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Professional development : the missing component in education

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Professional development addresses student needs and is based on researched teaching strategies that are proven to assist both the teacher and the student in meeting high achievement standards. Other indicators of effective professional development, as described by NCLB, include: ongoing support; data-driven decision making; and effective evaluation of the professional development. It has the potential to improve educators' attitudes, behaviors, knowledge and skills, so it benefits student learning. High quality professional development, when explicit about the results it is seeking to achieve, can assist both teachers and students to meet or exceed the desired outcomes they are being asked to achieve.

Professional Development: The Missing Component in Education

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Abstract

Educators across the nation are dealing with never before seen expectations to show increased student levels of achievement under the No Child Left Behind (NCLB) legislation. These expectations are requiring school districts to ensure that all of their teachers are equipped with the knowledge and skills necessary to provide the best education possible to their students. Much of the teachers' knowledge and skill acquisition takes place during professional development. Professional development addresses student needs and is based on researched teaching strategies that are proven to assist both the teacher and the student in meeting high achievement standards. Other indicators of effective professional development, as described by NCLB, include: ongoing support; data-driven decision making; and effective evaluation of the professional development. When professional development addresses all of these indicators, it has the potential to improve educators' attitudes, behaviors, knowledge, and skills so it benefits student learning. High quality professional development, when explicit about the results it is seeking to achieve, can assist both teachers and students to meet or exceed the desired outcomes they are being asked to achieve.

Introduction

Today's students are inundated with high-stakes testing that drive many school's decisions about whether the students pass or fail. Unfortunately, these same schools have teachers who are not prepared with the knowledge needed to ensure their students function well in a school environment that praises these high-stakes tests. In order for students to be successful, they must have knowledgeable teachers. "We must pay attention to improving the quality of teaching if we are to meet our obligation of helping all students achieve" (Hirsh, 2001, p. 10). Today's students will benefit when teachers consistently have the necessary support to teach successfully.

The growing challenge of teachers being able to implement effective instructional strategies that are capable of increasing student achievement can be facilitated through carefully designed professional development. Professional development for teachers that focuses on researched instructional strategies can produce desired results in the classroom. The importance of professional development for teachers is emphasized in the No Child Left Behind (NCLB) legislation, which requires that professional development be based upon "research that involves the application of rigorous, systematic, and objective procedures to obtain reliable and valid knowledge relevant to education activities and programs" (U.S. Department of Education, 2004b, p. 4). Effective professional development in the school setting has become increasingly important due to the establishment of NCLB implemented by the United States Department of Education and signed into law in 2001 by President George W. Bush. "The No Child Left Behind legislation places new demands on educators at all levels" (Guskey, 2003, p. 27). With these new demands, professional development can no longer

be looked upon as a one-time seminar that bases its value on what the teachers feel was effective. Professional development needs to be more student-centered and focus on improving student learning.

> Staff development's success will be judged not by how many teachers and administrators participate in staff development programs or how they perceive its value, but by whether it alters instructional behavior in a way that benefits students. The goal is improved performance—by students, staff, and the organization (Sparks & Hirsh, 1997, p. 5).

The bottom line in education is student achievement. How well students do on standardized tests, for the most part, is an indicator of how effective the classroom teacher is. With strict standards being placed upon students under NCLB, educators need to be more aware of student learning and what they need to do to ensure that each child in their classroom is provided with the most effective education possible. Professional development is now being considered a crucial element, or the backbone, of ensuring student success and has taken on a whole new meaning under NCLB.

The importance of this review is to cite specific research and studies to determine what professional development should look like under NCLB as well as how schools and districts across the country are handling professional development. This review seeks to answer four main questions:

1. What is the impact of the No Child Left Behind legislation on professional development?
2. What does No Child Left Behind encompass and prescribe for effective professional development in schools?

3. What should be included in professional development to make it effective?

4. How is professional development being implemented in school districts across the country and what makes it effective?

Methodology

Locating professional development information that is considered valid and reliable was somewhat of a painstaking process for the writer of this literature review. The reviewer used electronic databases using keyword-searching methods to locate traditional and online sources on the topic. In searching for literature dealing with professional development, the reviewer relied mostly on ERIC (Educational Resources Information Center). Utilizing ERIC allowed the researcher to locate articles that were peer-reviewed as well as articles from juried journals and publications. The reviewer was able to find relevant information when entering the following descriptors into his research: (a) staff development; (b) professional development; models; (c) No Child Left Behind; (d) effective; (e) standards; (e) follow-up; (f) research-based; (g) on-going; (h) technology; and (i) integration. UNISTAR is a database the reviewer used to locate traditional resources, such as books, to further his understanding of effective professional development. Finally, the reviewer used the World Wide Web to locate relevant information pertaining to the topic.

To check for credibility, the reviewer was able to locate background information on the authors to determine if the information they presented to the reader was credible. Credibility of the author was determined by examining the recognition he/she may have received in the field of education and professional development and if they have written for other highly respected, peer reviewed journals. This was accomplished by entering the author's name into a search engine such as Google. All of the selected authors were credible and have published articles relating to professional development in many juried journals.

