: Review of the Literature

Long viewed as a dirty word for educators, “staff development” has looked much the same way since its beginning - an expert sharing a new practice while teachers remain passive recipients of the information. For many years now, educators have come to expect that development involves spending hours listening to the agenda of others. Thus, mostly of a formal nature, teacher training often has been unconnected to classroom life. It has even been characterized as a function of the factory approach to education adopted over a century ago: stick them all in the same machine and spit out trained teachers.

Generally a “quick fix” approach with no follow-up, this type of “teaching by telling” is being replaced by contemporary definitions of staff development that offer a new, wider view of those activities and methods that constitute professional development. Study groups, action research, peer coaching, mentoring, and individually guided activities comprise a mere sampling of the processes that are replacing the one-day, one-size-fits-all presentations of the past that were characterized by lack of follow-up and administrative support (EPIC, 1999; Guskey, 2000; NSDC, 1995, 2001a; Robb, 2000; Scribner, 1999; Sparks, 1994; Sparks & Hirsh, 1997). These ongoing, job-embedded learning experiences are not only gaining in popularity in practice, but are the focus of numerous case studies, ethnographies, and other qualitative approaches to research (Cawelti, 1999; Council for School Performance, 1998; EPIC, 1999; Hassel, 1999; Killion, 1999; King & Newmann; 2000; Sparks & Hirsh, 1997; United States Department of Education [USDOE], 2000; Ward, St. John, & Laine, 1999).

History of Professional Development

For more than one hundred and fifty years, the initial preparation and continuing education of the nation's teaching force has been a primary concern of state education policy makers, school boards, community members, and educational personnel. The teacher institute was one of the first approaches to the training and development of educational practitioners (Ward et al., 1999). This idea, started in Connecticut, began in the mid-nineteenth century and was created and funded at the state level and implemented by local superintendents. The teacher institute was held for a few days in the summer for the initial training of new employees and the updating of skills for veteran teachers. Reading, writing, geography, arithmetic, and the like were topics of study provided to rural and small-town teachers to help them keep one step ahead of their best students (Bellanca, 1995).

Low teacher and community perceptions of these institutes gradually caused reform measures to move teacher training in the direction of normal schools. As a result, longer state-supported teacher training schools were created to train new teachers as well as provide additional knowledge and skills to experienced teachers during the summer months. This model was the predominant form of professional development for educators from 1876 through the Great Depression (Ward et al., 1999).

By World War II, most of the normal schools had either closed or developed into teacher colleges or state universities. More autonomous in nature than were the previous systems of teacher training, the colleges and universities began to take the control of teacher education from the state level. This began the shift of staff development and training to a research orientation (Cremin, 1988). Despite its many advantages, criticism

in this area of professional development claimed that the information provided to teachers was disconnected and irrelevant to the daily life in the classroom (Speck & Knipe, 2001).

Professional development that included conferences, workshops, keynote speakers, and seminars dominated the 1970s. Unfortunately, this type of training was characterized by educators sitting passively as experts shared new ideas or practices with them (Educational Research Services, 1998; Sparks & Hirsh, 1997, 2000; Speck & Knipe, 2001). Indeed, many key conditions for teacher learning were violated in this type of staff development. Such violations include irrelevant content being shared with teachers, brief events with no provision for follow-up and feedback, reliance upon outside experts and materials, and professional development without significant input from teachers (King & Newmann, 2000).

Recognition that this type of professional development was not generating substantial improvement in teaching and learning caused many teachers' unions to redefine professional development in the 1980s (Speck & Knipe, 2001). Joyce and Showers' (1983; 1988; 1995) research on the need for ongoing training with follow-up in a supportive context dominated the discussions of professional development during this period. Strong effect sizes for training models that included coaching in the workplace following initial training provided great promise for the transfer of learning for teachers. Following the standards movement across the nation, the focus shifted from adult needs and satisfaction with training as the center of professional development to an emphasis on student needs and learning outcomes as the key focus. Based on the recognition that the teacher as adult learner must encounter an array of learning experiences including creating and solving real problems and working together, peer coaching, mentoring, and

peer evaluation programs began to emerge. “Teaching as telling, the model that has dominated pedagogy and the consequent organization of schooling to date, is being called into question ... People learn best through active involvement and through thinking about and becoming articulate about what they have learned” (Lieberman, 1995, p. 592).

The current effort to reform the nation’s schools includes new conceptions of teaching and teacher learning. Guskey (2000) claimed that the growth of interest in professional development and the evaluation of such programs is due to four reasons. First, a better understanding of the dynamic nature of professional development exists. No longer is professional development perceived as a series of unrelated presentations with no follow-up. Second, professional development is recognized as an intentional process to bring about positive change. Third, the need for better information to guide reforms has focused attention on evaluating the training and development of educators. More detailed information about the effects, conditions, costs, and other influencing factors is necessary if funding is to be provided at the national, state, and district level. The final reason for the increased attention to professional development and the evaluation of such, according to Guskey (2000), is increased pressure for greater accountability. The need for systematic research on the effects of professional development on improving student outcomes is necessary in the standards-based era of today (Guskey, 2000; Hassel, 1999; Joyce & Showers, 1995; Killion, 1999; Sparks, 1994; Sparks & Hirsh, 1997; USDOE, 2000).

Characteristics of Professional Development

Three characteristics define professional development as it now exists (Guskey,

2000). First as an intentional process, staff development is a means to the end of improved learning rather than an end in itself (Sparks, 1994, 1995; Sparks & Hirsh, 1997). Planning professional development activities is a matter of first "... determining the things students need to know and be able to do and then working backward to the knowledge, skills, and attitudes educators must have if those student outcomes are to be realized" (Sparks & Hirsh, 1997, p. 14). Student learning, therefore, must be the central goal of all staff development activities (Guskey, 2000; Hassel, 1999; Joyce & Showers, 1995; WestEd, 2000a). "Results-driven" professional development "begins with the end in mind" (Covey, 1989, p. 95). An example may be found in the Lawrence Public Schools in Kansas (Sparks & Hirsh, 1997). This district uses a model that requires a Local School Inservice Council to develop a plan each year that connects professional development activities with the impact on student achievement. Each school's council consists of teachers, parents, administrators, and community members. The schools must make a presentation to the Local Inservice Council each year to highlight the effectiveness of the program for that year. Schools are expected to use multiple outcome measures and triangulation techniques to determine their success (Hassel, 1999; Sparks & Hirsh, 1997). Similarly, the Brazosport Independent School District in Texas provides an example of schools that have a results-oriented focus by analyzing the data and then working toward a plan for instruction and assessment for all students (Sparks & Hirsh, 1997). This model "... demonstrates the power of having teachers closely examine student work ... and the value of having teachers work together continually to tackle shared problems" (Richardson, 1998, p. 1).

Second, current professional development efforts are viewed as

ongoing (Guskey, 2000). Rather than the one-shot “sit and get” being tacked onto the work day or week, training and development must be stitched into the work routine of teachers (National Center for Research on Teacher Learning, 1995). In the new vision of professional development, “... teachers are engaged in professional learning every day, all day long. It pervades the classroom and the school. It is embedded in the assignments and analyses that teachers perform every day as they continually draw understanding about their performance from student performance” (National Partnership for Excellence and Accountability in Teaching, 2000, p. 2). Job-embedded practices are critical for professional development programs (Asayesh, 1993; DuFour, 1997; Killion & Hirsh, 2001; NSDC, 1995; Sparks & Hirsh, 1997). The San Diego Unified School District provides an example of how job-embedded learning links professional development to the immediate problems faced by teachers and administrators. The use of action research, curriculum development, independent inquiry, and group meetings in this district has allowed the professionals to meet, dialogue, and practice strategies that address the needs of their students. In addition, a mentoring program for new administrators and teachers has been designed to provide on-the-job support from a site-based mentor and a university coach (Sparks & Hirsh, 1997). “... While formal training sets the stage, it’s really through more informal modes that new ideas take root, spread, and become part of daily practice, and that the crucial habits of collegial sharing become ingrained” (WestEd, 2000a, p. 19). This kind of learning is practical for teachers and immediately relevant to what they do in their classrooms.

Professional development should not be conceived as something that ends with graduation from a teacher preparation program, nor as something that happens

primarily in graduate classrooms or even during in-service activities. Rather, ongoing support from colleagues and specialists, as well as regular opportunities for self-examination and reflection, are critical components of the career-long development of excellent teachers. (Snow, Burns, & Griffin, 1998, p. 10)

The third major characteristic of today's professional development is that of models being seen as a systemic process (Guskey, 2000; King & Newmann, 2000; Lieberman, 1995; Speck & Knipe, 2001). That is, "Staff development that focuses exclusively on the behavior of individual teachers without recognizing the influence of the organization in supporting or stifling new practices is destined for failure" (Cawelti, 1995, p. 168). According to systems thinking theory, individual learning needs, organizational requirements, and necessities of the larger society must be addressed simultaneously so that attention in one area does not lead to problems in another (NSDC, 1995).

To survive we need to learn from the environment and it (other people and organizations) needs to learn from us. The sooner we learn that it is a two-way street, the more we and the larger system will develop. Valuing reciprocity is of critical importance. (Fullan, 1999, p. 59)

Senge (1990) believed that the idea of thinking in terms of the system is the cornerstone of any change. He further stated that unless an entire system changes, it will continue to produce the same results. Past research has shown that success for all students depends not only upon the learning of individual teachers, but also on the capacity of the organization to improve itself (Cawelti, 1995; Fullan, 1999; King & Newmann, 2000; NSDC, 1995, 1998, 2001a; Senge, 1990). Indeed, "... a school, like almost everything

else, must be more than the sum of its separate parts” (Sa, 1996, p. 26). This is in contrast to earlier beliefs that any increase in the knowledge or skills of individual teachers would automatically result in increased school or district knowledge and skills (DuFour, 1997). In other words, we now realize that “standards-based education requires staff developers to think more systemically than ever before” (Hayes & Ellison, 1999, p. 38).

Though Sparks and Hirsh (1997) agree that professional development must be results-driven and a part of systems thinking, they argue for a constructivist view. Just as young children create cognitive structures based on their own interactions with the world, adults create their own schemes and ways of knowing. In other words, according to constructivist thinking, both child and adult learners maximize their potential for learning when there is partial discrepancy between existing cognitive structures and new experiences (Sparks & Hirsh, 1997). “Time teachers spend with each other and with other knowledgeable educators - engaged in thinking about teaching and learning - is just as important to students’ opportunities to learn as the time teachers spend in direct facilitation of learning” (Darling-Hammond, 1999, p. 36). One way to accomplish this is through the use of professional development portfolios, which allow teachers to become architects of their own learning (Dietz, 1995).

Indeed, this is the basis upon which the National Board for Professional Teaching Standards were established. In one study of the national certification process, teachers reported that the creation and refinement of the portfolio was a powerful and transforming professional development experience (Bohen, 2001). Greater professional confidence, improved ability to analyze their instructional methods, a sharpened focus on student

outcomes, and a greater commitment to professional growth were results of the certification process on their teaching practices. Another possibility for increasing teachers' opportunity to create meaning for new knowledge through staff development is by providing time for discussion and reflection (Bellanca, 1995; Educational Research Service, 2000; King & Newmann, 2000; Snow et al., 1998; Todnem & Warner, 1994).

Killion (2000) stated:

Most teachers construct knowledge from their experiences, often sharing this private knowledge with no one. Structuring staff development experiences to encourage teachers to analyze their practices and share what they have learned with colleagues will increase collaboration, commitment to implementing alternative strategies, and build teachers' knowledge about research-based teaching. (p. 3)

In addition to the characteristics of current professional development efforts, the new vision is deemed necessary for a larger group than in past models. That is, it is being recognized that everyone who affects student learning, including school board members, administrators, support staff, and parents, should be involved in professional development to improve their knowledge and skills (Hassel, 1999; NSDC, 1995; Sparks & Hirsh, 1997).

Some work has been done in designing programs specifically for the staff development of parents and support staff. For example, the TIPS, Teachers Involve Parents in Schoolwork, process allows teachers to work with researchers in order to create interactive homework that facilitates dialogue between students and parents about schoolwork (Sparks & Hirsh, 1997). Another example of professional development

efforts aimed at a wider audience of learners may be found in Florida. A school district in this state has a Support Staff Development Council to assist with training and development activities for support staff (Sparks & Hirsh, 1997). In addition to the expectation that modern-day staff development be offered to a larger group, the traditional responsibility of facilitators and presenters being only staff development personnel is no longer the norm. Instead, superintendents, central office personnel, administrators, teachers, and others are involved in the planning, sharing, and modeling of expertise (Hirsh, 2001a).

National Professional Development Standards

The effects of staff development on the achievement level of students vary tremendously as a result of differences in program content, the structure and format, or process, of the professional development experience, and the context in which the program is implemented (Hassel, 1999; Killion, 1999; NSDC, 1995, 2001a). NSDC's Board of Trustees recognized the importance of creating standards in its strategic plan in the early 1990s (NSDC, 1995). In 1994 national standards were developed to assist educators in understanding the new vision of professional development by providing a baseline for the components necessary in quality staff development programs. More than 50 educators representing five leading national education associations participated in the development of the standards (NSDC, 1995). Specifically, input was included from the Association for Supervision and Curriculum Development, American Association of School Administrators, Council for Exceptional Children, National Education Association, and others. The original document contained a total of 27 standards,

published in three editions: one for elementary schools, one for middle, and one for high schools (NSDC, 1995).

