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Effective Teacher Professional Development

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Abstract

Teacher professional learning is of increasing interest as one way to support the increasingly complex skills students need to succeed in the 21st century. However, many teacher professional development initiatives appear ineffective in supporting changes in teacher practices and student learning. To identify the features of effective professional development, this paper reviews 35 methodologically rigorous studies that have demonstrated a positive link between teacher professional development, teaching practices, and student outcomes. It identifies features of these approaches and offers descriptions of these models to inform those seeking to understand how to foster successful strategies.

The full report can be found online at https://learningpolicyinstitute.org/product/teacher-prof-dev.

External Reviewers

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Introduction

Teacher professional learning is of increasing interest as a critical way to support the increasingly complex skills students need to learn in order to succeed in the 21st century. Sophisticated forms of teaching are needed to develop student competencies such as deep mastery of challenging content, critical thinking, complex problem solving, effective communication and collaboration, and self-direction. In turn, effective professional development (PD) is needed to help teachers learn and refine the instructional strategies required to teach these skills.

However, research has noted that many professional development initiatives appear ineffective in supporting changes in teachers' practices and student learning. Accordingly, we set out to discover the features of effective professional development. We define effective PD as structured professional learning that results in changes to teacher practices and improvements in student learning outcomes.

The paper on which this brief is based reviews methodologically rigorous studies that have demonstrated a positive link between teacher professional development, teaching practices, and student outcomes. To define features of effective PD, we reviewed 35 studies from the last three decades that featured a careful experimental or comparison group design, or analyzed student outcomes with statistical controls for context variables and student characteristics. We coded each of the studies to identify the elements of effective professional development models.

Elements of Effective Professional Development

Using this methodology, we found seven widely shared features of effective professional development. Such professional development:

1. Is **content focused**
2. Incorporates **active learning** utilizing adult learning theory
3. Supports **collaboration**, typically in **job-embedded** contexts
4. Uses **models and modeling** of effective practice
5. Provides **coaching and expert support**
6. Offers opportunities for **feedback and reflection**
7. Is of **sustained duration**

Our research shows that effective professional learning experiences typically incorporate most or all of these elements, as suggested in the examples below. Each of these elements was part of the professional development addressed in at least 30 of the 35 studies we reviewed, and some were featured in all 35.

Content Focus

Professional development that focuses on teaching strategies associated with specific curriculum content supports teacher learning within their classroom contexts. As one example, the Science Teachers Learning from Lesson Analysis program (STeLLA) seeks to strengthen teachers' understanding of how to teach science productively. Its first goal is to deepen teacher understanding of students' science thinking, which helps teachers anticipate and respond to students' ideas and misunderstandings in productive ways. Its second goal is to help teachers learn to sequence science ideas to help students construct a coherent "story" that makes sense to them.

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Over the course of more than 100 hours, STeLLA teachers studied and discussed video cases of teaching, including student work and teacher interviews. They also taught model lessons themselves and analyzed their teaching with their colleagues, evaluating the experience and student work to revise the lessons for colleagues to then teach in a form of lesson study. These teachers' students achieved significantly greater learning gains on science pre- and post-tests than comparison students whose teachers received content training only,[1] a finding further confirmed by a second randomized study of the program several years later.[2]

Active Learning

Active learning provides teachers with opportunities to get hands-on experience designing and practicing new teaching strategies. In PD models featuring active learning, teachers often participate in the same style of learning they are designing for their students, using real examples of curriculum, student work, and instruction. For example, Reading Apprenticeship is an inquiry-based PD model designed to help high school biology teachers integrate literacy and biology instruction in their classrooms. Each of the program's 10 full-day sessions is designed to immerse the teachers in the types of learning activities and environments they will then be creating for their students. Working together, teachers study student work, videotape classroom lessons for analysis, and scrutinize texts to identify potential literacy challenges to learners.