Reliability was the primary rationale for selecting the sources for this literature review. The criteria used to determine reliability were: (a) the publication or research date; (b) the credibility of the journal; and (c) the author(s) is/are currently a professional in the field of education and more specifically, professional development. A secondary rationale for selecting the specified resources is the reviewer's own interest in the topic of professional development. This literature review can serve as a foundation for future research in professional development and student achievement.

Analysis and Discussion

No Child Left Behind

On January 8, 2002, President George W. Bush signed into law the No Child Left Behind (NCLB) legislation that has forever changed how education is looked upon in the United States. One of the ideals that it is based upon is stronger accountability for both students and teachers. NCLB requires that states now describe how they will close the achievement gap and make sure all students achieve academic proficiency. Schools must report their progress by producing report cards that inform parents and communities about their progress. Schools that do not make progress must provide free tutoring or after-school assistance to those students who have been identified as "at-risk" of failing. NCLB makes it very clear that schools must show growth and that student achievement is the number one priority focused upon in the schools (U.S. Department of Education, 2004a, p.1).

In addition to free tutoring and after-school assistance as methods of increasing student achievement, many school districts have been considering the way professional development programs are organized in order to meet the demands of NCLB. Many school districts still employ the traditional workshops which do little more than provide an after school venue for teachers to write next week's lesson plans or grade student assignments. "Success will no longer be judged in terms of how many educators participate in staff development or how participants regard the experience. Instead, staff development leaders must show that those experiences lead to specific improvements in student performance" (Guskey, 2003, p. 28). A study by the National Institute for the Improvement of Education (Renyi, 1996) found that 73 percent of surveyed teachers

cited improved student achievement as the most important reason for participating in professional development activities. "Teachers value increased student achievement as an outcome of professional development more than any other variable and judge the value of their professional development activities by how much they see a leap in student learning" (Lockwood, 1999, p. 13). Increased student achievement should be the focus of any professional development that takes place in the schools. Ultimately, professional development should be the catalyst for increasing student achievement. "As a result of the movement to results-driven education, staff development needs to begin by determining the things students need to know and be able to do" (Sparks & Hirsch, 1997, p. 41). By focusing on the student, professional development is focusing on the teacher who is educating the student. This increased focus on student achievement is where NCLB clearly defines the role professional development should play in the education of students. NCLB states that professional development should be focused on leadership for student learning—guiding and monitoring instruction" (Guskey, 1997, p. 5). These activities enable them to become highly qualified educators equipped with the knowledge and skills to provide students with the opportunity to meet challenging state- academic standards and student academic achievement standards. "We must pay attention to improving the quality of teaching if we are to meet our obligation of helping all students achieve" (Hirsh, 2001, p. 10). According to this quote, students who are successful learners must then have knowledgeable teachers. If this is the case, how does one ensure that the playing field is level and that every classroom has a knowledgeable and prepared teacher in it? Many schools and districts are looking at refining the way they handle professional development and looking at NCLB for guidance.

The goal of the professional development section of the NCLB is to get all students learning and performing at high levels. "Professional development should assist teachers in keeping up to date with new and effective practices in teaching and learning"(Mouza, 2003, p. 272). Every student has the right to a competent teacher, and every teacher has a right to high quality preparation, ongoing professional development and support. Placing competent and highly qualified teachers in every classroom requires a new and better form of professional development. Effective professional development is more than just course work designed to fill a state or district requirement. "It is a set of activities that produces a measurable effect on student academic achievement" (U.S. Department of Education, 2002a, p. 1).

Seldom has the pressure been so high to find ways to support teaching and learning through effective professional development. NCLB places new demands on educators at all levels, but perhaps no group will be more affected than professional development leaders. The accountability requirements under this federal program drastically reshape their roles. The legislation compels professional development leaders to refocus their perspectives and, in some cases, to revise completely their efforts in the educational improvement process. Two aspects of NCLB have special significance for professional development leaders. First is its requirement for research-based programs. Second is the strong emphasis on accountability, defined in terms of improvements in student performance. In addition to the two previous mentioned aspects of NCLB, there are others that make professional development under NCLB a serious subject when it comes down to student performance.

NCLB clearly states that professional development be designed in a way that the end result shows increased student achievement. For this to take place, NCLB states that professional development must include activities that: (a) are ongoing and provide follow-up training to teachers who have participated in professional development; (b) are based on scientifically-based research; (c) are aligned and directly related to state academic standards, student achievement standards, and assessments; (d) include instruction in the use of data and assessments to inform and instruct classroom practice; and (e) are regularly evaluated for their impact on increased teacher effectiveness and improved student academic achievement (U.S. Department of Education, 2003). Although NCLB includes other areas professional development leaders must adhere to when delivering effective professional development, six areas have been selected due to the nature of their importance.

