



NATIONAL COMPREHENSIVE CENTER
FOR **TEACHER QUALITY**

High-Quality Professional Development for All Teachers: Effectively Allocating Resources

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High-Quality Professional Development for All Teachers: Effectively Allocating Resources

This **Research & Policy Brief** addresses the aspect of the teacher support system that is perhaps the most important and often the most weakly implemented: teacher learning and development.

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OVERVIEW

During the more than five years that the National Comprehensive Center for Teacher Quality has been in operation, policymakers and researchers have reached consensus on the following three points:

- Teachers have a more significant influence on student achievement than any other school factor, and they vary widely in their impact (Kane, Rockoff, & Staiger, 2006; Nye, Konstantopolous, & Hedges, 2004; U.S. Department of Education, 2010).
- Poor and minority students are more likely to be assigned teachers who have less experience and who are teaching out of their field or without full certification, which likely negatively influences their ability to produce high levels of student learning (Clotfelter, Ladd, & Vigdor, 2007; Secretary's Priorities for Discretionary Grant Programs, 2010).
- To reduce the variation and inequity in teachers' influence on student learning as well as increase the overall level of teacher effectiveness—thereby reducing achievement gaps and enhancing learning for all students—a redesign of the systems that recruit, prepare, select, develop, retain, evaluate, advance, and compensate teachers is crucial (Consortium for Policy Research in Education Strategic Management of Human Capital, 2009; Curtis & Wurtzel, 2010; Hill, Stumbo, Paliokas, Hansen, & McWalters, 2010).

This Research & Policy Brief addresses the aspect of the teacher support system that is perhaps the most important and often the most weakly implemented: teacher learning and development.

As one district official notes, “Teachers are only as effective as they know how to be.” Teachers must have ongoing access to technical skills, complex knowledge, sophisticated tools, and research-based techniques to ensure that they are—and continue to be—successful with all students. Thus, high-quality professional learning activities that provide such access need to be extended to all teachers. Hence, given the current dire state of the economy and shrinking education budgets, state and district decision makers need to think differently about investing resources to ensure that all teachers have access to such activities (See “Rethinking Approaches to Investing in Professional Development”).

This brief includes the following to help state and district leaders select professional learning activities that are worth the allocation of scarce resources:

- A summary of current research and policy related to high-quality professional development
- A discussion of factors that decision makers need to consider when making resource allocation decisions
- A description of evaluation methods for professional learning activities
- Examples of promising approaches to professional development (See pp. 6, 12)
- Self-assessment tools that states and districts can use to determine whether they are on track to ensuring high-quality professional learning activities for all teachers (See Appendix A)

**RETHINKING APPROACHES TO INVESTING IN PROFESSIONAL DEVELOPMENT**

Ongoing learning is an essential component of continuous improvement for teachers (Barber & Mourshed, 2007) as well as a key element in any clinical practice profession (Alter & Coggshall, 2009). Moreover, demands on teachers are growing, as evidenced in the 2010 draft revisions to the Interstate Teacher Assessment and Support Consortium (InTASC) Model Core Teaching Standards (Council of Chief State School Officers InTASC, 2010). The revisions to the InTASC Standards speak to a need for teachers to learn to approach their practice in new ways (Hill et al., 2010). For example, an increasingly diverse student population requires teachers to learn new ways to personalize their instruction. To do so, teachers need opportunities and support to become skilled at using new forms of assessment data to address the unique needs of individual learners and at implementing linguistically and culturally responsive instructional practices.

Unfortunately, too many professional learning activities are disconnected from teachers' actual practice and school improvement goals (Cohen & Hill, 2000; Kennedy, 1998) and are not designed with attention to the needs of adult learners (Croft, Coggshall, Dolan, & Powers, 2010). In addition, a comprehensive analysis of the nationally representative Schools and Staffing Survey (National Center for Education Statistics, n.d.) showed that the number of opportunities for sustained professional development for teachers, as defined as that which lasted more than eight hours, decreased between 2004 and 2008 (Wei, Darling-Hammond, & Adamson, 2010). An earlier report found that teachers' opportunities for high-quality professional learning (the kind that produces change in teaching practice and student outcomes) are much more limited in the United States than in most high-achieving nations abroad (Darling-Hammond, Wei, Andree, Richardson, & Orphanos, 2009).