Since that time, research led to the revision of the standards in 2001(a). Based on input from representatives from more than 15 national associations, the nine-month revision process began with a brainstorming session of what comprised professional development with the goal of increasing student achievement. At that time, many of the original 27 standards were collapsed into fewer categories. Small discussion groups were then formed according to interest and expertise on each topic. Compilations of research were presented to the groups, which allowed for further conversation regarding combining and reforming the standards. Annotated bibliographies for each of the areas of professional development were also created under the leadership of Hord of the Southwest Education Development Laboratory. This validated the standards by examining dissertations, abstracts, and research conducted on the topics since 1994 (S. Hirsh, personal communication, January 7, 2002).

Organized into three categories - context, process, and content - the standards are intended to focus attention on the improvement of practitioners' knowledge and skills in an effort ultimately to affect student learning in a positive manner (NSDC, 1995, 2001a). In order to be effective, professional development programs must consider best practices for each of these categories (Hassel, 1999; NSDC, 1995, 2001a). Patricia Roy captured well the NSDC efforts, "Not all staff development is created equal. The NSDC standards provide descriptions of best practices within the field of staff development and benchmarks by which to measure current practices. Increased student achievement will

not be accomplished until effective staff development becomes as common as chalk dust in our schools” (NSDC, 2001c, p. 14).

Context of Professional Development

The first category of the NSDC standards is the context of professional development. This refers to the organization, system, or culture in which professional development occurs and its responsibility to ensure results for both adults and students (NSDC, 1995, 2001a). Within context, the following standards are recommended (NSDC, 2001a):

- **Learning communities:** Staff development that improves the learning of all students organizes adults into learning communities whose goals are aligned with those of the school and district.
- **Leadership:** Staff development that improves the learning of all students requires skillful school and district leaders who guide continuous instructional improvement.
- **Resources:** Staff development that improves the learning of all students requires resources to support adult learning and collaboration.

A report study of schools with model professional development purported that students achieve because their teachers are learners (WestEd, 2000b). In other words, learning communities permeated the environment. Further, the eight schools described in the report illustrate the context of professional development as one in which “... teachers, paraprofessionals, and administrators have coalesced as learning communities and focused their own learning on what will translate into learning for students. Everyone is learning, and everyone benefits” (WestEd, 2000b, p. 1). Such powerful learning

environments can be created when teachers are encouraged to engage in self-directed, collaborative inquiry (Aiken, 1998; Guskey & Sparks, 1991).

The Valley Stream Union School District in New York City has done just that. This group implemented changes that were more closely aligned with the shift in professional development contextual philosophies. For example, the traditional letter grades on report cards were replaced with checklists and narratives, the number of parent conferences was doubled, and the superintendent facilitated staff development sessions in the district (Sparks & Hirsh, 1997). This emphasis on strong leadership and the organization of adults into learning communities whose goals are aligned with those of the school and district exemplify the new vision of staff development supported in a contextual manner. DuFour (1997) furthered this model by recommending staff development in a context in which experimentation, collaboration, and commitment to continuous learning and improvement are the norm. This is no easy task, as "... creating contexts for powerful learning requires rethinking the school organization we inherited from efficiency experts enamored of new assembly line technologies in the 1920s" (Darling-Hammond, 1999, p. 32).

Research by Cohen and Ball (1999) suggested a triangular model for improving teacher learning and thus student learning. In particular, they stressed three elements of learning that are necessary for school improvement: teachers, materials and technology, and students. Their second angle of the triangular framework is mirrored in the "resources" standard recommended by NSDC under the umbrella of context (2001a).

Process of Professional Development

The process of staff development, according to the National Staff Development Council (1995, 2001a), addresses how the system organizes learning opportunities to ensure adults acquire the knowledge, skills, and dispositions to positively affect student learning. NSDC (2001a) recommended the following standards in the area of process:

- **Data-driven:** Staff development that improves the learning of all students uses desegregated student data to determine adult learning priorities, monitor progress, and help sustain continuous improvement.
- **Evaluation:** Staff development that improves the learning of all students uses multiple sources of information to guide improvement and demonstrate its impact.
- **Research-based:** Staff development that improves the learning of all students prepares educators to apply research to decision making.
- **Design:** Staff development that improves the learning of all students uses learning strategies appropriate to the intended goal.
- **Learning:** Staff development that improves the learning of all students applies knowledge about human learning and change.
- **Collaboration:** Staff development that improves the learning of all students provides educators with the knowledge and skills to collaborate.

“Schools must be vigilant about ensuring that practical implementation of professional development reflects adult learning theory” (Hassel, 1999, p. 96). That is, other than traditional models of professional development that resembled an “adult pull-out program” (Hirsh, 2001a, p. 10), current models of professional development must be learner-centered. “There is little doubt that teachers can learn powerful and complex

strategies for teaching, provided that they are presented properly” (Snow et al., 1998, p. 291). In this new paradigm, “learning and development become as varied and engaging for teachers as they are supposed to be for students” (Lieberman, 1995, p. 593).

An example of the collaboration described in the NSDC process standard can be seen in the professional development efforts in Carrollton Farmers Branch Independent School District in suburban Dallas (Sparks & Hirsh, 1997). Cognitive coaching is offered as a replacement to the traditional teacher evaluation. This process involves teachers as coaching partners who meet at the start of the school year to develop three goals that relate to the Texas Education Agency’s professional competencies. The first goal must relate to student achievement. The second must focus on metacognitive development of the teacher, and the final goal may address the professional needs of the teacher. Once the partners have met with the administrator to discuss their goals, an action plan and assessment strategies are devised with the involvement of the administrator. Partners then meet a minimum of eight times per year, and a conference at the mid-point takes place with the administrator. Self-assessment, ongoing training, and follow-up are features that make the process of collaboration as professional development in this district unique. Study groups for staff development are another example of improving its process. In this discussion format, participants ask their questions and discuss their concerns. The potential for this framework is unlimited. “... Teaching is a lifelong journey of learning rather than a final destination of knowing how to teach ... We must, then, “... ensure that teachers have the support needed to make this journey” (McRobbie, 2000, p. 6).

Content of Professional Development

Content standards address what educators must know and be able to do to guarantee student success (NSDC, 1995, 2001a). Under the category of content, NSDC recommended the following standards (2001a):

- **Equity:** Staff development that improves the learning of all students prepares educators to understand and appreciate all students, create safe, orderly and supportive learning environments, and hold high expectations for their academic achievement.
- **Quality Teaching:** Staff development that improves the learning of all students deepens educators' content knowledge, provides them with research-based instructional strategies to assist students in meeting rigorous academic standards, and prepares them to use various types of classroom assessments appropriately.
- **Family Involvement:** Staff development that improves the learning of all students provides educators with knowledge and skills to involve families and other stakeholders appropriately.

“... (A) carefully planned and well-supported endeavor may be based on a set of ideas that is neither particularly powerful nor supported by appropriate and reliable research” (Guskey, 2000, p. 33). Content should be research based or proven to be effective in practice (Guskey, 2000; Guskey & Sparks, 1991; Hassel, 1999; Joyce & Showers, 1995; NSDC, 1995). Compilations of research-based instructional strategies written in a format that allows busy teachers and school leaders to read and discern classroom implications with ease are now being published to assist with the assurance of quality teaching (Cawelti, 1999; Marzano, Pickering, & Pollock, 2001).

Research and Evaluation of Staff Development

The new conceptualization of staff development and its dynamic nature, as well as the increased national demand for educational accountability, is resulting in the need for deeper, more meaningful evaluation of professional development. Evaluation, defined as a “systematic investigation of merit or worth” (Guskey, 2000, p. 41), can take many forms when it comes to staff development. Different types of evaluation data on a program’s success or lack thereof are desired by different stakeholders (EPIC, 1999; Killion, 1999). For example, policy and decision makers are interested in the return on the funding investment in staff development activities. Administrators need knowledge about the effect of teacher training on truancy and student drop-out rates. Teachers may want information about student learning following an instructional change that results from staff development training. Parents demand to know the degree to which the teacher’s day away from the classroom will benefit their child. Finally, staff development personnel are concerned with the relevance of content, appropriateness of the instructional delivery, and the context in which professional development occurs.

The need for diverse indicators of the success of staff development has led authors such as Guskey (2000) and Killion (1999) to recommend flexible research designs and different measures of success. Caution against relying on test scores only as a measure of teacher evaluation is expressed by some authors who claim that this implies that teaching is a behavior that can be perfected and that learners can all be taught the same thing in the same way (Martin & Kragler, 1999).

Guskey (2000) listed five levels of information that are possibilities for evaluating professional development. First, the participants’ reaction is most often collected

following a staff development endeavor (Sparks, 1994; Sparks & Hirsh, 1997). Guskey (2000) attributed the shortcomings of the first level of professional development evaluation to three features: evaluation that documents participation only, evaluation that is too shallow, and evaluations that are too brief. Sometimes referred to as the happiness quotient, information on participants' satisfaction with staff development efforts are no longer sufficient (Cook & Fine, 1997; DuFour, 1997; Sparks & Hirsh, 1997). "The traditional questionnaire survey of participants after an inservice as to whether or not they found the speaker interesting, visual aids helpful, and other parts of the activities interesting does not get to the heart of whether the professional development brought about change in teacher behavior and increased success for students" (Loucks-Horsley, et al., 1998, p. 68).

An assessment of participants' learning is the next level of evaluation, according to Guskey (2000). Most often these assessments take the form of self-reported judgments by teachers involved in a staff development activity. Organizational support and change, participants' use of new knowledge and skills, and student learning outcomes are the final three critical levels of professional development evaluation according to Guskey (2000). These higher-level evaluation types probe deeper and focus on more than the satisfaction of individual participants. The data collected in levels three, four, and five look at the macro-view of the educational system. That is, rather than determining the effectiveness of professional development efforts by merely relying on the teacher's perspective, information on student, school, and system improvement is introduced into the equation. With the increased attention on results-driven staff development (Sparks, 1994; Sparks & Hirsh, 1997), moving modern-day evaluation of professional development from the first

few levels to the fifth is now a major focus for school divisions (Guskey, 2000; Joyce & Showers, 1995; Killion, 1999; Sparks, 1994; Sparks & Hirsh, 1997). “Evaluation results will provide information on outcomes and on the gaps that need to be filled in order to continue to progress” (Speck & Knipe, 2001, p. 199). This is paramount in an age in which many professional development programs fall short of reaching “the summit of the staff development mountain,” demonstrating how teacher learning increases student learning (Killion, 1998, p. 12).

The difficulty in evaluating professional development at a higher level involves untangling the influence of other factors that are inherent in the classroom setting. One such variable is evidence that teacher expertise is the most important factor in determining student achievement (Darling-Hammond, 2000; Darling-Hammond & Ball, 1997; EPIC, 1999; King & Newmann, 2000). Regardless of how well an instructional program may be, it is only as effective as those who implement it (Stronge, 1993). Though teachers are not solely responsible for school improvement, the major responsibility for fostering academic learning falls on the central educational professional who works day in and day out with students (Cohen & Ball, 1999; Sykes, 1999). “Teachers allocate and manage the students’ time, set and communicate standards and expectations for student performance, and in a multitude of other ways enhance or impede what students learn” (Hawley & Valli, 1999, p. 128). Killion (1999) reported that as much as 90% of the variation in student achievement is due to the quality of the teacher. Given the complexity of human behavior, controlling for teacher expertise is not a simple task. A further complication in this area is the emotional state of the teacher in the classroom and his or her sense of efficacy, both of which may act as filters on teacher

performance (Fullan 1999; Gottfredson, Marciniak, Birdseye, & Gottfredson, 1995; Killion, 1999; Scribner, 1999). “Research suggests that teachers are more likely to adopt and implement new classroom strategies if they have confidence in their own ability to control their classrooms and affect student learning” (Scribner, 1999, p. 214).

The complex social environment of schools, which includes an abundance of intervening variables that are not always controllable, has led some authors to conclude that establishing a causal relationship between staff development and improved student learning is a formidable task (EPIC, 1999; Guskey, 2000; Guskey & Sparks, 1996; Guskey & Sparks, 1991; Killion, 1999). “... It is not enough simply to measure student achievement both before and after the fact. Schools also need to measure underlying factors that affect the success of professional development efforts so that changes needed in the development process can be identified” (Hassel, 1999, p. 99).

While examples such as these describe the difficulty of conducting research in the area of evaluating professional development, there are other problems inherent in collecting and analyzing data on this topic. For example, although descriptive research provides the reader with insight about the varied approaches to staff development that are present in schools of today, studies often do not thoroughly describe the professional development component to a degree that would be beneficial to others in understanding the complexities of the improvement process. Rather, case studies and ethnographies of professional development programs focus mainly on teaching practices that are affected, changes in school organization or governance with regard to school and central authorities, and differences between administrators and teachers (Guskey, 2000). “The fact is that there simply is not a sufficient research base to develop workable approaches

to professional development that ensure improvement in student learning outcomes” (EPIC, 1999, p. 8). Despite a commonsense belief that there is a direct relationship between teacher learning and student learning, most authors think efforts to prove this have met with little success (Guskey & Sparks, 1996; Killion, 1998; Orlich, Remaley, Facemyer, Logan, & Cao, 1993; USDOE, 2000). Killion (1999) stated:

Demonstrating the link between staff development and student achievement challenges most evaluators. Although this connection may seem obvious, the proof that staff development leads to increased student achievement eludes evaluators. The link between staff development and student achievement is both intuitively strong and methodologically challenging. (p. 13)

An example may be found in the research by Orlich et al. (1993), who examined several studies that utilized standardized achievement tests in an attempt to explore the relationship between staff development and student achievement. Due to questionable research designs and conclusions in the studies reviewed, it was difficult to make a direct link between staff development programs and student achievement.

