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**Knitting together the qualities of high-quality professional learning and evaluating the results smartly can lead to improved student learning.**

## A Primer on Effective Professional Development

Teacher professional development is one of the keys to improving the quality of U.S. schools. Many education reforms rely on teacher learning — and the improved instruction that ideally follows — to increase student learning, so understanding what makes professional development effective is critical to understanding the success or failure of school reform.

But what makes professional development effective? For decades, studies of professional development focused mainly on teacher satisfaction, attitude change, or commitment to innovation, rather than professional development's results or the processes that make it work. Moreover, the range of experiences that count as professional development make measuring its effectiveness a challenge. Scholars acknowledge that we need more empirically valid methods of studying professional devel-

opment (Wayne et al. 2008). And with the recent emphasis on data-driven decision making and accountability, administrators are having to become more sophisticated in how they evaluate the professional development in their schools.

Fortunately, a growing body of empirical research suggests that a core set of features is common to effective professional development. These core features that lead to teacher learning provide a starting point for assessing professional development programs, and they lead to a core conceptual framework for judging whether professional development is doing what we want it to do — increasing teacher knowledge and instruction in ways that translate into enhanced student achievement. When we want to know whether teacher professional development is working, we should first decide how to define professional development, measure its core features, use the conceptual framework to judge whether it's producing the desired results, and to keep an open mind about the tools we use to assess its effectiveness.

### What Is Professional Development?

Teachers experience a vast range of activities and interactions that can increase their knowledge and skills, improve their teaching practice, and contribute to their personal, social, and emotional growth (Cohen, McLaughlin, and Talbert 1993). These experiences range from formal, structured seminars on in-service days to everyday, informal hallway discussions with other teachers. Professional development activities can come in the form of workshops, local and national conferences, college courses, special institutes, and so on. Over the past decade, however, a more broad-based view of teacher professional development has emerged, treating teacher learning as interactive and social, based in discourse and

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community practice (Cochran-Smith and Lytle 1999). In this view, formal or informal learning communities among teachers can act as powerful mechanisms for their growth and development (Borko 2004).

This embedded professional development, directly related to the work of teaching, can take the form of co-teaching, mentoring, reflecting on lessons, group discussions of student work, a book club, a teacher network, or a study group. Even curriculum materials can be a source of professional development when they're designed to be "educative" — that is, to support learning by teachers as well as by students (Ball and Cohen 1996; Remillard 2005).

Furthermore, some of the most powerful learning experiences occur in a teacher's own classroom through self-examination or observation. Still another dimension of teachers' professional development is their individual activities, such as using online resources and their own inquiry and action research.

Another kind of professional development is getting involved in a development or improvement process — for example, designing or choosing new curricula or assisting with the school improvement plan. Furthermore, teachers can learn every time they teach a lesson, administer an assessment, review a curriculum, or read a professional journal. Clearly, professional development never stops and is embedded in teachers' daily lives (Little 1993).

### Core Features

Because professional development is a complex array of interrelated learning opportunities, it's challenging to distinguish teachers' learning activities from one another and to describe trends, associations, or effects of professional learning on knowledge, instruction, and student achievement. One solution is to focus on the features of professional development activities that lead to teacher learning, rather than on the types or structural aspects of activities in which teachers engage.

A study using a nationally representative sample of teachers showed that the substantive features of professional development programs — not their structure — matter when it comes to enhancing teachers' knowledge, skills, and classroom practice (Desimone et al. 2002; Garet et al. 2001). This suggests that to assess the effectiveness of professional development programs, no matter what types of activity they include, we should measure common features

that research shows are related to the outcomes we care about.

Such an approach, of course, requires a consensus on the core features of effective professional development. My analysis of extant empirical research suggests that there is, in fact, such a consensus on the main features of professional development that have been associated with changes in knowledge, practice, and, to a lesser extent, student achievement. Effective professional development includes:

- **Content focus:** Professional development activities should focus on subject matter content and how students learn that content.
- **Active learning:** Teachers should have opportunities to get involved, such as observing and receiving feedback, analyzing student work, or making presentations, as opposed to passively sitting through lectures.
- **Coherence:** What teachers learn in any professional development activity should be consistent with other professional development, with their knowledge and beliefs, and with school, district, and state reforms and policies.
- **Duration:** Professional development activities should be spread over a semester and should include 20 hours or more of contact time.
- **Collective participation:** Groups of teachers from the same grade, subject, or school should participate in professional development activities together to build an interactive learning community.