On-Going and Follow-Up Training. For all the good that goes into the planning of professional development, one common error plagues the process. This error is the general failure to provide a way to transfer new information and skills to the classroom. Activities that target the application of skills learned in professional development or in-service activities are commonly referred to 'follow-up' activities. NCLB's definition of professional development states that professional development activities not be one-day or short-term workshops or conferences and that they provide follow-up activities and experiences helping teachers implement in their classroom what they learned at any professional development activity. "In fact, federal No Child Left Behind funds earmarked for professional development comes with one stipulation: they cannot be used for one-day or short term learning experiences" (Salpeter, 2003, p. 37). In other words, a

high quality professional development program is conducted as an ongoing process, not a one-shot approach. Survey data from the National Center for Education Statistics (as cited in Parsad, et al, 2001) shows that in 2000, teachers typically spent about a day or less in professional development on any one content area. Only 18 percent of teachers reported that the training they received was connected to school improvement goals, while 10 to 15 percent reported that they were given any type of significant follow-up materials or activities. Teachers need continued practice to become comfortable with what they learned in the professional developments. Speck (1996) suggests, "Professional development takes time and must be conducted over several days for significant change in educational practices to take place" (p. 35). Effective professional development, in order for it to affect instructional practices and student achievement, must provide the follow-up necessary to ensure improvement.

There are several effective and researched methods of providing follow-up training to teachers. One such method is to provide support and mentoring with regular classroom visits upon the completion of the professional development session. An instructional program leader for Missouri's statewide eMints (Enhancing Missouri's Instructional Networked Teaching Strategies) program provides a statement of why there is a need for ongoing professional development. The instructional program leader (as cited in Salpeter, 2003) points out that "research has shown that sessions must be followed with regular classroom visits to provide support and mentoring" (p. 38). She goes on to mention that the mentoring assists teachers in carrying out what they learned in the professional development into actual classroom practice.

Mentoring is one of the strategies schools and school districts are using to provide follow-up to professional development. Zey (1984) defines a mentor as "a person who oversees the career and development of another person, usually a junior, through teaching, counseling, providing psychological support, protecting, and at times promoting or sponsoring" (p. 7). One way mentoring allows for follow-up support is that it pairs, or sometimes groups, teachers together so that they may share ideas and teaching strategies that are effective in the classroom. "Mentoring is an effective tool for increasing collaboration among teachers" (Zepeda, 1999, p. 11). According to Hirsh (2001), this collaboration among teachers is a key element of ongoing professional development. As part of the requirements for National Staff Development Council (NSDC) to have all teachers experience top-notch professional development by 2007, schools are establishing learning teams. Learning teams that groups teachers to brainstorm practical ways to improve teaching and learning. Collaborating with fellow teachers seems to downsize the issue of returning to the classroom upon the completion of a professional development session and having no support for the new teaching strategies one just learned. This isolation from follow-up support is distressing to a lot of teachers and often leads to little or no transfer of new skills into the classroom.

Technology can also be an important tool to assist in the sustained learning of teachers. The computer, with its Internet access, can provide the opportunity and the learning environment for teachers to not only receive professional development, but to also continue the face-to-face professional development they may have participated in a week ago.

> Technology is perhaps the most—and most underutilized—tool for providing teachers access to the targeted professional development they need. Online courses, informal support groups, and other network-supported resources open the door to professional development opportunities far beyond what any school or district might be able to offer (Salpeter, 2003, p. 40).

In many school districts across the country, online course delivery systems are being used for ongoing collaboration amongst teachers and staff development session leaders once the initial face-to-face sessions are completed.

Calcasieu Parish School District follows-up a number of face-to-face professional development sessions with discussions and idea sharing using an online community called Blackboard. In 1997, Blackboard was founded to help schools and districts use the Internet as an environment for an education experience (Blackboard Academic Suite, p. 1). Having used Blackboard, teachers in Calcasieu Parish discussed and shared their ideas, such as lesson plans they may have created and implemented after learning a teaching strategy or learning tool in the face-to-face professional development session they attended. This is a powerful tool when research informs us that successful professional development takes place over a long period of time (Salpeter, 2003).

In a study conducted by the John Edward Porter Professional Development Center at Calcasieu Parish, the simple duration of an activity predicted its success. When teachers were given the opportunity to try out new teaching strategies and then discuss with their colleagues the successes and failures, they were more likely to persevere in the implementation of the new teaching practices. Through the careful planning of the professional development process within Calcasieu Parish, professional development

leaders were able to develop an effective program that involved ongoing support that greatly affected the long-term success of their teachers, which translates into increased student success (Salpeter, 2003).

Although the implementation of online communities to foster ongoing professional development is relatively new, the concept of follow-up training is not. It is hard to debate against follow-up support when it comes to effective professional development. "Unless we give as much attention to what comes after the workshop, even the best staff development won't impact adults and students" (Murphy, 2000). Helping teachers use new teaching strategies in a professional development session is a necessity in any school or school district. Follow-up strategies, such as mentoring, teamwork and online communities are the only way teachers will use what they have learned in professional development sessions. "Many experts believe as much as 50% of the resources set aside for professional development plans should be targeted at follow-up strategies" (Corcoran, 1995). These follow-up strategies are sure to bring schools and school districts closer to increased achievement for both adults and children.

Scientifically-Based Instructional Strategies. Section VII of the professional development section of NCLB states that professional development includes activities that advance teacher's understanding of effective instructional strategies. One way to do this is to present strategies that are based on scientifically based research. "Quality staff development should be based on research and standards—concentrating on strategies that have proven value in improving student learning" (Norton, 2001, p. 2). Believing that educators have not always made wise decisions regarding the content and format of staff development, NCLB requires only those strategies and methods "proven effective by the

standard of scientifically based research should be included in school reform programs" (U.S. Department of Education, 2002b, p. 2). The legislation defines scientific, research-based programs as:

1. grounded in theory;
2. evaluated by third parties;
3. published in peer-reviewed journals;
4. sustainable;
5. replicable in schools with diverse settings; and
6. able to demonstrate evidence of effectiveness.