To help fill this void, compilations of more detailed, descriptive studies are being made that highlight schools with successful practices leading to student achievement gains (Cawelti, 1999; Council for School Performance; 1998; Killion, 1999; King & Newmann, 2000; Pardini, 2001; Sparks & Hirsh, 1997; USDOE, 2000; WestEd, 2000b). For example, a 1998 study of the connection between staff development and student achievement in Georgia schools found clear differences in the way higher- and lower-achieving schools approached staff development (Council for School Performance, 1998). While higher-achieving schools were characterized by collaboration on professional

development decisions, a focus on students and the classroom, the use of effective training processes, and appropriate leadership support, schools with lower achievement rates were more individualistic and haphazard in their professional development approach. These latter schools emphasized certification renewal and stipends, utilized fewer effective training strategies, and did not have support from the leadership.

Another study examined the effect of professional development on improving school capacity (King & Newmann, 2000). This research considered nine elementary schools in urban settings across the country that had diverse, yet successful professional development practices. Data were collected through interviews, observations, and an analysis of artifacts. The authors concluded that professional development can improve instruction and achievement through three avenues: (a) the knowledge, skills, and dispositions of individual faculty members; (b) the professional community within a school; and (c) coherent programs for student and staff learning. This is parallel to other authors' recommendations of professional development as a systemic process (Guskey, 2000; King & Newmann, 2000; Lieberman, 1995; Speck & Knipe, 2001).

A recent two-year effort was also aimed at assisting educators in making decisions about staff development based on solid data (Killion, 2002a, 2002b). The following ideas were recommendations from the study:

- Staff development must focus on student results.
- The evaluation of staff development must be more than evaluating individual training events.
- Staff development evaluation must be related to comprehensive program planning.

- Staff development evaluation must use evidence rather than judgment.
- Appropriate tools must be used to collect data about the effectiveness of staff development.
- Staff development practitioners must be knowledgeable about the evaluation process.
- Funding must be appropriate for the evaluation of staff development.

These thoughts closely mirror the standards of staff development developed by NSDC.

Cawelti (1999) also found common threads across six schools with remarkably different programs and approaches. All six included a focus on student achievement as the end goal, a commitment to improving results, and staff development as a critical component. Partnerships with local universities and colleges, administrators serving as trainers, and collaboration between parents, staff, and students focused on the continuous improvement process are examples of professional development activities in schools which have demonstrated increased student learning. Pardini's (2001) research on staff development examined three schools across the nation that used the National Staff Development Council's original standards to design exemplary programs. Each of the schools demonstrated progress in student achievement. Administrators and teachers who were interviewed attributed much of the success to effective professional development practices.

The USDOE's (2000) purposefully selected sample of teachers in 30 schools across five states examined the quality of teachers' professional development and its effect on changing teaching practice in math and science over a three-year period.

Findings indicated that the following six key features of professional development led to

an increase in teaching practice: reform type, duration, collective participation, active learning, coherence, and content focus. These features closely mirror best practice in the context, process, and content standards recommended by the National Staff Development Council (2001). Further, the key finding of an examination of the eight schools that won the National Awards Program for Model Professional Development in 1996-1998 was that staff development practices "... shifted from isolated learning and the occasional workshop to focused, ongoing organizational learning built on collaborative reflection and joint action" (WestEd, 2000b, p. 11). Again, this epitomizes the new vision for staff development (Guskey, 1994, 2000; Hassel, 1999; Killion, 1999; NSDC, 1995, 2001a; Sparks & Hirsh, 1997, 2000; Speck & Knipe, 2001).

Similarly, Killion (1999) found evidence of improved student achievement in 26 staff development projects at the middle school level. In these schools, professional development efforts were built on the belief that, "if student performance is going to increase, teacher performance must increase" (Killion, 1999, p. xvi). Although not multi-year and longitudinal in nature, the studies included in this synthesis of middle school staff development programs provide evidence of the strong link between staff development and student achievement while also suggesting that additional study of ways to demonstrate this relationship is needed. Strong patterns and similar characteristics among professional development programs can be noted, but those aspects that contribute the most to teacher and student learning are not clear.

Throughout Sparks and Hirsh's (1997) discussion of professional development, other examples may be found of districts and schools around the United States that are at the forefront of the shift in staff development practices. Rather than an afterthought,

these well-designed professional development initiatives are results-oriented, providing further evidence that improvement in student achievement almost never takes place in the absence of professional development (Guskey, 2000; Killion, 1999; National Commission on Teaching and America's Future, 1996). Some use staff development as the lynchpin of the nation's educational program (National Center for Research on Teacher Learning, 1995). "Staff development is at the center of all education reform strategies - without it, such strategies are merely good ideas that cannot find expression" (Sparks & Hirsh, 1997, p. 96).

Although anecdotal and unidimensional reports describing successful staff development programs such as those mentioned above are helpful in better understanding the diversity of professional development options, stronger theories connecting practices with results are necessary if educators are to empirically document that what they do is beneficial to the performance of students (Guskey & Sparks, 1996). Additionally, Guskey (2000) recommended using an alternative approach to research in order to study the impact of professional development on student learning. Utilizing both quantitative and qualitative methods, he suggested the careful synthesis of a variety of data collected in multiple settings. Studying successful professional development efforts in different settings using multidimensional, mixed design methods, he proposed, will help achieve a better understanding of the influence of elements within a given context and applicability across contexts.

Summary of Research and Evaluation on Staff Development

For decades we have assumed that student and teacher learning are positively and directly linked (Hawley & Valli, 2000). However, few studies show a clear correlation

between the two. Not only does training and development for teachers occur in the context of other potential explanations for student learning, but the narrow view of professional development as an individual prerogative and responsibility of teachers to participate in a series of short-term, unrelated presentations with no follow-up has prevented deeper forms of evaluation of this relationship. We now know that “the classroom and the school occupy a crucial place in teachers’ professional growth” (Little, 1999, p. 256). The push for more school-based professional development has begun. “... [Schools] can become cultures where youngsters are discovering the joy, the difficulty, and the excitement of learning and where adults are continually rediscovering the joy, the difficulty, and the excitement of learning” (Barth, 2001, p. 29). Because “the real professional development must occur after conferences and other training experiences in job-embedded experiences whereby staff members discuss, observe, and provide feedback to one another ...” the evaluation of this new vision for professional development must occur (Moye, 1997, p. 5). This study was conducted to provide insight on site-based models of teacher development that have resulted in increased student learning for.

Chapter 3: Methodology

The purposes of this study were to: (a) identify the perceptions of teachers in low-performing elementary schools of the degree of implementation of national standards of staff development, (b) examine the correlation between the NSDC self-assessment survey and teacher interviews, (c) identify the degree to which professional development had an impact on teaching practice in English and mathematics, and (d) determine the correlation between student achievement and the degree to which professional development met the NSDC standards in participating schools. This chapter will describe the setting, participants, instrumentation, procedures, and data analyses used to answer the research questions stated below.

Research Questions

The following research questions were examined:

1. According to teachers' responses on the National Staff Development Council's self-assessment survey, were the NSDC standards reflected in professional development activities of elementary "challenge" schools?
2. According to teachers' responses during interviews, were the NSDC standards reflected in professional development activities of elementary "challenge" schools?
3. Is there a correlation between the NSDC self-assessment survey and teacher interviews?
4. According to the results from the NSDC self-assessment survey and the teacher interviews, did teachers change the way they taught English as a result of professional development?

5. According to the results from the NSDC self-assessment survey and the teacher interviews, did teachers change the way they taught mathematics as a result of professional development?
6. Is there a correlation between the 2001 Standards of Learning mathematics and English assessments at the third- and fifth-grade levels and the composite scores on the NSDC self-assessment survey?

Method

Setting

The school district where this study was conducted is responsible for educating approximately 41,000 students living within 244 square miles. The region embraces the capital of Virginia on three sides and includes metropolitan and rural areas (personal communication, July 31, 2000). The district received a nine hundred eleven thousand dollar grant from the state for the period of 1998-2000, and more than one million dollars for the following biennium (VDEO, 1998, 2000). These monies were to be used to support ongoing professional development. Leaders in the district decided to focus the efforts for this grant on identified challenge schools, meaning schools that were most at risk for not receiving full accreditation. Eighteen of the district's 60 schools were designated during the 1998-2000 period as challenge schools. For the purposes of this study, professional development in the 12 identified elementary challenge schools over the three-year period of 1999-2001 was examined.

Although some of the professional development activities were planned and implemented by the district's central office, the primary role at the district level was facilitation and support of professional development at the individual schools. In addition

to the director of staff development in the district, two professional development specialists were hired to support the challenge schools in planning, implementing, monitoring, and evaluating professional development. These individuals served as peer coaches, taught model lessons, developed instructional materials, and instructed teachers and administrators in best practices (personal communication, July 30, 1998).

The school improvement teams at the building level were responsible for developing a plan for implementation of the training grant through ongoing staff development. To that end, SOL assessment data from the previous year's performance were reviewed, and a carefully tailored annual plan for improved student achievement was developed. Teams utilized a district menu of options for professional development in creating the annual plan. This menu was developed utilizing research and recommended best practices from NSDC. Specifically, the National Standards for Staff Development served as the framework by which the menu was developed (personal communication, July 30, 1998).

For example, the principal, the resource teacher, and a grade-level chairperson representing grades K, 1, 2, 3, 4, and 5 in one school discussed the performance of their school based on the results of the SOL assessments for the previous year (personal communication, September 8, 2001). One of the staff development specialists also participated in this meeting and shared ideas and suggestions. After analyzing the data and determining that the school's weakest area was English, the team members devised a plan to incorporate many different forms of professional development at the school level for the following year. For example, the district reading specialist came to the school to share strategies and methodologies. Arrangements were made for teachers to receive

stipends for meeting after school to develop pacing guides and assessments in the area of English. A nationally known trainer was also brought in on several occasions to share strategies for teaching reading, writing, and spelling. The same individual returned after the training to model lessons for the teachers. Substitutes covered classes so that other teachers in the building could observe the model lessons. When teachers expressed an interest in attending a reading conference in another state, registration and travel costs were included in the school's annual plan. Substitutes were also secured so that grade levels could meet together for a full day during each nine-week grading period to discuss pacing and examine their students' progress. Finally, plans were also made for teachers to meet together bi-weekly as grade-level teams to share materials, discuss instruction, and monitor student progress. These meetings were to be held after school and stipends would be paid by funds from the training grant.

Specific demographic information is reported for each participating school and summarized as an introduction to the data analysis in Chapter 4. Information, including enrollment figures, the economic deprivation level (based upon free and reduced-cost lunch rates), and whether or not there has been a change in administration over the last three years, is provided for each of the schools.

Participants

Participants were the teachers employed by the 12 low-performing, or "challenge," elementary schools in one suburban Virginia school district. The school division assigned schools to this category when the following conditions applied: "(a) the school has a wide range of lower socioeconomic students, (b) the school has a wide range of

academic needs, and (c) the student performance has historically not been commensurate with expectations” (personal communication, July 30,1998).

In order to collect information on the professional development in the schools over the three-year grant period, only full-time teachers with three or more years of experience in the same building were asked to volunteer for participation in the self-assessment survey. This included both general education and special education teachers.

The interviews were conducted with two randomly selected teachers from the pool of willing participants in each school as well as the teacher assigned to serve as the school’s staff development planner for the 2000-2001 school year. Staff development planners in the subject district plan, implement, and evaluate professional development activities at the school level throughout the year while serving as liaisons with the office of staff development. Because these individuals worked intimately with the professional development activities in their school, their firsthand knowledge was valuable. In all, three teachers from each school were interviewed for the study.

Instrumentation

Three instruments were used for data gathering: a self-assessment survey, a structured interview protocol, and the SOL assessments given by the state of Virginia. Each is described in the following section.

Self-assessment survey. The Self-Assessment of Implementation of NSDC Standards of Staff Development was developed by the National Staff Development Council (2001c) as a tool to determine the perception of the current state of implementation of the NSDC Standards for staff development (see Appendix A). Developers of the instrument first

identified critical attributes of the 12 NSDC standards and then created questions aligned with the characteristics of high-quality professional development (Hirsh, 2001b).

This draft was reviewed by the executive director and deputy executive director of NSDC for accuracy, rendering face validity for the instrument. An instrument has face validity "... to the extent that it appears to measure what it purports to measure ..."

(Borg, Gall, & Gall, 1993, p. 123). A short pilot of the survey was then conducted with approximately 12 teachers in Texas, and revisions were made based upon the results (P. Roy, personal communication, November 20, 2001). The published self-assessment survey contains three questions under each of the 12 staff development standards: (a) Learning Communities, (b) Leadership, (c) Resources, (d) Data-Driven, (e) Evaluation, (f) Research-Based, (g) Design, (h) Learning, (i) Collaboration, (j) Equity, (k) Quality Teaching, and (l) Family Involvement.

The survey was used in the present study to determine participating teachers' perceptions of the context, content, and process of the professional development in the school where they had worked for the last three years. Permission to use the survey was obtained from its developers at NSDC, as was permission to alter the 0-5 Likert scale to 1 to 4 (S. Hirsh, personal communication, August 8, 2001). This decision was based on Presser and Shuman's (1989) recommendation to reduce the middle position response pattern that is typical with 3- or 5-point scales. When the mid-point is deleted, the variability of responses is increased (Dillman, 1978). As a result, participants were asked to respond to the questions using a scale that consisted of the following range: 1=strongly disagree, 2=disagree, 3=agree, and 4=strongly agree.

The survey in its original form contained 36 questions; however, for the current investigation two questions were added. The first question, Question 37, asked participants to indicate the degree to which their professional development experiences over the last three years had changed their teaching practice in English. The second question, Question 38, asked participants to indicate the degree to which professional development experiences over the last three years had changed the way they taught mathematics.