Teachers in the program practice classroom routines that will help to build student engagement and student collaboration, such as "think-pair-share," jigsaw groups, and text annotation. Reflection and other metacognitive routines such as think-alouds and reading logs for science investigations are also used in PD sessions. In a randomized control study in a set of high-poverty schools, this active learning PD model resulted in student reading achievement gains equivalent to a year's additional growth compared with control group students, as well as significantly higher achievement on state assessments in English language arts and biology.[3]

Collaboration

High-quality professional development creates space for teachers to share ideas and collaborate in their learning, often in job-embedded contexts that relate new instructional strategies to teachers' students and classrooms. By working collaboratively, teachers can create communities that positively change the

culture and instruction of their entire grade level, department, school, and/or district. "Collaboration" can span a host of configurations—from one-on-one or small group collaboration to schoolwide collaboration to collaboration with other professionals beyond the school.

In one program in a Texas district, teachers engaged in on-site, small-group professional development to promote inquiry-based, literacy-integrated instruction in science classrooms to improve English language learners' science and reading achievement. Through the initiative, teachers and paraprofessionals participated in collaborative biweekly workshops in which they jointly reviewed upcoming lessons, discussed science concepts with peers, engaged in reflections on their students' learning, and participated as learners in the types of inquiry-based science activities they would be implementing for their students. They also received instruction in strategies for teaching English language learners. Students who received enhanced instructional activities and whose teachers received PD demonstrated significantly higher science and reading achievement than students who were engaged in business-as-usual instruction.[4] By focusing on improving the practice of teachers of English language learners, this kind of collaborative, districtwide PD can have important implications for improving the equity of whole systems.

Use of Models and Modeling

Curricular models and modeling of instruction provide teachers with a clear vision of what best practices look like. Teachers may view models that include lesson plans, unit plans, sample student work, observations of peer teachers, and video or written cases of accomplished teaching.

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For example, in a program used across a number of states, PD focused on the types of pedagogical content knowledge teachers need to effectively teach elementary science. Curricular and instructional models were used in multiple ways to support teacher learning. For example, one group of teachers analyzed teaching cases drawn from actual classrooms and written by teachers. Another set of teachers worked in carefully structured, collaborative groups to analyze examples of student work from a shared unit taught in their own classrooms. A third group used metacognitive strategies to reflect on their instruction and its outcomes. Teachers also had access to a "task bank" of formative assessment model items they could use with their students during the program.

These types of models support teachers' ability to "see" what good practices look like and implement new strategies in their classrooms. In a randomized experimental study, students of teachers who participated in any of these PD opportunities had significantly greater learning gains on science tests than students whose teachers did not participate, and these effects were maintained a year later.[5]

Coaching and Expert Support

Coaching and expert support involve the sharing of expertise about content and practice focused directly on teachers' individual needs. Experts may share their specialized knowledge as one-on-one coaches in the classroom, as facilitators of group workshops, or as remote mentors using technology to communicate with educators. They may include master teachers or coaches based in universities or professional development organizations.

In one coaching initiative designed to enhance early literacy instruction among Head Start teachers, educators participated in biweekly sessions with a university-based literacy coach following a two-day orientation that introduced them to the literacy concepts. Prior to each session (which could be conducted in person or remotely), coaches and teachers collaboratively chose a specific instructional

practice on which to focus their time together. Coaches then observed teachers in their classrooms and provided both supportive and constructive oral and written feedback on their teaching, facilitating the implementation of desired instructional practices.

For remote coaching, educators shared 15-minute video clips and coaches provided detailed written feedback, supported by links to video exemplars and other materials available through the program. The semester-long program included 16 hours of workshops and seven coaching sessions. A two-year randomized controlled trial found that classrooms led by these teachers demonstrated larger gains and higher performance on a widely used early childhood classroom quality assessment, and their students experienced larger gains on a number of early language and literacy skills than did those in the control group.[6]

Feedback and Reflection

High-quality professional learning frequently provides built-in time for teachers to think about, receive input on, and make changes to their practice by facilitating reflection and soliciting feedback. Feedback may be offered as teachers analyze lesson plans, demonstration lessons, or videos of teacher instruction, which also provide opportunities for reflection about what might be refined or retained and reinforced. These activities are frequently undertaken in the context of a coaching session or workshop, but may also occur among peers.