Patients who have sought medical attention from a licensed physician understand that he or she is basing a medical decision on findings from solid research. The research that physicians have performed before a patient is treated appears to have produced effective remedies and cures. NCLB is requiring the same type of research support the training of pre-service teachers before they even step a foot into the classroom. "Research-based instructional strategies are proven strategies that are effective in assisting a student in mastering the content standards" (Marzano, Pickering, Pollock, 2001, p. 67). Effective teachers select instructional strategies that match student-learning outcomes. Instructional strategies could include introducing a new reading program, using specific reading approaches, or after-school tutoring. The bottom line is determining what research-based instructional strategies need to be implemented into the classroom to help students learn what they are supposed to be learning. By using scientifically-based research one is able to get the best ideas to kids who may fail without them.

Aligned to Standards and Assessments. Careful curriculum alignment has a tremendous impact on student achievement. A common curriculum helps clarify what teachers should be teaching. "Research shows that when curriculum is well articulated and aligned to assessments, and when school leaders monitor the extent to which it is actually covered, the measurable impact—or effect size—of such strategies is 31 percentile points in student achievement" (Marzano, 2000). When work on curriculum alignment also includes alignment of instructional resources and professional development, the impact may be even greater. The NCLB requirement for professional development addresses the "bottom line" in education. What is the impact on students? Does the professional development activity benefit students in any way? The particular student outcomes will depend on how the professional development is aligned to academic content standards and student achievement standards.

In the past, professional development would not factor in any of the aforementioned mentioned criteria. They had little relevancy to the teacher's needs that he or she considered necessary to address in their classroom. Murphy (2002) describes the old approach to staff development still used in many schools today:

> For years, principals have planned staff development programs intended to achieve dramatic improvement in classroom teaching and student performance. In many cases, however, these efforts are doomed because what the teachers learned had little relationship to actual practice. Too often, staff development is implemented outside of the school day, in physical locations and contexts removed from the classroom. As a result,

> teachers tend to regard the in-service as the fulfillment of a mandatory requirement rather than improvement opportunity (p. 3).

To add to this problem, teachers interested in implementing the newly presented approaches often go back to their classroom and practice on their own, with little or no continuing support provided. This topic of on-going training and follow-up support will be covered later in this literature review.

To counter the growing problem of teachers transferring few or none of the skills they learned in professional development sessions to the classroom, NCLB has required that professional development be aligned to school improvement goals as well student-learning outcomes.

> Aligning school improvement goals is an important prerequisite for good professional development. One national survey of teachers found that when teachers report a connection between professional development and other school improvement activities, they are more likely to say professional development has improved their teaching practice (Parsad, Lewis, & Farris, 2001).

The main question driving the design of professional development should be "What are the expected learning outcomes and how will the teacher know the students have reached them?" It is this expected learning outcome that should shape the framework of professional development? "If staff developers begin with this question, it is more likely they will succeed in having a positive effect on student achievement" (Mizell, 2003, p. 12). Too often, professional development is planned the same way many teachers plan their lessons. "Teachers frequently plan in terms of what they are going to do instead of

what they want their students to learn and achieve" (Guskey, 2003, p. 28). According to NCLB, this needs to change. Professional development must be designed in terms of the identified student learning goals that are to be attained. For example, is the intent of professional development to improve students' reading comprehension or enhance their skills at problem solving? Once professional developers have identified the academic content standards and student learning outcomes, then designing the professional development session can begin. But how does one begin designing the staff development session when student-learning outcomes have not been identified? These outcomes are just not plucked out of the air. There is a method to identifying the learning outcomes the professional development needs to address. This method will be discussed in the next section.

Data-Driven Decision Making. Data-driven decision making is the ability of teachers in the classrooms to gather data and use it to uncover gaps in student learning and adjust teaching strategies to increase their performance and raise student achievement. Professional development is offered to teachers in hopes of improving their performance but policy makers and governing officials are unsure if the classes the teachers participated in actually had an impact in the classroom. The real measure of the effectiveness and essentialness of the professional development is not the number of credits the teacher receives. The real measure of effectiveness comes with aligning professional development to school improvement plans, student academic achievement standards, and student learning outcomes or learning goals. Due to these data-driven decision- making processes, "staff developments in schools today should be less what 'I want to learn' and more what 'I need to learn'" (Killion, 1999). What teachers need to

learn is causing many school districts to examine more closely student data. By examining student data more closely, educators are able to identify gaps in learning and design professional development around student needs.

Deciding what teachers should learn in professional development requires careful planning and analysis of student performance needs. "Gathering and analyzing school data from several sources is the best way to identify trends and patterns in student learning so you can clarify what student's need" (Rasmussen, Hopkins & Fitzpatrick, 2004, p. 17). Disaggregated data, or simply looking at test scores by specific subgroups of students (race, gender, socioeconomic status, etc.), will reveal how students performed in relation to expected outcomes. Schools need to know which specific skills and what knowledge students' lack.