Structured interviews. A structured interview protocol was developed to verify the data from the NSDC self-assessment survey and to provide a deeper understanding of the survey responses. Although consideration was given to including of 12 questions (one for each NSDC standard), it was felt that the length of such an interview might reduce the number of potential interviewees. Instead, three open-ended questions that probed for information about the broad categories of context, process, and content of professional development were included in the interview protocol. In addition, two questions inquiring about the change in teaching practice experienced as a result of professional development were asked. In all, five open-ended questions made up the interviews. If the response from the participant was unclear to the researcher, an open-ended, “Could you tell me what you mean by that?” question was asked. Further, if participants requested clarification on a question, the researcher rephrased the interview question.

No pilot test was completed on the questions, but the interview protocol was reviewed by members of the dissertation committee (R. Hanny, personal communication, September 27, 2001). Face validity was rendered as a result of this review. For example, it was believed that teachers may need additional clarification about Question 1

(Describe the context of professional development activities in your school over the last three years.). As a result, three amplification questions were added to Question 1 in an effort to provide a more clear description of what was meant by context. This was the only interview question that consisted of several small questions. Rather than asking these as follow-up questions, they were given to provide specific explanation for Question 1.

The structured individual interviews, held via the telephone, each began with an explanation of the purpose of the study, assurance of confidentiality, and a request for participation. The five open-ended questions addressed respondents' professional development experiences in the school over the last three years. The three interviewees at each challenge school were also asked to describe their perceptions of the effect these experiences have had on their teaching in the areas of mathematics and English (see Appendix B).

SOL assessments. Standards of Learning assessments were developed to provide information on the progress of students and schools in Virginia toward meeting achievement levels on the SOL; provide information that can be used to improve instructional programs; and provide assurance to the quality of public education (VDOE, 2001). Assessments are administered at the elementary level in grades three and five in mathematics, English, science, and social studies. In addition, fifth-grade students are also assessed on their level of knowledge of technology. Information assessed on each of the SOL is cumulative. For example, third-grade assessments measure student mastery of kindergarten-, first-, second-, and third-grade standards; fifth-grade SOL assessments measure proficiency with grade K-5 content.

The first administration of the Standards of Learning tests took place in the spring of 1998, and passing scores were established by the state in October 1998 (VDOE, 1999). These were a result of work by eight standard-setting committees, which included educators from around the state. Recommendations were presented to the State Board of Education, who considered them, made them public, and then held public hearings to discuss the pass scores before adopting them (Cave, 1998). Reliability and validity information concerning the SOL assessments has also been presented by the VDOE (1999). Reliability estimates ranged from .80 to .92 using the Kuder-Richardson Formula #20 (p. 11). Regarding the validity of the assessments, a committee of state educators was assigned the task of reviewing each test item that was developed by the contractor of the test prior to its inclusion on the field test. Following this, traditional statistical analysis information, item difficulty and potential bias, and the correlation of the SOL assessments with other tests were examined. Finally, several test development experts reviewed the validity information and reported their support for the appropriateness of the assessments (VDOE, 1999).

Procedures

The initial step in this study was to gain permission from the subject school system's research director to conduct the research. Following this, principals of the 12 elementary challenge schools were introduced to the study and asked to provide a date and time prior to the start of a regularly scheduled faculty meeting in which the self-assessment survey could be administered. At these meetings, the researcher provided an explanation of the study, assurance of confidentiality of the individual results, right of refusal, and sign-up sheets for results of the study as they became available. Teachers were also asked if they

were willing to participate in a short follow-up telephone interview about professional development in their school over the past three years. Willing participants recorded their day and evening phone numbers and convenient times for contacting them on a separate sheet of paper to protect their anonymity on the self-assessment surveys. The completed surveys were collected as the participants finished them (the completed instrument served as their consent) and a snack was provided as a token of appreciation. This immediate collection, coupled with the incentive of a snack, was intended to increase the rate of return.

The telephone interviews were conducted according to the times that individual participants indicated. Upon reaching the interviewees, the researcher first asked if the time was convenient. If so, a brief explanation of the purpose of the study, assurance of confidentiality, their right of refusal, and request for participation were given (see Appendix B). The interviews were audiotaped for a more complete and accurate qualitative analysis of the responses.

An independent rater was utilized for reliability purposes of the interview coding. The independent rater listened to the audiotapes of the interviews and coded them independent of the researcher. Frequency counts indicating the number of times each standard was mentioned by the persons interviewed were compared by the independent rater and researcher in order to verify accurate reporting. This procedure yielded an 85-90% agreement. In addition, direct quotes from the interviews were used for clarification and illumination purposes throughout the analysis and discussion of the study.

Results from the June, 2001 third- and fifth-grade English and mathematics Standards of Learning assessments were secured from the director of research and planning in the

subject district. This study specifically examined the percentage of third- and fifth-grade students who passed the assessments.

Data Analysis

Quantitative and qualitative measures were used to analyze the information collected. The data analysis procedures for the six research questions that provide the focus for this study are summarized below.

Question 1: According to teachers' responses on the National Staff Development Council's self-assessment survey, were the NSDC standards reflected in professional development activities of elementary "challenge" schools? Data were collected from responses on the paper-pencil survey developed by NSDC. Using a 4-point Likert scale, an overall composite score was obtained for each respondent by summing the numerical values for each of the original 36 questions on the survey. This score represents the level of implementation of the NSDC standards as reported by each teacher participant. The score range for the instrument is 36-144, with a low score representing a low level of implementation of the standards and a high score representing a high degree of implementation. The results for each of the 12 challenge schools are reported as a mean score with a standard deviation and range.

The responses for questions 1-36 from each school were also clustered according to the 12 NSDC standards. The mean, standard deviation, and range is reported for each of the 12 standards for each school according to the breakdown in Table 1. For example, the scores for the first three questions were summed and averaged to determine an overall mean score for Standard 1, "Learning Communities." For each standard, the score range

is 3 to 12, with a low score representing a low level of implementation of the standard and a high score representing a high degree of implementation.

Table 1

Clustering of Survey Items According to NSDC Standards

Survey Items	NSDC Standard
1-3	Learning Communities
4-6	Leadership
7-9	Resources
10-12	Data-Driven
13-15	Evaluation
16-18	Research-Based
19-21	Design
22-24	Learning
25-27	Collaboration
28-30	Equity
31-33	Quality Teaching
34-36	Family Involvement

Question 2: According to teachers' responses during interviews, were the NSDC standards reflected in professional development activities of elementary "challenge" schools? Responses are reported based on the interviews. Each comment was coded (Creswell, 1998; Glesne & Peshkin, 1992) and grouped as one of the 12 NSDC standards. For example, if an interviewee responded to the first question, "Describe the context of professional development activities in your school over the last three years," with, "Teachers get together in small groups to examine student progress and discuss teaching strategies that have proven to be successful," three standards would be coded for the participant's response. Standard 1, Learning Communities, was mentioned when the interviewee discussed working in a small group of teachers. Standard 4, Data-Driven, was mentioned when the participant stated the teachers examined student progress.

Finally, Standard 6, Research-Based, was mentioned when the teacher stated the discussion of proven instructional strategies. If responses could be categorized according to more than one standard, such as in the aforementioned example, coding to reflect multiple standards occurred.

Question 3: Is there a correlation between the NSDC self-assessment survey and the teacher interviews? Data were analyzed based on the results of the surveys from each school as well as the teacher interviews. These are presented in table form according to the average composite scores from the surveys and the average number of times teachers mentioned the standards in the interviews (frequency counts). In this way, comparisons can be made between the results of the surveys (higher levels of implementation of the NSDC standards indicated by a higher composite score) and results of the interviews (according to the number of times the NSDC standards were mentioned by participants), both according to the mean score (see Table 2). A correlation coefficient between the variables was obtained using the Pearson r .

Table 2

Data Analysis for Question 3

NSDC Standard	Survey Results (Mean Composite Score)	Interview Results (Mean Frequency Count)
Learning Communities		
Leadership		
Resources		
Data-Driven		
Evaluation		
Research-Based		
Design		
Learning		
Collaboration		
Equity		
Quality Teaching		
Family Involvement		

Question 4: According to the results from the NSDC self-assessment survey and the teacher interviews, did teachers change the way they taught English as a result of professional development? Data are presented according to the mode from the survey and interview results. The mode was selected due to the use of a Likert scale on the survey (1-4) as well as the ordinal characteristics of the yes/no interview responses. The score reported most often on Question 37 on the survey, “The professional development experiences provided to me over the past three years caused a change in the way I teach English,” is presented in the analysis of Research Question 4. The score range was 1-4, with a low number indicating that teachers did not change their teaching and a high number representing agreement that a change in teaching practice occurred. In addition, the yes/no response given by at least two of the three interviewees is presented according to the responses to Interview Question 4, “Have any of the professional development

experiences you have had over the last three years caused you to change the way in which you teach English? Please describe them.” Quotes that clarify individual responses are also given. The same methods were used for Question 5.

Question 5: According to the results from the NSDC self-assessment survey and the teacher interviews, did teachers change the way they taught mathematics because of professional development? Analysis of responses to this question also yielded a mode from the survey and interview results. The score reported most often on Question 38 on the survey, “The professional development experiences provided to me over the past three years caused a change in the way I teach mathematics,” is presented. In addition, the yes/no response given by at least two of the three interviewees is presented according to the responses to Question 5, “Have any of the professional development experiences you have had over the last three years caused you to change the way in which you teach mathematics? Please describe them.” Quotes that clarify individual responses are also given.

Questions 6: Is there a correlation between the 2001 Standards of Learning mathematics and English assessments at the third- and fifth-grade levels and the composite scores on the NSDC survey? This question was analyzed according to the pass rates of the combined English/mathematics scores on the 2001 SOL assessments and the mean composite score from the survey. A correlation coefficient between the variables was obtained using the Pearson r .

Ethical Safeguards

This study was conducted in a manner that protected the anonymity of the district, the schools in the district, and the individuals who participated. Thus, the research proposal

was submitted to and approved by the Human Subjects Committee of The College of William and Mary. Additionally, approval from the director of research and planning in the subject district was obtained.

Chapter 4: Analysis of Results

The current study examined perceptions of teachers in low-performing elementary schools of the degree of implementation of NSDC Standards, the correlation between the NSDC self-assessment survey and teacher interviews, the degree to which professional development had an impact on teaching practice in English and mathematics, and the relationship between student achievement and NSDC standards-based professional development. Teacher perceptions were measured through responses on paper-pencil surveys. The relationship between the NSDC self-assessment survey and teacher interviews was studied through an analysis of the results of the paper-pencil survey and responses given during teacher interviews using the Pearson r . Teaching practice was examined by the responses given on the surveys and the results of teacher interviews. Finally, the relationship between student achievement and standards-based professional development was measured using a bivariate statistical analysis of the combined English/mathematics scores on the 2001 Virginia Standards of Learning third- and fifth-grade assessments and the NSDC self-assessment survey results.

Return Rate and Demographic Information

The self-assessment surveys were administered and collected onsite immediately following completion at each school. As a result, responses were received from 100% of the participants attending faculty meetings where data were collected. Sample size differed from school to school for two reasons. First, the number of full-time teachers in the building varied from school to school. Second, only full-time general and special education teachers with three or more years of teaching experience in their schools were included in the sample. This qualification reduced the number of participants by more

than 50% in some cases since some schools had a large teacher turnover rate (personal communication, February 22, 2002). Information regarding the sample size, enrollment figure, economic deprivation level based upon free or reduced lunch rates, and change in school administration over the last three years is provided in Table 3.

Table 3

Sample Size and Demographic Information

School Identifier	<u>N</u>	Enrollment as of 9/28/00	Free or Reduced Lunch Rate as of 9/28/00 (%)	Change in Administration over Last 3 Years
A	27	676	51.3	X
B	10	374	55.9	
C	6	538	58.0	X
D	20	534	46.3	
E	15	638	53.6	X
F	25	639	69.3	X
G	11	526	39.5	
H	9	394	49.7	
I	10	467	50.3	X
J	6	302	50.5	
K	30	471	49.1	
L	20	326	62.6	

As illustrated, school enrollment figures ranged from 302-676 students across participating schools. Five of the schools experienced a change in administration some time over the previous three years, four of which were the largest schools in the sample. Specifically, there was a change in the principal and assistant principal at School A in 2001, a change in the principal at School C in 2001, a change in the principal at School E in 2000 and the assistant principal in 2001, and a change in the assistant principal at School F in 2001. Although specific explanations regarding these administrative changes

were not available, retirement and job change were reported as general reasons for the inconsistency in leadership at the challenge schools. Also noted in Table 3, the level of economic deprivation in the schools ranged from 39.5% to 69.3% according to free and reduced-cost lunch rates. The large schools that did experience a change in administration ranged in economic deprivation from 51.3 to 69.3 as measured by free and reduced-cost lunch rates. The smallest sample size was six; the largest was 27. Although some of the small sample sizes were from small schools (School J had an enrollment of 302 and a sample size of 6), some large schools also had small sample sizes (School C had an enrollment of 538 and a sample size of 6). Again, teacher turnover rates in each school may have contributed to the variation of sample size from building to building.

Findings

Findings are presented by research question. Results are based on analysis of data from self-assessment surveys, structured interviews, and 2001 SOL assessments.

Research Question 1

According to teachers' responses on the National Staff Development Council's self-assessment survey, were the NSDC standards reflected in professional development activities of elementary "challenge" schools?

Using a 4-point Likert scale that ranged from strongly disagree to strongly agree, responding teachers rated the original 36 items on the survey. Composite scores for each respondent were generated by summing numerical values given to the original 36 questions on the NSDC self-assessment survey. For example, each returned survey was reviewed by the researcher, who recorded and then summed the values circled on the Likert scale by the participant for each of the 36 questions. Results for each of the 12

challenge schools are presented in Table 4 as a composite mean score. Standard deviation and score range are also reported. The score range for the instrument is 36-144, with low scores representing low levels of implementation of the standards and high scores representing high levels of implementation.

