

WHAT RESEARCH TELLS US

COMMON CHARACTERISTICS OF PROFESSIONAL LEARNING THAT LEADS TO STUDENT ACHIEVEMENT

By Rolf K. Blank

Today's education policy places a high priority on improving teacher quality and teaching effectiveness in U.S. schools (Obama, 2009). Standards-based professional learning requires teachers to have deep subject knowledge and the most effective pedagogy for teaching the subject. States and school districts are charged with establishing teacher professional development programs, some with federal funding support, designed to address the significant needs for improved teacher preparation. The results of a national study of teacher professional development over a two-year period (Darling-Hammond, Wei, Andree, Richardson, & Orphanos, 2009) show that, while teachers are experiencing more professional learning

than in the past, we don't have strong data regarding its effectiveness to improve teaching and learning. What follows is a summary of recent research that measures effects of professional learning on student achievement and identifies characteristics of professional learning that produces positive results for teachers and students

EVIDENCE OF WHAT WORKS

A key issue for public school decision makers is being able to make policy and program decisions based on evidence of what works. Learning Forward's Standards for Professional Learning call on decision makers to make better use of research findings and outcomes measures (Learning Forward, 2011). Federal law requires programs to be justified and validated based on research evidence, including the federal support for school improvement and teacher development under Title I and Title II of NCLB

How teacher learning leads to student achievement



HIGH-QUALITY PROFESSIONAL LEARNING

- Content focus.
- More time.
- Longer duration.
- Multiple activities and methods.
 - Learning goals.
- Collective participation.



TEACHER KNOWLEDGE AND SKILLS



INSTRUCTIONAL PRACTICES



EFFECTS ON STUDENTS

Measure of achievement change compared to control group.

(Shavelson & Towne, 2002). Regulations for federal grant programs cite findings that define the characteristics of effective programs of teacher professional development (see Garet, Porter, Desimone, Birman, & Yoon, 2001; Hiebert, 1999; Loucks-Horsley, Hewson, Love, & Stiles, 1998; National Commission on Teaching and America's Future, 1996; Desimone, Porter, Garet, Yoon, & Birman, 2002; Guskey, 2003; Showers, Joyce, & Bennett, 1987; Kennedy, 1998).

However, two problems persist in translating research evidence into policy and practice. First, state policies governing teacher professional learning provide only broad guidance, with the primary state role in defining requirements for teacher relicensure credits (Blank, de las Alas, & Smith, 2008). In U.S. education systems, decisions about the definition, design, and delivery of teacher professional learning have been left to district or school leaders, or often to individual teachers (Corcoran, 2007).

Second, the field lacks well-designed, scientific studies of the relationship between teacher professional learning and the degree of improvement in subsequent student learning. The call for evidence-based programs under NCLB produced renewed efforts to conduct experimental design studies of education initiatives, and more recent reports have begun to identify research findings focused on effects of professional learning (for example, Yoon, Duncan, Lee, Scarloss, & Shapley, 2007; Clements & Samara, 2011; Scher & O'Reilly, 2007; Harris & Sass, 2007).

META-ANALYSIS DESIGN

In 2007, the Council of Chief State School Officers undertook a meta-analysis study of the effects of teacher professional learning on raising student achievement (Blank & de las Alas, 2009). The goal of the two-year project, funded by a grant from the National Science Foundation, was to identify research that showed clear evidence of

program effects and then to document what common elements of the professional development's organization and delivery could be communicated to education leaders.

The meta-analysis consisted of four steps:

1. Research staff scanned the titles and topics of several thousand studies published in more than 30 U.S. education journals and research compendiums since 1990, including *Review of Educational Research*, *Educational Evaluation and Policy Analysis*, *Teachers College Record*, *Journal of Research in Science Teaching*, and *ERS Spectrum*.
2. More than 400 published studies of professional development were identified.
3. Trained staff coded 74 studies focusing on the study design and outcomes.
4. Based on analysis of study results and the design, researchers identified 16 studies that had significant positive effects of teacher professional learning on student achievement.