Research indicates that when school districts track student achievement and act quickly on the results, their decision-making is more effective and efficient and leads to raised student achievement. The Education Commission of the States (2001) examined how exemplary school districts in the United States use data to make decisions about student learning. The study looked at six school districts in California, Colorado, Iowa, Maryland, and Texas. Although these districts varied in size, most were low-income, had high student mobility and had been struggling with low achievement for several years. In the exemplary districts, the study found, data was used to:

1. track student achievement;
2. change teachers' attitudes about the potential success of low-performing students;
3. guide teachers' professional development;

4. link appropriate interventions to results;
5. create school-improvement plans; and
6. decide on resource allocations.

The study found that the types of data collected determined the types of decisions that school board members, principals, and teachers could make.

The Education Commission of the States (2001) highlighted a school district in Iowa that uses an online test to diagnose and place students. The students take these tests online and they are graded online as well. These tests provide student achievement results at the end of the session. The results are used to predict students' ability to earn the district's Basic Academic Skills Certificate by 10th grade. This test is a graduation requirement. The district calculates the scores for each grade level to ensure that the students are on pace to earn the certificate. The district also uses these test results to identify interventions and assign students to classes. If a student is seen to be "falling behind", the district offers a plethora of additional learning opportunities to students including summer school, an extended-day program, and differentiated instruction. In addition to identifying interventions and assigning students to classes, the district also uses the test scores to support teachers' professional development. For example, they track student progress on tested objectives every six weeks and use the results to monitor teaching strategies. If a good portion of the students fumble on a specific learning objective, the principal of the school may wish to request professional development for the teacher from another teacher who successfully taught the objective or from the school district's professional development staff (Education Commission of the States, 2001).

Without analyzing and discussing data, professional development is less likely to identify and solve the problems that need attention. Data-driven decision-making assists in keeping the school focused on student success.

Evaluation of Effectiveness. A strong emphasis on accountability, defined in terms of improvement in student achievement, has profound implications for professional development leaders, especially in the area of evaluation. NCLB places new demands on the methods used to evaluate the effectiveness of a professional development session. To conclude many professional development sessions, leaders ask the attendees to fill out a survey.

> To date, many educators have only gone through the motions of evaluating efforts to increase what their colleagues know and can do. They have focused more on the delivery of staff development than on its results, often using the most rudimentary techniques for gathering data (Mizell, 2003, p. 10).

When the session leader receives the responses to the questions, he or she gets a false understanding of the effectiveness of the session. Of course, the participants may have enjoyed the leader's personality and the delivery of the material, but how does that translate into increased student achievement when the goes back into the classroom and implements what they have learned? Is that the desired end-result of attending professional developments? NCLB requires that professional development programs need to be "evaluated for their impact on increased teacher effectiveness and improved student academic achievement and that the program's performance will be measured by changes in student achievement over time as shown through the other NCLB reporting requirements" (Mizell, 2003, p.12). In other words, the ultimate worth of professional

development for teachers, according to NCLB legislation, is the role it plays in the improvement of student learning. If the level of professional development effectiveness is growth in student academic achievement, how does one evaluate the effectiveness of professional development? Tyler created one of the earliest models of evaluation. He believed that the first step in any evaluation is clarification of the program or activity's goals. Evaluation can focus on the achievement of these goals once they are specified. Tyler's evaluation model includes a series of steps that he believes should be followed in any evaluation of professional development. These steps are as followed:

1. Establish goals or objectives.
2. Classify or order the goals or objectives.
3. Define the goals or objectives in observable terms.
4. Find situations in which achievement of the objectives is demonstrated.
5. Develop or select measurement techniques.
6. Collect performance data.
7. Compare the performance data with the stated the objectives.

If discrepancies are discovered in the final step between the performance data and the objectives, then modifications in the program should be made to enhance its effectiveness. Tyler believed that well-defined goals and objectives should drive evaluation procedures and that educators must continually reexamine the importance and meaning of the goals they set.

Metfessel and Micheal offer another model for professional development. Its eight steps include:

1. Involve the total community as facilitators in the evaluation process.

2. Formulate a cohesive model of goals and specific objectives.
3. Translate objectives into a communicable form applicable to facilitating learning in the school environment.
4. Select or construct instruments to furnish measures allowing inferences about program effectiveness.
5. Carry out periodic observations using content-valid tests, scales, and other behavior measures.
6. Analyze data using appropriate statistical methods.
7. Interpret the data using standards of desired levels of performance over all measures.
8. Develop recommendations for the further implementation, modification, and revision of broad goals and specific objectives.

Metfessel and Michaels greatly expanded the methods of data collection that might be used in evaluations. Metfessel and Michael's and Tyler's models of professional development evaluations are quite similar in that they both emphasize the importance of clear goals, collecting performance data, and comparing the performance data with the stated objectives. These processes are important because if educators are going to use the professional development, they need to help their students perform proficiently. Educators must then demonstrate that carefully designed professional developments can increase student achievement.

Both professional development models followed a systematic process that focused more on improvements on student learning than on participant likeability. Evaluating professional developments requires "applying a specific, systematic process to ensure

reliable, valid results (Killion, 2003, p. 21). Not only does evaluation provide data as to whether the session was effective, it provides information on what may need to be strengthened in order to increase its effectiveness. With the stringent student requirements under the NCLB legislation, professional development leaders face harder decisions on what and how to present sessions to increase teacher skills and ultimately student academic achievement. Evaluations can provide the evidence needed to make these decisions.