Table 4

Composite Scores for Self-Assessment Survey

School	<u>N</u>	<u>M</u>	<u>SD</u>	Range	Average per Item
A	27	105.6	12.4	83-132	2.9
B	10	100.9	11.8	87-117	2.8
C	6	108.7	14.4	85-129	3.0
D	20	108.1	9.9	87-125	3.0
E	15	113.9	12.1	95-134	3.2
F	25	101.6	13.3	67-122	2.8
G	11	114.8	16	87-142	3.2
H	9	133.6	5.3	126-143	3.7
I	10	112.1	12.5	91-136	3.1
J	6	106.3	7.9	98-116	2.9
K	30	109.3	11.6	91-131	3.0
L	20	103.6	15.9	70-132	2.9
Total	189	109.9	11.9	67-143	3.0

As illustrated, the mean composite scores ranged from 100.9 (School B) to 133.6 (School H), resulting in an average individual item range of 2.8 to 3.7. Composite scores were mainly clustered between 100 and 114, with 133 being the outlier. Overall, participants agreed with the statements on the NSDC self-assessment survey, as 3.0 was the average answer reported.

Of the 36 questions on the survey, three questions addressed each of the 12 NSDC Standards: (a) Learning Communities, (b) Leadership, (c) Resources, (d) Data-Driven, (e) Evaluation, (f) Research-Based, (g) Design, (h) Learning, (i) Collaboration, (j)

Equity, (k) Quality Teaching, and (l) Family Involvement. Participants were asked to rate the extent to which they agreed with each question using the 4-point Likert scale (1 = strongly disagree, 2 = disagree, 3 = agree, and 4 = strongly agree). Because each standard had three questions, the score range for each standard is 3 to 12. Low scores represent low levels of implementation of the standard and high scores represent high levels of implementation. For example, if a participant responded to the first question on the survey with a score of a 2, the second question with a 3, and the third question with a 3, the mean score would be the average of those three scores, or 2.7. Means (rounded to the nearest tenths), standard deviations, and ranges for the 12 NSDC standards are reported in Tables 5 – 16 according to school.

Table 5

NSDC Survey Mean Scores, Standard Deviations, and Score Ranges for School A

	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12
<u>M</u>	9.7	10.1	6	9.7	8.8	8.0	9.1	8.2	8.9	9.3	9.3	8.5
<u>SD</u>	1.7	1.3	1.8	1.8	2.0	1.7	1.4	2.3	1.3	1.4	1.3	1.8
<u>Range</u>	6	4	7	7	6	5	7	9	5	6	5	6

As shown above, teachers from School A indicated that NSDC Standard 3, Resources, was the standard reflected least (M = 6) in their professional development program over the last three years, whereas Standard 2, Leadership, was reflected most (M = 10.1). There was a 7-point variation in the scores for Resources at School A (SD = 1.8) and a four-point variation for Leadership (SD = 1.3).

Table 6

NSDC Survey Mean Scores, Standard Deviations, and Score Ranges for School B

	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12
<u>M</u>	8.3	9	5.7	8.4	8.2	7.4	9.2	8.8	8.8	9.6	9.1	8.4
<u>SD</u>	1.6	.7	1.4	1.8	1.3	1.6	1.6	1.5	1.0	1.3	1.4	1.6
Range	5	2	5	6	4	5	5	5	3	4	4	5

According to teachers from School B, Standard 3, Resources, was reflected the least ($\underline{M} = 5.7$) in their professional development program over the last three years. The variation between participants for this standard was 5, with a standard deviation of 1.4. Standard 10, Equity, was reflected most ($\underline{M} = 9.6$). The variation in participants' responses was 4 ($\underline{SD} = 1.3$).

Table 7

NSDC Survey Mean Scores, Standard Deviations, and Score Ranges for School C

	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12
<u>M</u>	9.8	8.9	6.7	10.3	8.8	8.2	9.5	9.2	8.0	10.2	10.2	9.0
<u>SD</u>	1.0	1.6	2.1	1.9	1.0	2.0	2.4	1.3	2.2	1.5	1.0	1.3
Range	3	4	5	4	3	6	6	4	6	3	3	4

As illustrated, teachers from School C responded that Standard 3, Resources, was the standard reflected least ($\underline{M} = 6.7$) in their professional development program over the last three years, whereas Standard 4, Data-Driven, was reflected the most ($\underline{M} = 10.3$). The variation in participants' responses was 5 ($\underline{SD} = 2.1$) and 4 ($\underline{SD} = 1.9$), respectively.

Table 8

NSDC Survey Mean Scores, Standard Deviations, and Score Ranges for School D

	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12
<u>M</u>	9.8	8.9	5.6	10.0	7.9	10.0	9.8	8.6	9.4	11.3	10.2	7.4
<u>SD</u>	1.6	1.8	1.4	1.5	2.9	1.7	1.5	1.8	1.6	1.0	1.4	1.7
Range	6	5	5	4	9	5	5	6	6	3	4	6

Teachers from School D reported that Standard 3, Resources, was reflected the least ($\underline{M} = 5.6$) in their professional development program over the last three years. The variation among respondents for this standard was 5 ($\underline{SD} = 1.4$). Standard 10, Equity, was reflected most ($\underline{M} = 11.3$). The range for responses for this standard was 3 ($\underline{SD} = 1$).

Table 9

NSDC Survey Mean Scores, Standard Deviations, and Score Ranges for School E

	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12
<u>M</u>	10.4	9.9	8.1	9.9	8.9	9.1	9.7	9.5	9.7	10.8	9.6	7.9
<u>SD</u>	.93	1.4	1.5	1.4	1.7	1.9	1.4	1.5	2.0	1.4	1.7	2.3
Range	4	4	5	5	5	7	5	5	5	4	5	8

According to the teachers from School E, Standard 12, Family Involvement, was the standard reflected least ($\underline{M} = 7.9$) in their professional development program over the last three years. The range in answers for this standard was large (8), with a standard deviation of 2.3. By comparison, Standard 10, Equity, was reflected the most ($\underline{M} = 10.8$), with a range of 4 ($\underline{SD} = 1.4$).

Table 10

NSDC Survey Mean Scores, Standard Deviations, and Score Ranges for School F

	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12
<u>M</u>	9.7	8.7	7.1	8.5	8.6	7.8	8.8	8.6	8.5	8.6	8.6	8.0
<u>SD</u>	1.4	1.7	1.6	1.4	1.4	1.0	1.4	1.6	1.8	2.0	1.6	1.8
<u>Range</u>	5	7	6	5	5	4	6	8	8	9	6	7

Participants from School F reported that Standard 3, Resources, was the standard least reflected in their professional development experience over the last three years ($\underline{M} = 7.1$), while Standard 1, Learning Communities, was most often reflected according to the survey results ($\underline{M} = 9.7$). Score ranges for these two standards were 6 ($\underline{SD} = 1.6$) and 5 ($\underline{SD} = 1.4$), respectively.

Table 11

NSDC Survey Mean Scores, Standard Deviations, and Score Ranges for School G

	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12
<u>M</u>	10.5	10.2	7.1	10.8	9.1	8.2	10.1	9.0	9.5	10.5	10.3	9.5
<u>SD</u>	.9	1.8	2.6	1.3	1.6	2.0	1.3	2.2	1.9	1.4	2.0	1.4
<u>Range</u>	3	6	8	3	6	8	4	8	6	4	6	5

The results of the surveys from School G indicated the least level of implementation of Standard 3, Resources ($\underline{M} = 7.1$). The variation in scores among participants was 8 ($\underline{SD} = 2.6$). The greatest level of implementation was of Standard 4, Data-Driven ($\underline{M} = 10.8$), with a range of only 3 ($\underline{SD} = 1.3$).

Table 12

NSDC Survey Mean Scores, Standard Deviations, and Score Ranges for School H

	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12
<u>M</u>	11.7	11.7	8	11.3	11.3	11	11.6	11.1	11.6	12	11.8	10.6
<u>SD</u>	.7	.7	1.6	1.1	.9	.7	.5	1.1	.5	.0	.4	1.0
<u>Range</u>	2	2	5	3	2	2	1	3	1	0	1	3

Teachers from School H responded that Standard 3, Resources, was reflected least ($\underline{M} = 8$) in their professional development program over the last three years, whereas Standard 10, Equity, was reflected most ($\underline{M} = 12$). As noted above, there was no variability in the teachers' responses for Equity at this school, meaning teachers were in complete agreement ($\underline{N} = 9$) on this standard.

Table 13

NSDC Survey Mean Scores, Standard Deviations, and Score Ranges for School I

	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12
<u>M</u>	9.6	9.5	7.2	10.3	8.9	8.8	9.9	10	9.7	9.7	10.1	8.4
<u>SD</u>	2.0	2.0	1.9	1.3	1.3	2.0	1.7	1.6	1.6	1.7	1.4	1.3
<u>Range</u>	6	6	6	4	4	6	4	4	5	6	4	4

According to teachers from School I, Standard 3, Resources, was the standard reflected least ($\underline{M} = 7.2$) in their professional development program over the last three years. Standard 4, Data-Driven, was reflected most ($\underline{M} = 10.3$), with a range in responses of 4 ($\underline{SD} = 1.3$).

Table 14

NSDC Survey Mean Scores, Standard Deviations, and Score Ranges for School J

	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12
<u>M</u>	9.2	9.5	6	9.3	8.8	8	8.3	8.7	8.7	10.6	9.8	9.3
<u>SD</u>	.4	1.4	1.5	.5	.4	1.5	2.1	1.6	.8	1.5	1.5	.8
Range	1	4	4	1	1	4	5	4	2	3	4	2

The results of the surveys from School J indicated the least level of implementation of Standard 3, Resources ($\underline{M} = 6$). The range for this standard was 4 ($\underline{SD} = 1.5$). The greatest level of implementation was of Standard 10, Equity ($\underline{M} = 10.6$), with a high degree of agreement among respondents (Range = 3; $\underline{SD} = 1.5$).

Table 15

NSDC Survey Mean Scores, Standard Deviations, and Score Ranges for School K

	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12
<u>M</u>	9.9	9.7	5.7	9.5	9.2	8.7	9.7	9.0	8.7	10.2	9.7	9.2
<u>SD</u>	1.4	1.3	1.8	1.9	1.8	1.0	1.3	1.4	1.7	1.5	1.6	1.3
Range	5	4	8	7	7	4	4	6	6	4	5	5

As illustrated in Table 15, teachers from School K responded that Standard 3, Resources, was the standard reflected least ($\underline{M} = 5.7$) in their professional development program over the last three years and Standard 10, Equity, was reflected most ($\underline{M} = 10.2$). Score ranges were 8 ($\underline{SD} = 1.8$) and 4 ($\underline{SD} = 1.5$), respectively.

Table 16

NSDC Survey Mean Scores, Standard Deviations, and Score Ranges for School L

	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12
<u>M</u>	9.0	8.8	7.4	8.6	8.4	8	9	8.6	8.5	9.4	9.1	9.1
<u>SD</u>	1.9	1.9	1.1	1.5	1.3	1.8	1.5	1.8	1.8	1.6	1.5	1.8
Range	6	6	4	6	5	7	7	7	7	6	6	6

Participants from School L reported that Standard 3, Resources, was the standard least reflected in their professional development experiences over the last three years ($M = 7.4$), while Standard 10, Equity, was most often reflected by the survey results ($M = 9.4$). Score ranges were 4 and 6, respectively.

Summary for Question 1. When comparing the survey results of the participating schools according to the NSDC standards, several patterns emerged. First, the standard that received the lowest mean scores from 11 of the 12 challenge schools was Standard 3, Resources, with mean scores ranging from 5.6 to 8. In other words, 92% of the schools were in agreement that Resources was the least implemented standard. By comparison, the standard receiving the highest mean scores in 7 of the 12 challenge schools (or 58% of the schools) was Standard 10, Equity. The mean scores for this standard as reported by those seven schools ranged from 9.4 to 12. Standard 11, Quality Teaching, received the second highest mean scores. The mean scores from 6 of the 12 schools (or 50% of the schools) for this standard ranged between 9.8 and 11.8.

Research Question 2

According to teachers' responses during interviews, were the NSDC standards reflected in professional development activities of elementary "challenge" schools?

Three teachers from each school participated in the interviews. Two teachers were randomly selected from the pool of teachers who stated their willingness to participate in an interview. The third interviewee was the teacher who served as staff development planner in the school for the 2000-2001 school year. Participant comments were analyzed following the interviews for mention of the 12 NSDC standards. If responses could be categorized according to more than one standard, coding to reflect

multiple standards occurred. For example, if teachers said that principals and teachers worked together to analyze test results to determine the needs for training, frequency counts would be marked for three standards. Learning Communities would be marked because of colleagues working together; Leadership would be marked because of the involvement of the administrators; and Data-Driven would be marked because of practitioners analyzing test results to determine training needs. Frequency counts indicating the number of times each standard was mentioned by the three interviewees at each school are reported in Table 17. The percentage of schools that mentioned each standard is also reported (see Table 17).