For example, in a program targeting early childhood educators' ability to promote children's language and literacy development, educators enrolled in a facilitated online course called eCIRCLE. The course included videos of model lessons, online coursework and knowledge assessments, and opportunities to plan lessons and practice skills in small groups and in teachers' own classrooms. The course also offered interactive message boards that were moderated by expert facilitators. Teachers participated in four hours of this coursework per month throughout the school year. They received a supplemental curriculum on preschool language and literacy skills and were encouraged to monitor children's language and literacy progress using a common tool. In addition, some educators participated in biweekly on-site mentoring sessions with the expert facilitators, who observed the teacher's practice, then facilitated reflective follow-up and provided positive and constructive feedback. In a randomized controlled study of the program, researchers found that students of teachers who received expert mentoring and feedback experienced the greatest gains on a variety of language and literacy outcomes.[7]

Sustained Duration

Effective professional development provides teachers with adequate time to learn, practice, implement, and reflect upon new strategies that facilitate changes in their practice. As a result, strong PD initiatives typically engage teachers in learning over weeks, months, or even academic years, rather than in short, one-off workshops.[8]

For example, the Transformative Professional Development program is a two-year PD model to enhance science instruction for Spanish-speaking elementary school students. The program begins with a two-week summer workshop that includes graduate-level coursework on teaching elementary science. Teachers' learning from this intensive workshop is reinforced through occasional release days and monthly grade-level workshops with professional learning communities. These additional sessions support teachers in deepening their learning and provided space for ongoing support in implementing the new curriculum.

This model not only offers teachers the opportunity to return repeatedly to the PD material over the course of a semester, but also to apply their learning within the context of their classroom between workshops. This cycle is repeated in the second year, with an additional summer workshop and

continued release days. In a comparison group study, students whose teachers participated in the program demonstrated significantly larger improvements in science achievement over time than students whose teachers experienced business-as-usual PD.[9] By promoting learning over time, both within and between sessions, PD that is sustained may lead to many more hours of learning than is indicated by seat time alone.

Putting It All Together

Our research shows that effective professional learning incorporates most or all of these elements. Well-designed professional learning communities, such as those instituted by the National Writing Project, can integrate these elements to support teacher learning resulting in student learning gains. This collaborative and job-embedded professional development, described in additional detail in the box that follows, can enable widespread improvement within and beyond the school level.

National Writing Project: Learning From Professional Communities Beyond the School

The National Writing Project (NWP), which began as the Bay Area Writing Project, started in 1973 as a partnership between the University of California at Berkeley and local school districts. It has grown to over 185 sites in all 50 states, the District of Columbia, Puerto Rico, and the U.S. Virgin Islands. At the heart of the model are local school-university partnerships, each of which operates as an autonomous site to support context-specific strengths and meet context-specific challenges.

Despite the autonomy of the local sites, there are common design features and core principles that guide each site and are aligned with all of the elements identified in our research. The national network focuses on supporting the success of each local site. NWP local sites first focus on creating community among a small group of teachers during a five-week summer institute in which teachers engage in writing, share their work, and critique their peers. In the process of making their work public and critiquing others, teachers learn how to make implicit rules and expectations explicit, and how to give and receive constructive feedback as students. These summer institutes are held at each site and run by "teacher consultants"—NWP veteran teachers who are trained and supported by the national network.