Up to this point in this literature review, a strong background in what is expected by the NCLB concerning professional development has been provided. To review the components of what an effective professional development program in a school or district should look like, as described by NCLB, the author of this literature review has adapted, from the John Edward Porter Professional Development Center at Learning Point Associates (Rasmussen, Hopkins, Fitzpatrick, 2004, p. 23), a survey used in many schools and districts to assess their professional development that currently exist. The survey is used within a school or district to identify the needs or pitfalls as they attempt to implement an effective, comprehensive professional development plan. Administrators, teachers, and support personnel are asked to complete a survey that depicts, or shows, what their current professional development plan looks like. This Likert-Scale Survey asks questions ranging from planning professional development to implementing professional development to sustaining professional development. Given a scale from 1-5, respondents choose where they feel their school or district fits best. When all of the statements have been ranked, the scores tallied up, added up, and placed into one of five columns which represent whether the scoring area needs help or if they are on track in

their effort for effective, comprehensive professional development. Table 1 contains a listing of a few of the statements that currently exist on the School Survey for Professional Development Capacity (Rasmussen, Hopkins, Fitzpatrick, 2004, p. 23). These are statements that resemble what an effective professional development program should resemble as described by NCLB and are categorized by the various phases of a professional development planning.

Table 1. School Survey for Professional Development Capacity Tool

C. Planning Professional Development

15. We use multiple sources of data, especially data on student learning, to establish educational goals and determine professional development priorities.	**1 2 3 4 5**
17. We align our learning goals with instructional strategies needed to achieve them and the professional development experiences staff need to implement the strategies.	**1 2 3 4 5**
18. We design professional development activities to reflect research-based characteristics of effective staff development.	**1 2 3 4 5**
19. We design professional development that reflects, as closely as possible, the learning methods teachers are expected to use with their students.	**1 2 3 4 5**
22. We align the professional development objectives of individuals with those of the school and district.	**1 2 3 4 5**
26. We regularly have opportunities for coaching—to focus on and improve practice by discussing it with peers or other individuals.	**1 2 3 4 5**
28. We involve all staff in a variety of professional growth activities to improve student learning.	**1 2 3 4 5**
29. We use technology to support professional development where appropriate.	**1 2 3 4 5**

Table 1 (Cont.). School Survey for Professional Development Capacity Tool

E. Monitoring Professional Development

30. We have clearly defined the outcomes/indicators of success of the professional development activities.	1 2 3 4 5
31. We collect evidence of professional development's impact on student learning, teacher knowledge and practice, and the organization.	1 2 3 4 5
32. We use evaluation data to inform and improve professional development throughout its implementation.	1 2 3 4 5
33. We share evaluation information with different stakeholders in formats that are meaningful to them.	1 2 3 4 5

F. Sustaining Professional Development

34. We keep an archive of major decisions, plans, and materials about school professional development to guide future decisions.	1 2 3 4 5
35. We have designed and are implementing a communication and engagement strategy that keeps all stakeholders informed and involved.	1 2 3 4 5
36. We plan for and implement ways of sharing and spreading our professional learning.	1 2 3 4 5

Note. From Rasmussen, C., Hopkins, S., & Fitzpatrick, M. (2004). Our work done well is like the perfect pitch. *Journal of Staff Development*, 25(1), 16-28.

Once the data has been collected from this survey, it can provide valuable information as to how the school or district is growing in terms of professional development capacity. Persons responsible for professional development training to guide them in their decision-making process can use the survey results.

Summary of NCLB and Professional Development. In summary, NCLB requires that professional development programs be:

- Based on theory, research, and best practice.
- Driven by data.
- Centered on specific goals for student learning.
- Integrated to local, regional, and state school improvement programs and goals.

- On-going with follow-up support.
- Guided by quality evaluation.

With these essential elements in place, schools and districts provide the means necessary to greatly increase the probability that teachers will go back into the classroom better prepared to foster higher levels of student achievement. Effective professional development is being rapidly seen as increasingly vital to school success and teacher satisfaction.

> With schools today facing an array of complex challenges—from working with an increasingly diverse population of students, to integrating new technology in the classroom, to meeting rigorous academic standards and goals—observers have stressed the need for teachers to be able to enhance and build on their instructional knowledge (National Commission on Teaching &America's Future, 1996).

NCLB gives schools and districts the framework and guidelines needed to effectively integrate a professional development program, and if followed carefully, can lead to the desired results all schools are looking for—increased teacher learning and increased student achievement.

Models of Effective Professional Development

The National Staff Development Council (as cited in WestEd, 2000) examined award-winning professional development programs across the country that had lead to measurable gains in student achievement. The study found that in each of the schools, "the very nature of staff development had shifted from isolated learning and the occasional workshop to focused, ongoing organizational learning built on collaborative reflection and joint action" (p. 23). Specifically, the study found that the school's

professional development programs were characterized by collaborative structures, diverse and extensive professional-learning opportunities, and an emphasis on accountability and student results (WestEd, 2000).