Table 17

Frequency Counts of Teacher Comments Related NSDC Standards by School

School	Learning Communities	Leadership	Resources	Data-Driven	Evaluation	Research-Based Design	Learning	Collaboration	Equity	Quality Teaching	Family Involvement	School Total	
A	8	1	3	10	0	3	1	0	1	4	8	3	42
B	6	2	5	4	1	2	3	2	1	1	5	0	32
C	2	1	2	1	0	0	1	1	1	0	2	0	11
D	6	1	0	4	0	1	1	2	2	0	2	1	20
E	7	3	0	6	1	0	0	1	1	1	2	1	23
F	5	4	1	6	0	4	1	1	0	0	5	0	27
G	4	0	4	6	0	1	0	6	1	1	5	0	28
H	7	4	1	7	0	1	1	2	2	0	2	0	27
I	6	4	4	8	5	3	3	3	4	0	3	0	43
J	2	2	0	4	0	0	0	0	0	7	1	4	20
K	3	1	0	5	0	1	2	0	0	0	2	0	14
L	2	2	0	3	0	0	1	1	0	1	1	0	11
Standard Total	58	25	20	64	7	16	14	19	13	15	38	9	
% of Schools Naming	100	92	58	100	25	67	75	75	67	50	100	33	

Participants in 50% of the schools mentioned the NSDC standards during the three interviews between 20 and 28 times. School A and School I had an unusually high number of mentions of the standards (42 and 43), whereas School C and School L mentioned the standards few times as compared to other schools (both schools had total frequency counts of 11). No school mentioned all 12 standards. School B (a relatively small school that did not experience a change in leadership) mentioned 11 of the 12 standards. This school did not mention Standard 12, Family Involvement. School A (a large school that did have a change in administration over the three-year period) mentioned all but two standards (Standard 5, Evaluation, and Standard 8, Learning) in interview responses. Two schools (School J and School K) mentioned only six of the 12 standards during the course of the three interviews. The other six standards were not mentioned in their responses to the interview questions. Neither of these two schools experienced a change in leadership.

Looking at the frequency counts by standard reveals that low-frequency counts were reported for Standard 5, Evaluation (7 comments). Only 25% of the schools mentioned Evaluation in their interview responses. Standard 12, Family Involvement, also had a low number of frequency counts based on the responses to the interviews (9 comments). Only 33% of the schools mentioned Family Involvement. In contrast, 100% of the schools mentioned Standard 4 (Data-Driven), Standard 11, Quality Teaching, and Standard 1 (Learning Communities). These standards were mentioned 64 and 58 times during the interviews, respectively.

Research Question 3

Is there a correlation between the NSDC self-assessment survey and teacher interviews?

Responses to the self-assessment survey and the teacher interviews were examined and compared. An overall mean score for each NSDC standard was calculated according to the responses on the surveys from the 12 challenge schools. For each standard, the possible score range was 3 to 12, with a low score representing a low level of implementation of the standard and a high score representing a high level. Further, teachers' responses to the interview questions were coded in relation to the 12 NSDC standards mentioned. If responses could be categorized according to more than one standard, coding reflected this occurrence. Mean frequency counts indicating the average number of times each standard was mentioned by the three interviewees at each school are reported. Table 18 provides an overall comparison of mean scores from both surveys and interviews.

Table 18

Comparison of Survey Results and Interview Results for the 12 NSDC Standards

NSDC Standard	Survey Results (<u>M</u>)	Interview Results (<u>M</u>)
Learning Communities	9.8	4.8
Leadership	9.6	2.1
Resources	6.7	1.7
Data-Driven	9.7	5.3
Evaluation	8.9	.6
Research-Based	8.6	1.3
Design	9.6	1.2
Learning	9.1	1.6
Collaboration	9.2	1.1
Equity	10.2	1.3
Quality Teaching	9.8	3.2
Family Involvement	8.8	.8

As illustrated above, Standard 3, Resources, received the lowest mean score (6.7) based on the survey results, while Standard 5, Evaluation, received the lowest score based on the interview results (.6). The standard receiving the highest mean score according to the surveys (10.2) was Standard 10, Equity, while Standard 4, Data-Driven, scored highest based upon results from the interviews (5.3). All but two standards (Resources and Equity) received mean scores between 8.6 and 9.8 on the survey. Family Involvement also received the second lowest mean score based on the interview results (.8), while Learning Communities received the second highest mean score (4.8). All other standards received scores ranging from 1.1 to 3.2 from the interview results.

The correlation coefficient between the survey results and interview results was obtained using the Pearson r . Results were not significant at the $p=.01$ alpha level. Thus, no relationship was observed between these variables. The results of this analysis are summarized in Table 19.

Table 19

Correlation and Significance Level for Survey Results and Interview Results

	<i>r</i>	<i>p</i>
Survey Results and Interview Results	.337	.284

Research Question 4

According to the results from the NSDC self-assessment survey and teacher interviews, did teachers change the way they taught English because of professional development?

The mode is reported in Table 20 for each school according to the results from the survey's 4-point Likert scale on Question 37 (The professional development experiences provided to me over the past three years caused a change in the way I teach English.). For example, if most participants indicated they agreed their teaching practice had changed as a result of professional development (and thus circled 3 on the survey), a "3" was recorded as the mode. Also reported in Table 20 is the mode from the yes/no responses given for Interview Question 4 (Have any of the professional development experiences you have had over the last three years caused you to change the way in which you teach English? Please describe them.) by the three participants from each school. For example, if two of the interviewees stated their teaching practice had changed as a result of professional development and one interviewee stated his/her teaching practice had not changed, the mode would be yes, as two of the three participants stated this.

Table 20

*Changes in English Teaching Practice as a Result of Professional Development**According to Survey and Interview Responses*

School	Survey Results (Mode)	Interview Responses (Mode)
A	3	yes
B	3	yes
C	3	yes
D	3	no
E	3	yes
F	3	yes
G	3	yes
H	4	yes
I	3	yes
J	3	yes
K	3	yes
L	3	yes

The survey responses revealed that teachers in 11 of the 12 schools agreed that professional development during the last three years had changed their teaching in English. Participants from the 12th school (School H) reported that they *strongly* agreed their teaching practice had changed. Similarly, according to interview results, the majority of teachers (at least two of the three teachers) in 11 of the 12 schools agreed that their English teaching practice had changed as a result of professional development. Results of the interviews also revealed a majority of teachers in School D *disagreed* with the statement that their teaching practice of English had changed because of professional development.

Research Question 5:

According to the results from the NSDC self-assessment survey and teacher interviews, did teachers change the way they taught mathematics because of professional development?

The mode is reported in Table 21 for each school according to the results on the survey's 4-point Likert scale from Question 38 (The professional development experiences provided to me over the past three years caused a change in the way I teach mathematics.). Table 21 also shows the mode from the yes/no responses given for Interview Question 5 (Have any of the professional development experiences you have had over the last three years caused you to change the way in which you teach mathematics? Please describe them.) by the three participants from each school.

Table 21

*Changes in Mathematics Teaching Practice as a Result of Professional Development
According to Survey and Interview Responses*

School	Survey Results (Mode)	Interview Responses (Mode)
A	3	yes
B	2	yes
C	3	no
D	3	no
E	3	yes
F	3	no
G	3	yes
H	3	yes
I	3	no
J	2	no
K	3	yes
L	3	no

Survey results revealed that participating teachers in 10 schools believed that they had changed the way they taught mathematics because of professional development. According to survey results, participants from two schools (School B and School J) disagreed with this statement. Responses given during the interviews showed 6 of the 12 schools reported experiencing a change in their mathematics teaching practice because of professional development received over the last three years. Interview results also indicated that six schools *disagreed* with the statement that their mathematics teaching practice changed because of professional development.

Research Question 6

Is there a correlation between the 2001 English and mathematics Standards of Learning assessments at the third- and fifth-grade levels and the composite scores on the NSDC self-assessment survey?

As seen in Table 22, the combined English and mathematics scores for the third- and fifth-grade 2001 Standards of Learning assessments ranged from 56.85 to 95.21. The composite mean scores from the survey results, which ranged from 100.9 to 133.6, are also included in Table 22.

Table 22

Percentage of Combined English and Mathematics Passing Scores for the Third- and Fifth-Grade 2001 Standards of Learning Assessments and Composite Mean Scores from Survey Results

School	Combined SOL Score	Survey Composite Scores
A	69.56	105.6
B	81.57	100.9
C	56.85	108.7
D	92.6	108.1
E	74.31	113.9
F	63.02	101.6
G	75.13	114.8
H	83.61	133.6
I	71.54	112.1
J	95.21	106.3
K	88.75	109.3
L	84.42	103.6

The correlation coefficient between the combined SOL scores and the composite scores from the NSDC survey was obtained using the Pearson r . Results were not significant at the $p = .01$ alpha level. Thus, no relationship was observed between these variables. Results of this analysis are summarized in Table 23.

Table 23

Correlations and Significance Level for SOL Combined English and Math Scores and NSDC Survey Results

	r	p
Combined SOL Scores and NSDC Survey Results	.097	.765

Summary

In summary, the NSDC standards were reflected in professional development activities of the challenge schools in the subject district according to the results of the survey. The standard receiving the lowest score on the surveys was Standard 3, Resources, and the standard receiving the highest score was Standard 10, Equity. The results of the interviews showed that although 100% of the schools mentioned Standard 4, Data-Driven, Standard 11, Quality Teaching, and Standard 1, Learning Communities, no school mentioned all 12 standards. Low frequency counts were reported during the interviews for Standard 5, Evaluation, and Standard 12, Family Involvement.

A significant correlation between the NSDC survey and teacher interviews was not found. Teachers did report, both on the survey and in interviews, a change in their English teaching practice as a result of professional development. Although a change in their teaching practice of math was reported by 83% of the schools on the survey, only 50% reported a change in mathematics teaching practice during the interviews. Finally, a significant correlation between 2001 SOL results and the scores on the NSDC survey was not discovered.

A more detailed summary of the research findings along with a discussion of the implications of these findings are presented in Chapter 5. Additionally, recommendations for future research are offered.

Chapter 5: Summary, Discussion, and Recommendations

As discussed in Chapter 2, a shift has taken place in staff development from a focus on adult desires and satisfaction to student needs and outcomes. Thus, it has been recognized that professional development is successful only when student achievement is affected in a positive way. The National Staff Development Council's National Standards of Staff Development have become benchmarks on which current staff development should be based if gains in student achievement are to be made. Organized into three areas, there are 12 NSDC standards. The first area of the standards, Context, includes three standards that address where learning occurs: Learning Communities, Leadership, and Resources. The second area, Process, includes six standards that address how the system organizes learning opportunities: Data-Driven, Evaluation, Research-Based, Design, Learning, and Collaboration. The final area of the NSDC standards, Content, includes three standards that address what educators must understand and be able to apply: Equity, Quality Teaching, and Family Involvement (Hirsh, 2001a). Although the NSDC standards provide a starting point for linking professional development and student achievement, many authors agree that efforts to demonstrate a relationship between teacher learning and student learning have not yet yielded clear results (Guskey & Sparks, 1996; Killion, 1998, 1999; Orlich et al., 1993; USDOE, 2000).

The participating district received a \$911,000 grant from the state for the period of 1998-2000, and more than one million dollars for the following biennium (VDEO, 1998, 2000). These monies were to be used to support ongoing professional development. Leaders in the district focused efforts on identified challenge schools (i.e., schools that were most at risk for not receiving full accreditation). Professional development in the 12

elementary challenge schools over the three-year period of 1999-2001 was examined in this study. Although some of the professional development activities were planned and implemented by the district's central office, the primary role at the district level was facilitation and support of professional development at the schools.

School improvement teams were responsible for developing a plan for implementation of the training grant through ongoing staff development. SOL assessment data from the previous year's performance were reviewed, and a carefully tailored annual plan for improved student achievement was developed. Teams utilized a district menu of options for professional development in their creation of the annual plan. This menu was created utilizing research and recommended best practices in professional development. Specifically, NSDC's standards served as the framework by which the menu was developed (personal communication, July 30, 1998).

To examine issues related to NSDC's standards, data were collected from 12 low-performing elementary schools in a suburban Virginia school district that received grant funding over a three-year period to support professional development efforts. Teachers with more than three years of experience in these schools ($N = 189$) were surveyed using a self-assessment questionnaire developed by NSDC. Interviews were conducted with three teachers from each school. Passing scores for the 2001 combined English and mathematics Virginia Standards of Learning assessments for third and fifth grade were analyzed using descriptive statistics methods.

According to the results of the self-assessment surveys from this study, teachers in this suburban Virginia district agreed that the NSDC standards were reflected in professional development activities. This was the case in all 12 schools in this study.

Based on the finding that all schools saw some improvement in their state test scores over the course of the three-year grant, one may conclude that effective professional development may have contributed to this. These findings are consistent with research suggesting that the 12 NSDC standards are necessary for effective professional development to take place (NSDC, 1995, 2001a). Additional findings are summarized below.

Summary of Findings

1. The NSDC standards were reflected in the professional development activities of elementary challenge schools according to the results of the NSDC self-assessment survey, as 3.0 was the average answer reported.
2. The standard that received the lowest mean scores on the survey from 11 of the 12 schools was Standard 3, Resources. The standard receiving the highest mean scores on the survey from 7 of the 12 schools was Standard 10, Equity.
3. No school mentioned all 12 standards in the interviews.
4. School B mentioned 11 of the 12 standards during the interviews, and Schools J and K mentioned only six of the 12 standards.
5. Twenty-five percent of the schools mentioned Standard 5, Equity, in the interviews.
6. All of the schools mentioned Standard 4, Data-Driven, Standard 11, Quality Teaching, and Standard 1, Learning Communities, in the interviews.
7. A significant correlation was not found between the NSDC survey and responses from teacher interviews.

8. Survey and interview results from 11 of the 12 schools indicated that teachers agreed that professional development changed their teaching of English.
9. Survey results showed that teachers in 10 of 12 schools agreed that they changed the way they taught mathematics as a result of professional development activities in their school.
10. According to interviews, teachers from 6 of the 12 schools reported a change in their mathematics teaching practice as a result of professional development.
11. No significant correlation was found between the 2001 English and mathematics Standards of Learning assessments at the third- and fifth-grade levels and the composite scores on the NSDC survey.