Education policy has begun to reflect this research consensus on the core features of professional development. For example, the No Child Left Behind Act of 2001 describes high-quality professional development as activities that "improve and increase teachers' knowledge of the academic subjects that teachers teach" (content focus), that are "sustained [and] intensive" (duration), and that "are aligned with and directly related to state academic content standards, student academic achievement standards, and assessments" (coherence). Similarly, the Teaching Commission report *Teaching at Risk: A Call to Action* emphasizes coherence and collective participation:

**A growing body of research points to features common to effective professional development.**

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Professional development should be aligned with state and district goals and standards for student learning [coherence] . . . and should also involve opportunities for collaboration so that teachers can learn from each other [collective participation]. (2004: 49)

### **A Conceptual Framework**

The five core features should be present in any program of professional development. But their presence alone does not tell us whether professional development is effective. To study effectiveness, we need a theory — a conceptual framework — of how professional development works to influence teacher and student outcomes.

Just as there is consensus on the core features of professional development, my analysis suggests that there is consensus among researchers on the core features of a conceptual framework. I propose a basic model of how successful professional development leads to enhanced student learning. This model represents interactive relationships among the core features of professional development, teacher knowledge and beliefs, classroom practice, and student outcomes. Successful professional development follows these steps:

1. Teachers experience professional development.
2. The professional development increases teachers' knowledge and skills, changes their attitudes and beliefs, or both.
3. Teachers use their new knowledge, skills, attitudes, and beliefs to improve the content of their instruction, their approach to pedagogy, or both.
4. The instructional changes that the teachers introduce to the classroom boost their students' learning.

Although it's quite basic, this framework offers a powerful foundation for studying whether professional development is effective. In practical terms, following this framework suggests that we test for three kinds of outcomes: Do teachers learn? Do they change their practices? And, most important, does student achievement increase as a result?

### **A Toolkit for Measuring**

Once we define the core features of professional development and establish a core frame-

work to study it, we still face a challenge: What is the best way to measure whether professional development produces the outcomes we seek?

In the past, evaluating professional development meant administering a satisfaction survey at the end of a workshop. As we have made progress on how to define and imagine professional development, however, we have also learned more about how to measure it. In particular, today's researchers demand more rigorous standards of evidence, and this affects the methods that researchers, as well as school administrators, should choose to study professional development. The design of the study is fundamental in determining whether we can link outcomes to professional development — for example, experimental designs are the most rigorous way to determine effects.

For almost any study, no matter what the design, we have to decide how to measure teacher experiences, learning, and instruction. Observations, interviews, and surveys are the most common ways to collect such data. Scholars and practitioners have mixed views on the usefulness of different methods, and there are common misunderstandings of the strengths and weaknesses of observations, interviews, and surveys.

The most methodologically rigorous studies show that when these methods are used separately to study the same professional development program, they produce similar results. Thus, bias in observers, interviews, or survey self-reports can be largely addressed by creating reliable and valid instruments, ensuring inter-observer and interviewer validity, and using survey questions constructed to elicit reliable data (e.g., focusing on behavior rather than evaluative questions). Whether the results of an effectiveness study suffer from bias, then, depends on the quality of the methods employed. Well-constructed and well-administered interviews, observations, or surveys can provide similarly useful data, just as poorly constructed or poorly administered interviews, observations, or surveys can provide skewed and biased information.

When school districts are preparing to evaluate the effects of professional development, they should take care to identify the evaluation tools most appropriate for the scope of their inquiry. For example, districts can use observation when they want to learn more about the quality of teacher discussions and the coherence of instructional presentations (e.g., how

well linked are lecture, discussion, and student work?). Observations also will enable coaches and principals to determine whether teachers are using reform practices perfunctorily or effectively. Interviews with teachers can provide detailed insights into the challenges and successes teachers experience with any new curriculum or reform, highlighting for principals and districts what additional supports might be helpful. Surveys by nature lack detail and complexity, but they're the best way to produce statistics about events, behavior, or practice, which allow a comparison of teacher experiences across schools and districts and analysis of trends over time. And surveys, of course, are the most cost-effective way to study professional development.

Ensuring that professional development improves student learning begins by incorporating identified features of effective learning into teacher professional development. District leaders must then ensure that they use appropriate tools to evaluate teachers' experience, learning, and instruction so that they can continue to refine the professional development they offer for teachers. The final test of the effectiveness of professional development is whether it has led to improved student learning. **K**

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"As our math teacher, we'd like you to tell the coach it's impossible to give more than 100%."