Professional development under the NCLB is bringing an abrupt change to what traditionally has been an "event-driven, disconnected effort to improve teaching and learning" (Rasmussen & Kimmelmann, 2003). Never before has the pressure been so high to find ways to support successful teaching and learning through effective professional development. What do successful professional development communities look like? To answer this question, one must study models from various school districts across the United States.

WestEd (2000), a research, development, and service agency working with education and other communities to improve learning in children and adults, teamed up with the U.S. Department of Education and the National Staff Development Council to acknowledge and celebrate schools across the country who exemplify what means to have a model professional development programs. Eight schools were highlighted as being pioneers in an effort to make professional development more effective. As found in the Schools with Model Professional Development Study (as cited in WestEd, 2001) of eight school districts, successful professional development programs have similar components: (a) Standards-Driven; (b) Focus on Real Content and How Children Learn; (c) Teacher Collaboration or Coaching and Mentoring; and (d) Ongoing with Follow-Up Activities.

Standards-Driven. The focus of the eight effective professional development models is student-centered. Instructional strategies and needs are focused on more than

the latest gadget that is said to be extremely instrumental in raising student test scores. Each of these eight schools focused on student-centered goals as part of the teacher learning process. They identified important student needs and created a plan of action for increasing student achievement in every classroom and across grades. The process often started out small and went very slow. One of the eight model schools, Woodrow Wilson, began by identifying where their students were struggling the most. In their case, it was the students' mathematical problem solving that was lagging behind the state norm. They looked closely at test results and other student data and began to determine effective teaching and learning strategies that would increase student achievement. Using these test results and student data to identify specific areas for improvement, teachers at Woodrow Wilson then selected or designed interventions to help tackle them. Evidence of student learning collected by teachers can be a powerful tool to guide professional development.

Focus on Real Content and How Children Learn. Understanding what children need and how they learn is an important factor if professional development is to be effective. In each of the eight professional development programs, previously mentioned, what teachers learn in workshops is driven by student needs and focuses on real content. A key factor in their success is that they focus on how children learn. "Professional development that focuses on subject-matter content and how children learn is an especially important element in changing teaching practice" (Corcoran, 1995). Professional development requires a focus on both knowledge of subject matter and knowledge of how children learn specific content. Hiebert et al. (1996), for example, argue that teaching for understanding in mathematics requires "knowledge of the subject

to subject tasks that encourage students to wrestle with key ideas and knowledge of students' thinking to select tasks that link with students can see the relevance of the ideas and skills they already possess" (p. 16). The point they make is reinforced in several studies that show the effects of professional development on student achievement. Cohen and Hill's (1998) study of teachers who teach mathematics in California was based their study on teachers' professional development experiences and data on student performance. The student data came from the statewide mathematics test given to all students. The two researchers found that in schools in which teachers had participated in extensive professional development that centered on mathematics content had higher student achievement compared to the achievement in schools where teachers did not focus on content.

Kennedy (1998) performed a study that found similar results to that of Cohen and Hill. When Kennedy compared general professional development to that of professional development that focuses on specific content and how students learn that content, he found that content specific professional development has increased positive effects on student achievement.

Teacher Collaboration or Coaching and Mentoring. It is often said that when teachers work together for the sake of bettering the education of the students in their school, the results are magnified. Teachers working together is an opportunity to share ideas and teaching strategies that are effective in increasing student achievement. It is also a time for teachers to determine what types of professional development they may need in order to produce the desired results they are looking for in the classroom.

Ronald Harvey Elementary School in St. Albert, Alberta Canada created a school-based mentoring program in which the staff determines their own interests and needs in using technology. Once these needs and interests are defined, planning for professional development activities provided by the teachers gets underway. Each day, one of the school-based mentors has one period to work with a teacher and their class to discuss the kinds of themes being explored and how technology might be used to enhance their studies. The mentor teaches lessons ranging from multimedia production to Webpage creation as the teacher works along with the students to learn the necessary technology skills within their own curriculum. This collaborative piece to their professional development model has allowed the staff to increase their skill level and confidence very quickly and has allowed for some very powerful project-based learning to occur. In fact, the mentoring that takes place at Ronald Harvey Elementary School has recently been awarded a Network of innovative Schools award from Industry Canada (Bray, 2000, p. 3).

The type of collaboration among teachers, like the ones at Ronald Harvey Elementary School, is common in many schools and districts' professional development models. This interdependence among teachers has allowed for common interests to be obtained and student achievement to be increased, as is the case at each of the eight schools identified by WestEd (2000). Teachers in these schools work in horizontal, vertical, grade-level, or interdisciplinary teams.

Teachers at H.D. Hilley, for example, meet weekly in horizontal grade-level teams and monthly in vertical subject-area teams that examine curriculum-based issues and events that are taking place school wide. Schools that build collaborative cultures in

these ways "come to understand what it means to say, as one teacher does, that school performance goals are not attained through the practices of individual teachers, but through what our faculty does as a whole" (WestEd, 2000). The kind of collaborative learning that this teacher just described doesn't take place over night. The way many schools are set up, it prevents this type of collaboration from taking place at all. According to Darling-Hammond and McLaughlin (1995), "Almost everything about school is oriented toward going it alone professionally. Few schools are structured to allow teachers to think it terms of shared problems and broader organizational goals" (p. 599). Each of the schools featured in the WestEd study found ways to break down the walls and build a supportive community of practice.