Discussion of Findings

Findings from this study will be compared and contrasted with research in the area of professional development. Conclusions, limitations, recommendations for future research and implications for professional practice will be offered as well.

Professional Development Research

Some of the past research efforts on professional development and student achievement have examined specific staff development programs such as Project Success, Junior Great Books, Math Renaissance, QUILT, Math Their Way, and Penn Literacy (Killion, 1999; Roy, 2000; Todnem & Warner, 1994). Recent literature on this subject indicates that viewing professional development as isolated events or even as series of events "... interferes with the ability to produce the intended results – that is, to improve student achievement" (Killion, 2002a, p. 11). Although such events "... can be easily counted, documented, and structured," such a design may fall short of a change in

teaching practice and ultimately an improvement in student achievement (Killion, 2002a, p. 11). Still other research consisted of a meta-analysis of studies that examined major teacher inservice programs such as the Hunter Model and cooperative learning (Orlich et al., 1993) rather than investigating the total professional development efforts provided in schools over the course of several years. In addition, some studies included in the investigation by Orlich and colleagues suffered from flawed research designs and statistical methodologies such as the use of grade-equivalent scores and gain scores.

In contrast, this study looked at staff development holistically as recommended by the national standards. Thus, it mirrors Pardini's (2001) work in that both studies investigated the presence of the NSDC standards in professional development programs. The current study utilized NSDC's self-assessment survey. Results indicated that teachers agreed that standards were implemented in professional development activities in schools. The difference between previous investigations and this study is that earlier efforts began with the staff development program and identified its critical features. This study, on the other hand, began with the Standards and then determined their existence in professional development efforts.

A 1998 study (*Council for School Performance*) found clear differences in the ways higher- and lower-achieving schools approach staff development. Although the national standards were not mentioned in this Georgia study, a description of the characteristics of efforts in higher-achieving schools provided evidence of the presence of the standards. The current study did not compare the professional development efforts of lower- and higher-performing schools as was done in the Georgia study. Instead, it examined elementary schools most at risk for not meeting state standards of learning that

were engaged in focused, ongoing professional development to improve student achievement through the support of a grant.

Descriptive studies in the area of professional development have also provided insight about the features present in staff development that lead to improved student achievement (Cawelti, 1999; Sparks & Hirsh, 1997). Although remarkably different programs and approaches are described, common elements were found. Some of these include a focus on student achievement as the end goal; collaboration between students, parents, and teachers; and strong leadership. These elements are all included in the Standards, which were used as a framework for the current study.

Research also exists on the effect of staff development on improving school capacity. For example, King and Newmann (2000) contended that three dimensions of professional development are necessary to bring about an improvement in instruction and achievement. Schools demonstrating advancement in capacity were characterized by the following aspects of professional development in place: teachers' knowledge, skills, and dispositions; the professional community; and the coherence of the school program. Although school capacity was not examined in the present study, one could argue that it is embedded in the construct of improved performance that was used. Still other research efforts have focused on the transfer of teachers' knowledge and skill into practice when ongoing feedback and coaching is provided (Joyce & Showers, 1983, 1988, 1995). Again, it could be argued that these dimensions are present within the Standards that were examined in the current study.

The most recent examination of the link between staff development and student achievement focused on the evaluation of staff development (Killion, 2002a). Results

indicate that an emphasis on the NSDC standards leads to effective professional development. Comprehensive planning of programs, appropriate funding, a focus on the entire system rather than isolated parts, and a concentration on student results are included in the recommendations by this author. In addition, the evaluation of such programs should rest not solely on evidence of delivery of services and opinion, but on positive changes in student performance. Such a design was utilized in this study.

Finally, one researcher has recommended the use of both quantitative and qualitative methods to study the impact of professional development on student learning (Guskey, 2000). Using surveys, interviews, and standardized test scores, the current study has contributed to the research by utilizing the recommended mixed design method in its examination of the relationship of professional development and student achievement.

Conclusions

According to the results of the self-assessment surveys, teachers in all 12 schools agreed that the NSDC standards were reflected in professional development activities. In contrast, the interview results revealed that no school mentioned all 12 NSDC standards. This may be due to the open-ended nature of the interview questions (see Appendix B). There were two reasons for not including questions about each of the 12 standards in the teacher interviews. First, the length of the interviews would have been increased, which might have negatively affected the number of willing participants. Second, the intent of asking the questions about the broad categories of the NSDC standards (context, process, content) was to avoid leading the participants to any one standard. However, the open-

ended nature of the questions may have contributed to the limited number of standards mentioned by teachers.

Resources, Collaboration, and Professional Development

Differences were found in the level of implementation of each of the Standards based on the survey results. With only one exception, all schools gave the lowest rating to Standard 3, Resources. This finding suggests that, in the case of this school district's staff development program, resources such as time and money may not have been available. However, the NSDC "... advocates that school districts dedicate at least 10% of their budgets to staff development" (2001a, p. 12). With this in mind, another plausible reason for the lower scores in this area could be that teachers were unaware of the budget provided for staff development. For example, NSDC advocates that professional development funds be used for a wider variety of purposes such as substitutes to cover classes while teachers collaborate with each other, observe effective teaching strategies in other classrooms, or attend conferences; teacher stipends; and coaches and mentors to model effective methodologies for teachers. Despite the fact that the Standards of Learning Teacher Training Initiative grant provided this district with nearly two million dollars over a four-year period for staff development including the recommendations listed above, it is highly possible that teachers were unaware of the grant's funding level.

NSDC recommends "... that at least 25% of an educator's work time be devoted to learning and collaboration with colleagues" (2001a, p. 12). This speaks to the ongoing nature of professional development recommended by many researchers (Asayesh, 1993; DuFour, 1997; Guskey, 2000; Killion & Hirsh, 2001; NCRTL, 1995; NPEAT, 2000;

NSDC, 1995; Snow et al., 1998; Sparks & Hirsh, 1997; WestEd, 2000a). Although it is clear that the district in this study provided the time and structure for professional development of an ongoing nature to occur (personal communication, March 20, 2002), it is possible that teachers did not view such activities as professional development. This becomes even clearer in the responses given during the interviews with teachers as the examples of professional development offered by the interviewees were those of a more traditional, inservice nature. For example, several teachers mentioned the training on “story frames,” a workshop provided to all elementary teachers in a school auditorium. Teachers also mentioned the training on the new math series. Again, training of an inservice nature from an outside expert was given on these materials. Only one teacher clearly articulated a description of professional development that encompassed the new vision of professional development. When asked to describe the context of staff development in her building, she stated, “We have taken the SOL in various subject areas and planned activities and assessments and met as a team to decide how we can make them event better or delete something. All teachers at [School E] are top team players. We help each other. We work as a team.”

Another teacher wanted clarification when asked if teachers work together on a regular basis to improve teaching and learning, asking, “Do you mean staff working together during the course of the staff development, or just in general?” Her mention of “the staff development” seems to indicate her perception of it as a training event. The same individual described the way she and a colleague heard of an approach used at another school to teaching reading, approached the administrator for permission to observe the program, spent a full day at the school watching this approach first hand and

asking questions, and then invited the teacher to their own school for assistance with the implementation of the technique. However, she was hesitant to include this rich professional development experience in her description of a professional development experience that changed the way she taught English, stating, “I don’t know if it would be called staff development.” Upon completing her description of this experience, she concluded with, “It was just the three of us, so I guess that’s staff development, but it was very, very helpful and a completely different approach to what staff development in central office is offering us.” This is truly ironic, especially given that observations of other teachers and small-group learning were two items included in the description of the training grant, with funding provided to support ongoing professional development. Finally, even if such activities were considered when teachers responded to the question regarding resources such as time, the NSDC recommendation of spending 25% of a workday engaged in professional development may be far beyond the limitations placed upon schools and districts.

Still another teacher reported that, “... absolutely teachers work together – not only during staff development but lots of other times to try to improve teaching and learning.” Again, this comment during the interview indicated that the general perception of staff development included only formal training events of an inservice nature. Despite artifacts from the districts revealing that teachers in these 12 schools form small groups and examine data, discuss student progress, and share ideas for practice, these activities were not mentioned in the interviews. Teachers did not seem to view these events as a part of professional development in their schools. Therefore, one possible explanation for the low score in the area of Standard 3, Resources, may be that teachers only considered

traditional staff development activities in their responses rather than reflecting on the time and money spent in the aforementioned activities.

Equity and Quality Teaching

The survey results indicated that Standard 10, Equity, and Standard 11, Quality Teaching, were the standards implemented to the greatest degree in professional development activities. Both of these are included under the category of content standards, which address what educators must know and be able to do (NSDC, 2001a). As mentioned in Chapter 1, schools in Virginia are now held accountable for students attaining skills and concepts defined in the state standards (SOL). Consequently, professional development in the state and district at hand has increasingly focused on improving student achievement in the content areas with historically low assessment scores as reported by a school's previous years' test results. Specific examples of the two content-based standards were also given by teachers during the interviews. One teacher stated, "Staff development has shown me different ways to group students." Another stated that staff development "... is becoming more content-based." Still another teacher said she attended a guided reading inservice. She described how the presenter shared a model for having students read a book each day rather than a book each week. The teacher followed her description of the training with, "I tried it and it worked!" Still another teacher described the way her school looks at test scores and where her school's performance rests and then plans staff development activities accordingly for meeting the needs of different learners. Still another teacher reported that they look for methods that "refine classroom teaching so time is maximized." These examples considered, it may

be that Equity and Quality Teaching are two of the standards emphasized strongly in professional development programs that are standards-based.

Interview results also showed that teachers agreed that Quality Teaching was implemented in professional development efforts, as it was mentioned by 100% of the schools. However, Equity was mentioned by only 25% of the schools during the interviews. Considering the discrepancy between the finding for the Equity standard from the interviews and the results from the surveys, one possible explanation may be that the survey is a valid measure of the implementation of the NSDC standards, but the interview is a poor measure of the implementation of the standards in the schools because of its open ended nature. Still another explanation could be that the NSDC survey is not a valid measure of the implementation of the standard because of the self-reported measure using a Likert scale. Agreement from teachers on the survey items may be a result of the instrument's nature.

Data-Driven and Learning Communities

One hundred percent of the schools mentioned two of the NSDC standards during the interviews. Standard 4, Data-Driven, was one such standard. Although NSDC lists data-driven as a standard under the category of the process of staff development, it was given as a response to Question 2 during the interviews (What topics, or content, have been the focus of your school's professional development over the last three years?). NSDC's primary intent of the data-driven standard was that data analysis be used to *determine the content* of teachers' professional development (2001a). However, they also encourage the development of educators' knowledge about the analysis and use of data (NSDC, 2001a). According to artifacts in the district, many workshops have been

provided in the 12 challenge schools on the topic of data analysis. For example, the 1999 book, *Using Data to Improve Student Achievement* by Walstrom, was purchased for administrators in the district and the author provided training on the topic. As a result, many principals returned to their buildings and shared the information with teachers (personal communication, January 15, 2002). While artifacts and personal communications with personnel indicate that formal and informal data are used on a regular basis to improve teaching and learning, teachers may have considered only traditional staff development activities regarding training on data analysis in their responses to the interview questions rather than the process of utilizing data to improve student achievement.

Another point in this area worthy of mention is the number of teachers who requested clarification on Question 12 on the self-assessment survey. This question stated, "In this school, data are disaggregated to ensure equitable treatment of all subgroups of students." At least one teacher in each school asked what this question meant. It may be fair to state that the term "disaggregated" is not generally used by elementary teachers. Thus, the novelty of the term may have affected the responses given on the surveys to this question.

The second standard mentioned by all of the schools during the interviews was Standard 1, Learning Communities. One possible explanation for this finding may be the move in the district to professional development at the individual school level rather than training and development for the entire county. According to artifacts, decision making about professional development has increased over the last three years at the school level. Thus, support in the form of funding and resources has been provided by the district so

that faculties, grade-level teams, and colleagues according to subject can meet together and participate in some form of professional development. An example is the site-based institutes that were developed four years ago. With these, teachers develop proposals and submit them for approval to the district's Office of Staff Development. Some proposals in the challenge schools over the last three years have included "Third-Grade Team Planning," "The Development of Nine-Week Social Studies Assessments for Fifth Grade" and "Internet Resources for First-Grade Teachers." Statements such as, "grade levels work together," "teachers working together has gotten better," "sometimes teachers work together," and "absolutely teachers work together," were included in the comments given by interviewees. Another possible explanation for the finding that 100% of the schools mentioned Learning Communities in the interviews may be the way in which Question 1 was clarified for the participants. Participants were asked, "Do teachers work together on a regular basis to improve teaching and learning?" Although provided in the interview question in an attempt to clarify examples of "context" to the interviewees, it may have led them to their responses.

Statistical Correlations and Changes in Teaching Practice

A significant correlation was not found between the survey results and the interview results. As mentioned, this may be due to the open-ended nature of the interview questions. While the survey provided three questions about each of the 12 standards, the interview questions asked only about the categories of the standards – context, process, and content. Additional research to more definitively investigate the relationship between the two instruments is necessary.

The study also revealed that teachers thought professional development over the last three years had changed their teaching in the area of English. This was the case for all of the schools according to the survey results, and for all but one school according to the interview results. This finding seems to provide evidence of the assertion that professional development in this district led to a change in teaching practice. During the interviews in the school where results indicated that a change in English teaching practice did not occur, teachers provided explanations such as, “I have picked up a few things from staff development, but overall I haven’t changed the way I teach English” and “I have been there 26 years and I have seen a lot of things going back and forth. I just try to balance my teaching.” These comments may reveal that some teachers were already utilizing teaching methodologies that were meeting with good results in the area of student performance in English. Additional research in this area is necessary, however.