Teachers in this country, therefore, are often dissatisfied with their mandated professional development. In a survey conducted for The Teaching Commission in 2004, 42 percent of teachers indicated that professional development either *leaves something to be desired* or *is a waste of my time*. Only 18 percent said that the professional learning activities offered by their district or school were significant in helping them become more effective teachers (Peter D. Hart Research Associates & Harris Interactive, 2004). Such research has led policymakers, teachers, and the public to doubt whether funds allocated to professional development are well spent.

Hence, a distinction must be made between business-as-usual and high-quality professional development. The latter holds great promise to support and improve teachers' practice and effectiveness over the long term (Darling-Hammond et al., 2009; Loucks-Horsely & Matsumoto, 1999; Supovitz & Turner, 2000).

In a nationally representative survey of 890 teachers, most agreed that improving professional development would be either *very effective* or *somewhat effective* (51 percent and 44 percent, respectively) in improving teacher effectiveness (Coggshall & Ott, 2010). In addition, growing evidence indicates that meaningful professional development will help recruit and retain teachers in hard-to-staff schools. In focus groups with teachers, Shapiro and Laine (2005) found that participants overwhelmingly stated that dedicated time for ongoing professional development in combination with focused, supportive school leadership would encourage them to teach in a hard-to-staff school.

SELECTING HIGH-QUALITY PROFESSIONAL LEARNING ACTIVITIES

Federal policy has increasingly focused on bolstering teacher effectiveness and pressing states and districts toward ensuring that all students have access to effective teachers through such programs as Race to the Top, School Improvement Grants, the Teacher Incentive Fund, and the State Fiscal Stabilization Fund. High-quality professional development is certainly a powerful approach toward that end. However, in a recent statement of proposed federal priorities, U.S. Secretary of Education Arne Duncan reiterated that “the strongest available empirical evidence should inform decisions about education practices and policies” (Secretary’s Priorities for Discretionary Grant Programs, 2010, p. 47,288). This section of the brief provides guidance to states and districts by describing available evidence to facilitate effective decision making regarding supports for teacher effectiveness.

To be considered high-quality, professional development must be delivered in a way that yields direct impact on teacher practice. In order to influence student achievement, the teacher practice designated for change must clearly relate to student learning so that professional development will result in more students learning the content at *higher* levels. Other worthwhile professional development goals may be to increase student engagement or improve student behavior, which may or may not result in improved academic achievement. States and districts need to determine the extent to which these goals are priorities for their schools and teachers and then select high-quality professional development activities in accordance with these priorities.

Characteristics of High-Quality Professional Development

Based on a review of the literature, high-quality professional development exhibits the following five characteristics:

1. Alignment with school goals, state and district standards and assessments, and other professional learning activities including formative teacher evaluation
2. Focus on core content and modeling of teaching strategies for the content
3. Inclusion of opportunities for active learning of new teaching strategies
4. Provision of opportunities for collaboration among teachers
5. Inclusion of embedded follow-up and continuous feedback

These characteristics of high-quality professional development are consistent with those identified by researchers (e.g., Desimone, Porter, Garet, Yoon, & Birman, 2002; Garet, Porter, Desimone, Birman, & Yoon, 2001) and organizations, such as Learning Forward—formerly the National Staff Development Council (Darling-Hammond et al., 2009)—and the Council of Chief State School Officers (Blank & de las Alas, 2009).

Alignment With School Goals, State and District Standards and Assessments, and Other Professional Learning Activities

It is reasonable to assume that teachers who receive consistent messages regarding what to teach and the best ways to teach it are most likely to improve in their practice. Unfortunately, teachers too often receive conflicting messages from various sources: textbooks, state and local standards and assessments, professional and popular literature, preparation experiences, and various formal professional learning activities (Cohen & Spillane, 1992). Professional learning activities are more likely to be effective if they are part of a coherent program of ongoing

professional development (Cohen & Hill, 2000; Garet et al., 2001; Grant, Peterson, & Shojgreen-Downer, 1996). Garet et al. (2001), for example, found that teachers reported greater change in their knowledge and skills when professional learning activities:

- Built on what the teachers had already learned in related professional learning activities.
- Emphasized content and pedagogy aligned with national, state, and local standards, frameworks, and assessments.
- Supported teachers in developing sustained ongoing professional communication with other teachers who were trying to change their teaching in similar ways.