The National Center for Education Statistics (2000) conducted a survey to understand better the issue of teacher preparation and qualifications. The survey sample consisted of 5,253 full and part-time teachers in regular elementary, middle, and high schools in the 50 states and the District of Columbia. The survey explored issues such as:

1. teacher education;
2. teacher participation in formal professional development and collaborative activities related to teaching; and
3. teachers' feelings of preparedness for various classroom demands. One of the key issues explored in this study was professional development and collaboration with other teachers.

According to the results of the survey, collaboration with other teachers was a key mechanism in professional development for providing teachers with training opportunities. NCES defines collaboration as an opportunity for teachers to team-teach

and mentor and to establish teacher networks (e.g., school-to-school and school-university partnerships). During this survey, teachers were asked about their participation in collaborating with other teachers, mentoring another teacher, and being mentored by another teacher. The survey also asked teachers about the length in which they participated in the collaboration and/or mentoring and how that participation improved their teaching. Results indicated that:

- The proportion of teachers who felt that participation in various teaching-related activities improved their teaching a lot ranged from 18 percent for mentoring another teacher in a formal relationship to 37 percent for being mentored by another teacher in a formal relationship. The proportion of teachers who felt that participation did not improve their teaching at all ranged from 2 percent for individual or collaborative research to 10 percent for mentoring another teacher in a formal relationship.
- Frequency of participation in a collaborative activity was generally positive related to teachers' beliefs about the extent to which the activity improved their classroom teaching. For example, teachers who engaged in regularly scheduled collaboration with other teachers at least once a week were more likely to believe that participation had improved their teaching a lot (45%), compared with teachers who participated two to three times a month (23%), once a month (15%), or a few times a year (7%).

According to the results of this 2000 survey, one can assume that a professional development model that includes regular, planned collaboration and mentoring can have positive effects on teacher effectiveness. The results also indicate that many teachers

report the usefulness of having a partner for planning, discussion, mutual observation, and general support. This type of professional development lends itself to teachers continuing to support each other's efforts at integrating new practices. With support and partnership amongst educators, increased teacher effectiveness and student achievement are sure to occur.

Ongoing with Follow-Up Activities. Recent literature on current professional development trends states that for teacher learning to take place, it must be sustained over time. The length of professional development is key in two ways. First, longer activities are more likely to provide an opportunity for in-depth discussion of content and pedagogical strategies. Second, activities that extend over time are more likely to allow teachers to try out new practices in the classroom and obtain feedback on their teaching. A study by the Consortium of Chicago Research found that "high-quality professional development programs characterized by sustained study; time for classroom experimentation, and follow-up had a significant effect on teachers' instructional practices" (Smylie et al., 2001). Time and opportunity provided for teachers to experiment with what they learned in the professional development session as well as have access to an expert who can guide them through any roadblocks they may encounter can improve the chances of the new strategy being implemented effectively into the classroom.

Conclusions and Recommendations

This literature review revealed that high-quality professional development is a central component in improving education. Policy-makers are beginning to understand that school districts that want to see enhanced student achievement must create professional development plans that allow teachers to expand their knowledge and skills, contribute to their growth, and enhance their effectiveness with students. Due to the No Child Left Behind (NCLB) legislation instituted in 2001, these school districts are beginning to realize the need for high-quality professional development. Under NCLB, educators must now demonstrate that they are capable of establishing high standards and increasing student achievement in their classroom. Due to these high requirements, many school districts are changing the way they plan and deliver professional development. They are looking to NCLB and model professional development programs for guidance and structure. In order to secure highly qualified educators in every classroom, NCLB has established guidelines for the planning and delivering of effective professional development.

The concept of professional development, according to NCLB, should be driven by student needs. For professional development to be most effective in increasing student achievement, it is in the best interests of the school districts to examine data to identify areas of concern. These areas of concern should be the backbone to the professional development session.

NCLB provides that the following components be apparent in any professional development session for it to be considered effective: (a) ongoing with follow-up support; (b) based on scientifically researched teaching strategies; (c) aligned to school

improvement goals and student learning outcomes; and (d) regularly evaluated for its effectiveness. Professional development, when designed and delivered with these components instilled, provide school districts with a proven method to help teachers provide the best education possible for their students.

Due to the radical, and much needed, changes to professional development over the past several years, it is important to take a closer look at the assistance teachers receive when transferring the new knowledge they learned in the professional development session into the classroom. The significant problem of "knowledge transfer" needs to become an integral part of professional development practice. In the world of education where student success is measured by percentages and educators are judged by their students' success, forget about attitudes and beliefs, especially when it comes to professional development.

Recommendations from the reviewer for professional development are as follows:

1. Encourage teachers to create learning communities within schools to support professional development.
2. Develop a database of resources to support high quality teaching to disseminate for teacher use that is based on research-based teaching strategies that have been proven to increase student achievement.
3. Allow teachers the time and resources to experiment with new teaching strategies learned in professional development.
4. Focus professional development on effective teaching strategies that are proven to increase student achievement.
5. Align professional development to state and national standards.

With an increasing amount of pressure and demands being placed on educators to foster high levels of student achievement, school districts will need to begin to become more focused on how they design and deliver professional development. The ultimate worth of professional development for educators is the essential role it plays in the improvement of student learning.

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