The logic model shown on p. 51 summarizes existing evidence about what produces positive outcomes from professional development and how teacher learning gets transferred into student learning. This includes characteristics of the delivery to teachers, improved teacher knowledge and skills, change in instructional practices, and effects on student learning.

COMMON ELEMENTS OF EFFECTIVE PROGRAMS

The 16 studies identified through the meta-analysis provide important findings about the design and implementation of professional learning that has a significant effect on improving student achievement. The studies showed significant gains in student achievement either using a design that compared outcomes for teachers in a treatment group to students of comparable teachers and classes in a control group (treatment-control design) or a design that measured student gains and improvement in student achievement in comparison to prior achievement (pre-post design) (Blank & de las Alas, 2009).

A review and analysis of the characteristics of professional learning teachers received in these 16 projects find a number of common elements. These common elements of

effective professional learning are consistent across almost all of the programs (Blank & de las Alas, 2009, pp. 19-20).

Content focus. The primary goal of all 16 programs was to improve and increase the content knowledge of teachers in K-12 education — either mathematics education or science education. Content focus was a primary selection criterion for the meta-analysis, and all the programs sought to increase content knowledge of the teachers.

More time (contact hours) for professional learning. The time teachers spent in professional learning varied, with a mean of 91 hours. Four of the programs provided more than 100 hours, while six programs provided 20 hours. A study of local systemic initiatives showed consistent effects in changing instruction with projects offering 100 hours of teacher development time (Banilower, Heck, & Weiss, 2007).

Longer duration of professional learning. The average length of time in which teachers were involved with the professional learning program studied was six months, with several keeping teachers involved up to 16 months. The duration includes follow-up, assistance, and coaching. For example, a program for middle grades math in Nebraska included a summer institute for teachers and professional learning over the following school year.

Multiple professional learning activities and active learning methods. The most effective initiatives included multiple and ongoing activities designed to reinforce and follow up with teachers. The 16 effective programs included from two to six different types of activities, including coaching, mentoring, internship, professional networks, and study groups, in addition to coursework or initial professional learning. Programs described active methods of teacher learning during professional development such as leading instruction, discussion with colleagues, observing other teachers, developing assessments, and professional networks. For example, the Front Range, Colo., math and science teacher program included a summer institute, sessions during the school year, coaching, mentoring, and a professional network to exchange ideas and track progress.

Learning goals in professional learning design. The identified programs focused on improving teacher knowledge of how students learn in the specific subject area, how to teach the subject with effective strategies, and the important connections between the subject content and appropriate pedagogy so that students will best learn. Professional learning maximized time with teachers so that the teacher could directly translate the program's content into improvements in curriculum and instruction.

Collective participation by teachers. In many of the programs, teachers learned with other teachers from their school or department. To maximize collective involvement of teachers, some designs focus on the whole school for teacher development — i.e. all teachers are part of the training and assistance. To increase teacher learning with colleagues, schools conducted follow-up activities such as coaching and observation of instruction, and teachers worked together to build and reinforce their skills. For example, the major goal of a Texas urban teacher initiative was to build a learning team of math teachers.

LINKING LEARNING TO STUDENT RESULTS

The research review and analysis of findings from studies of teacher professional learning address questions that continue

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to be the subject of debate among education policymakers and local officials. First, the analysis demonstrates that scientific research methods can and do show significant positive effects of high-quality professional development on teacher learning and student outcomes. Second, a review of the most effective programs shows a consistent pattern in how the initiatives are planned, organized, and delivered for teachers and schools. Teacher professional learning that includes content focus, longer duration, multiple activities, hands-on teacher learning, specific learning goals, and collective teacher participation has a significantly better chance to improve teacher skills and knowledge and, subsequently, to raise student achievement.

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