Another point worth noting regarding the change in English teaching practice was also revealed in the interviews. When asked to describe the professional development experiences that resulted in a change in their teaching practice, only two teachers mentioned professional development that was more of an ongoing, collegial nature rather than a specific or formal training event. One teacher stated, “I went to visit another teacher who had an established reading program, I convinced my administrator to let me try it, we brought trainers in, and I really saw a difference in the reading performance of my students.” The other teacher said that, “sharing assessment ideas with colleagues” was the experience that led to a change in her teaching practice. In contrast, the remainder of teachers who said they had changed the way they taught English as a result of professional development gave formal training events as examples of experiences that

led to the change in their teaching. Story frames, Junior Great Books, information-processing strategies, guided reading techniques, the 4-Blocks framework, stations, and reading groups are a sampling of the examples given during the interviews.

Results were not as strong when teachers were asked if professional development had led to change in their mathematics teaching practice. Ten of the 12 schools reported a change in their teaching practice based on the survey results, and only 6 of 12 schools reported a change in their mathematics teaching practice when asked during the interviews. Success on the Virginia SOL assessments, according to the opinion offered by many people, depends on students' reading ability. Consequently, it may be fair to assume that low-performing schools have put great focus on improving the reading ability of students, whereas the emphasis and professional development provided in the area of math has not been as great.

Comments from the interviews seem to support this conclusion. When asked if the professional development experiences over the last three years had caused a change in the way she taught mathematics, one teacher responded by saying, "It reinforced it but didn't change it. They showed us things we already knew." Another teacher stated that the professional development in the area of math, "... only changed the way I assess the students in math, not the way I teach it." Still another stated that, "Math hasn't been as much of an issue. I haven't changed the way I teach math." Still another teacher stated that, "nobody has addressed math."

Finally, the results of this study did not reveal a significant correlation between the 2001 Virginia Standards of Learning assessments and the composite scores on the NSDC survey. One explanation may be that there was not a great degree of variability

between the SOL scores of the 12 schools included in the study. As shown in Table 22, the pass rates ranged from 56% to 95%, with the majority of the scores falling between 71% and 88%. Another possibility is that improvements in the 2001 pass rates were not compared to scores received the first year of the grant. This decision was made for two reasons. First, the 1999 SOL pass rates from the district's challenge schools ranged from 30% to 60% (personal communication, November 23, 2001). Statistical regression would indicate that scores would regress toward the mean regardless of the professional development provided. Second, the formula for calculating the pass rates changed from 1999-2001, so accurate comparisons could not be made. Even so, additional studies in the area of assessing the reliability and validity of the self-assessment survey are necessary, as another explanation for the lack of correlation between the SOL scores and the NSDC survey results could be that the self-assessment survey is not a valid measure of standards-based professional development.

Limitations

The findings need to be considered in light of the limitations of this study. First, although the total sample included 189 teachers, the sample size in some individual schools was as small as six. This was because the number of full-time general and special education teachers with three or more years teaching experience in their schools varied from school to school. Large teacher turnover rates in recent years reduced the number of participants by more than 50% in some schools included this study. Further, the validity of the findings may be threatened due to the self-reporting method used on the surveys. That is, the responses to the questionnaire may not reflect actual events in the classroom. Another limitation is the change in administration some schools under study

experienced. Five of the schools experienced a change in administration some time over the previous three years. Because leadership plays such a critical role in schools (Covey, 1989; Kouzes & Posner, 1995; Sergiovanni & Starratt, 1993), the effect of the change in administrators may have altered the results of the findings in those schools that experienced this. Finally, caution must also be used when applying the results to other professional development settings. The people and events of the subject district may not be comparable to other school districts around the state and country with similar characteristics. Thus, this study's findings may not be generalizable to other professional development settings of suburban, standards-based, low-performing schools.

Recommendations for Future Research

The current study was unable to determine a relationship between student achievement and the degree of implementation of National Standards of Staff Development. As a result, additional research in this area is needed. One possibility is the inclusion of additional measures of student performance, as only standardized test scores were utilized in the current study. The use of portfolios, pre- and post-tests, student and parent interviews, and work samples are some options.

Further studies on the NSDC standards are necessary to determine whether they go beyond the limitations of school and district resources. For example, it is recommended that 25% of an educator's work time be dedicated to staff development. Contractual time for elementary teachers in the subject district are 7.25 hours each day. According to the NSDC recommendation, more than 90 minutes per day should be spent engaged in some type of professional development. One must question the practicality of the use of the resource of time. If teachers were away from their students for 90 minutes,

how would funding for additional personnel to monitor students be secured? How would the lost instructional time be recovered? There are certainly creative frameworks for rearranging the way time and personnel are used in schools, but there are only so many possibilities for stretching resources and employees.

Another rationale for the recommendation of further study on the NSDC standards is the question of overlap between the standards as well as the possibility that some standards are more pertinent than others. For example, Standard 7, Design, encourages the use of learning strategies appropriate to the intended goal, and Standard 8, Learning, recommends the application of knowledge about human learning and change. When considering the design of professional development, would one not also consider human learning and change when planning appropriate learning strategies? There also appears to be some overlap with Standard 11, Quality Teaching, and Standard 7, Research-Based. That is, if professional development prepares educators to apply research to their decision making, will that not also deepen their knowledge on quality teaching? Finally, while involving families (Standard 12) is desirable, will a professional development program be more successful if that standard is lacking rather than ensuring learning communities are in place (Standard 1)? In other words, is it possible that Standard 1 is more critical in a professional development program than Standard 12? Further study on these issues is necessary.

Additional research on the role of leadership in a school's professional development is also necessary. It is widely accepted that leadership makes a difference in the performance of an organization (Kouzes & Posner, 1995; Sergiovanni & Starratt, 1993). It is possible, therefore, that the implementation of the NSDC standards in the

development and implementation of the professional development program depends upon the school leader.

Studies on the reliability and validity of the NSDC self-assessment survey are also recommended. Although a short pilot test of the survey was conducted and it was reviewed for face validity, more detailed information on this instrument is needed. For example, some of the language may need to be altered, as it was revealed in this study that at least one term (disaggregated) was not understood.

The construct of “professional development” may not have been fully understood by participants in this study. Therefore, additional research to determine the implementation of NSDC standards is necessary. One possibility would be to verify teachers’ perceptions of professional development prior to studying this concept. Still other options for further examination of the implementation of the standards are focus groups and observations to verify data.

It appeared that the interview questions used in this study may not have been a valid measure of the implementation of the NSDC standards. Pilot testing of such an instrument is recommended, as is the expansion of the limited number of questions. Alternate measures of the presence of the NSDC standards are recommended. For example, case studies and artifact analysis may yield a deeper review of a professional development program as measured by the inclusion of the NSDC standards. Finally, all findings of this study must be considered in light of the self-report method used for the surveys and interviews. The questions may have been unclear or the respondents may not have given answers that reflect actual events. In addition, their perception of actual

events may not be accurate. Future research in this area using of alternate research methods is necessary.

Implications for Professional Practice

It is clear that measures to educate teachers on the new vision of professional development as an intentional, ongoing, systemic process are needed. Because the results from this study clearly indicate that the perception of professional development as a one-shot inservice still exists, the creation of powerful, well-designed staff development for school personnel in the area of development that leads to change in the form of improved student achievement is necessary.

The results of this study seem to provide evidence that effective professional development in this district was in place, teaching practice changed, and student achievement improved. Although a direct correlation between these constructs was not established, some evidence that the district's efforts are meeting with success was noted. A continued focus on the conceptual framework provided in Figure 1 should be considered.

Appendix A
NSDC Self-Assessment Survey

Self-Assessment of Implementation of NSDC Standards of Staff Development
Indicate the degree to which you agree with each statement by using the following key:

- 1 - Strongly Disagree**
2 - Disagree
3 - Agree
4 - Strongly Agree

LEARNING COMMUNITIES

1. In this school, small learning teams are a primary component of the staff development plan.

1 2 3 4

2. In this school, all teachers are part of ongoing, school-based learning teams that meet several times a week to plan instruction, examine student work, and/or solve problems.

1 2 3 4

3. In this school, school faculties and learning teams focus on school and district goals.

1 2 3 4

LEADERSHIP

4. In this school, incentive systems support staff development.

1 2 3 4

5. In this school, leaders recognize staff development as a key strategy for supporting significant improvements.

1 2 3 4

6. In this school, administrators and teacher leaders develop knowledge and skills necessary to be staff development leaders.

1 2 3 4

RESOURCES

7. In this school, staff development occurs primarily during the school day.

1 2 3 4

8. In this school, at least 10 percent of the budget is dedicated to staff development.

1 2 3 4

9. In this school, 25 percent of an educator's workday is used for staff development.

1 2 3 4

DATA-DRIVEN

10. In this school, data on student learning provide focus for staff development efforts.

1 2 3 4

11. In this school, teachers gather evidence of improvements in student learning in their classrooms to determine the effects of their staff development on their students.

1 2 3 4

12. In this school, data are disaggregated to ensure equitable treatment of all subgroups of students.

1 2 3 4

EVALUATION

13. In this school, various types of evidence are used to improve the quality of staff development (formative evaluation).

1 2 3 4

14. In this school, various types of evidence are used to determine whether staff development achieved its intended outcomes (summative evaluation).

1 2 3 4

15. In this school, the evaluation of staff development consistently includes all of the following: data concerning knowledge gained by participants, level of implementation, and changes in student learning.

1 2 3 4

(1-Strongly Disagree

2-Disagree

3-Agree

4-Strongly Agree)

RESEARCH-BASED

16. In this school, staff development prepares educators to be skillful users of educational research.

1 2 3 4

17. In this school, teams of teachers and administrators methodically study research before adopting improvement strategies.

1 2 3 4

18. In this school, pilot studies and action research are used when appropriate to test the effectiveness of new approaches when research is contradictory or does not exist.

1 2 3 4

DESIGN

19. In this school, educators participate in a variety of learning strategies to achieve staff development goals.

1 2 3 4

20. In this school, technology supports educators' individual learning.

1 2 3 4

21. In this school, a variety of follow-up activities follow every major change initiative.

1 2 3 4

LEARNING

22. In this school, staff development learning methods mirror, as closely as possible, the methods teachers are expected to use with their students.

1 2 3 4

23. In this school, staff development regularly offers opportunities to practice new skills and receive feedback on the performance of those skills.

1 2 3 4

(1-Strongly Disagree

2-Disagree

3-Agree

4-Strongly Agree)

24. In this school, staff development leaders gather and use information about individuals' concerns about staff development initiatives to design interventions and follow-up strategies.

1 2 3 4

COLLABORATION

25. In this school, staff development prepares educators to be skillful group members of various groups (for instance, school improvement committees, grade-level teams).

1 2 3 4

26. In this school, staff development provides educators with the skills necessary to surface and productively manage conflict.

1 2 3 4

27. In this school, staff development prepares educators to use technology to collaborate.

1 2 3 4

EQUITY

28. In this school, educators learn how to create schoolwide practices that convey respect for students, their families, and students' cultural backgrounds.

1 2 3 4

29. In this school, staff development prepares educators to establish learning environments that communicate high expectations for the academic achievement of all students.

1 2 3 4

30. In this school, educators learn how to adjust instruction and assessment to match the learning requirements of individual students.

1 2 3 4

QUALITY TEACHING

31. In this school/district, teachers have many opportunities to develop deep knowledge of their content.

1 2 3 4

(1-Strongly Disagree

2-Disagree

3-Agree

4-Strongly Agree)

32. In this school, staff development expands teachers' instructional methods appropriate to specific content areas.

1 2 3 4

33. In this school, staff development teaches classroom assessment skills that allow teachers to regularly monitor gains in student learning.

1 2 3 4

FAMILY INVOLVEMENT

34. In this school, staff development prepares leaders to build consensus among educators and community members concerning the overall mission and goals for staff development.

1 2 3 4

35. In this school, staff development prepares educators to create relationships with parents to support student learning.

1 2 3 4

36. In this school, technology is used to communicate with parents and the community.

1 2 3 4

OTHER

37. The professional development experiences provided to me over the past three years caused a change in the way I teach English.

1 2 3 4

38. The professional development experiences provided to me over the past three years caused a change in the way I teach mathematics.

1 2 3 4

(1-Strongly Disagree 2-Disagree 3-Agree 4-Strongly Agree)

Credit is given to the National Staff Development Council (2001b) for the development of this survey. It has been altered from its original form.

Appendix B

Structured Interview Directions and Questions

Prior to asking the 5 structured questions, the interviewer will state the following:

“Thank you for agreeing to participate in the follow-up interview for this study. As stated prior to your completion of the paper/pencil survey, the purpose of this study is to examine professional development practices in schools in this district. Your candid answers will help clarify the responses given by you and your colleagues on the survey. Your name and answers will remain confidential. No one will be able to identify you or your responses. May I have your permission to tape record your answers and use them in my dissertation?”

“Again, thank you so very much for your time. I now have 5 questions for you to answer. Please answer them candidly as you consider formal and informal professional development activities in your school over the last three years.”

1. Describe the context of professional development activities in your school over the last three years. Have resources such as extra time, money, and materials been provided? Do administrators participate in professional development activities? Do teachers work together on a regular basis to improve teaching and learning?
2. What topics, or content, have been the focus of your school’s professional development efforts over the last three years?
3. How does your school organize professional development activities? Describe the process.
4. Have any of the professional development experiences you have had over the last three years caused you to change the way in which you teach English? Please describe them.
5. Have any of the professional development experiences you have had over the last three years caused you to change the way in which you teach mathematics? Please describe them.

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