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The summer institutes, which are designed to promote risk-taking and collaboration, provide a foundation for ongoing learning for teachers once they leave. These ongoing professional learning programs are collaboratively designed by schools and universities and led by teacher consultants. In addition, NWP provides a wide variety of ways to promote active, collaborative learning within and across sites; newsletters, annual conferences, and opportunities to lead workshops are catalysts for the continuous engagement of teachers, creating the intersection of professional learning communities within the school and across the profession.[10]

A recent random assignment study of the College-Ready Writers Program (CRWP), a National Writing Project program that focuses specifically on the argument writing of students in grades 7 through 10, demonstrated its promise for supporting student learning. SRI conducted the study of CRWP in 22 high-poverty rural districts across 10 states, which were compared to a control group of 22 additional high-poverty rural districts. The CRWP components included: PD of at least 90 hours over two years with supports that included demonstration lessons, coaching, codesigning learning tasks, co-planning, curricular resources including lesson units for argument writing, and formative assessment tools to help teachers focus on student learning. In contrast, the control group engaged in "business as usual" professional development.

CRWP was found to have a positive, statistically significant impact on three of four attributes of student writing: content, structure, and stance. The remaining attribute, writing conventions, was marginally significant. Authors of the study note, "... this study of teacher professional development is one of the largest and most rigorous to find evidence of an impact on student academic outcomes," indicating the power of high-quality PD to affect student achievement improvements at scale.[11]

Creating Conditions for Effective Professional Development

The quality of a PD initiative's implementation has implications for its overall effectiveness in enhancing teacher practice and improving student learning. Researchers have found that willing teachers are sometimes unable to implement professional development practices due to obstacles that are beyond their control.[12] Even the best-designed professional development may fail to produce desired outcomes if it is poorly implemented due to barriers such as:

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- inadequate resources, including necessary curriculum materials;
- lack of a shared vision about what high-quality instruction entails;
- lack of time for implementing new instructional approaches during the school day or year;
- failure to align state and local policies toward a coherent set of instructional practices;
- dysfunctional school cultures; and
- inability to track and assess the quality of professional development.[13]

Implementing professional development well also requires responsiveness to the specific needs of teachers and learners, and to the school and district contexts in which teaching and learning will take place. These types of common obstacles to professional development should be anticipated and planned for during both the design and implementation phases of professional development.

Implications for Policy and Practice

Policy can help support and incentivize the kind of evidence-based PD described here. For example:

1. Policymakers could **adopt standards for professional development** to guide the design, evaluation, and funding of professional learning provided to educators. These standards might reflect the features of effective professional learning outlined in this report, as well as standards for implementation.
2. Policymakers and administrators could **evaluate and redesign the use of time and school schedules** to increase opportunities for professional learning and collaboration, including participation in professional learning communities, peer coaching and observations across classrooms, and collaborative planning.
3. States, districts, and schools could regularly **conduct needs assessments** using data from staff surveys to identify areas of professional learning most needed and desired by educators. Data from these sources can help ensure that professional learning is not disconnected from practice and supports the areas of knowledge and skills educators want to develop.
4. State and district administrators could **identify and develop expert teachers as mentors and coaches** to support learning in their particular area(s) of expertise for other educators.
5. States and districts can **integrate professional learning into their Every Student Succeeds Act (ESSA) school improvement initiatives**, such as efforts to implement new learning standards, use student data to inform instruction, improve student literacy, increase student access to advanced coursework, and create a positive and inclusive learning environment.

6. States and districts can **provide technology-facilitated opportunities for professional learning and coaching**, using funding available under Titles II and IV of ESSA to address the needs of rural communities and provide opportunities for intradistrict and intraschool collaboration.
7. Policymakers can **provide flexible funding and continuing education units** for learning opportunities that include sustained engagement in collaboration, mentoring, and coaching, as well as institutes, workshops, and seminars.

In the end, well-designed and implemented PD should be considered an essential component of a comprehensive system of teaching and learning that supports students to develop the knowledge, skills, and competencies they need to thrive in the 21st century. To ensure a coherent system that supports teachers across the entire professional continuum, professional learning should link to their experiences in preparation and induction, as well as to teaching standards and evaluation. It should also bridge to leadership opportunities to ensure a comprehensive system focused on the growth and development of teachers.

Endnotes

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