Alignment helps build the shared vocabulary and common goals required to sustain instructional improvements through rigorous feedback. It also reduces confusion and uncertainty about what and how to teach. Formative teacher evaluation can be a particularly powerful learning opportunity for teachers when it is consistent with the way they are guided to teach in their professional learning activities. Professional teaching standards and school improvement plans that focus on student learning outcomes can guide the design of professional development to ensure alignment. Aligning professional learning activities with data analysis, student goal setting, implementation strategies, and monitoring and evaluating improvement also can be highly beneficial to administrators, teachers, and students (Youngs, 2001).

Birman et al. (2009) found that most teachers report participating in aligned professional development experiences. For example, roughly two-thirds (67 percent) of general education teachers reported in 2005–06 that their professional development experiences were often designed to support state or district standards and assessments, and nearly as many (60 percent) said their professional development experiences were designed as part of a school improvement plan.

However, only 17 percent reported that they were based explicitly on what the teacher had learned in earlier professional development experiences.

Case studies of teachers working within a systemic reform effort reveal important factors to consider in establishing alignment among multiple school variables (Grant et al., 1996). When integrating professional learning activities with curriculum, goals, and assessment, professional development providers must consider the needs of a diverse student population. Lack of clear direction and inaccurate assessment of student growth confounds any measure of professional development effectiveness. Similarly, the way teachers differentiate and integrate the strategies and ideas they learn through professional development should dictate rigorous but not necessarily prescriptive learning experiences. In other words, a coherent system does not mean that all teachers implement instruction uniformly.

Focus on Core Content and Modeling Teaching Strategies for the Content

Researchers have provided evidence for the causal chain of teacher and student learning: enhanced teacher knowledge followed by explicit change in teaching practice leads to improvement in student learning (e.g., McCutchen et al., 2002). Removing the second step (actual change in teaching practice) renders the first step (improved teacher knowledge) inconsequential. For example, in a study of a mathematics reform in California, Cohen and Hill (2000) examined teachers' professional learning activities and found positive changes in practice for teachers who attended workshops on how to teach the new mathematics curriculum. Conversely, teachers who attended workshops that were not centered on the mathematics teaching practices had almost no effect. This finding emphasizes that professional development focused not just on content but on the

teaching and learning of content is most likely to be associated with positive change in teacher practice (Blank & de las Alas, 2009).

One approach to modeling content instruction for teachers is instructional coaching (Joyce & Showers, 2002; Loucks-Horsely, Hewson, Love, & Stiles, 1997). Matsumura, Sartoris, Bickel, and Garnier (2009) provide one of the few detailed reports on what makes instructional coaching effective. They found it crucial for coaches to strategically select instructional practices to model for teachers in the classroom. Whether by coaching or other means, teachers need concrete examples of how new knowledge about content and teaching can be integrated into practice (Grant et al., 1996).

Inclusion of Opportunities for Active Learning of New Teaching Strategies

Research has shown that teachers report greater changes in their instructional practice as a result of professional learning activities that involve their active participation and engagement (e.g., practicing what they learned in their classrooms; observing other teachers; conducting demonstration lessons; leading group discussions; and reviewing student work with colleagues, professional development providers, or both) (Desimone et al., 2002; Garet et al., 2001). Blank and de las Alas (2009) confirmed the value of active learning methods with follow-up after the initial period of training as well as the importance of collective participation. Such active learning activities tend to take longer than passive learning activities such as seminars, lectures, or workshops. Analyzing data from the National Science Foundation Teacher Enhancement Program, Supovitz and Turner (2000) found that the quantity of professional learning activities in which teachers participate relates to how much their teaching practice and classroom culture change. Unfortunately, only about four in ten teachers report that they often participate in such active learning experiences (Birman et al., 2009).

Provision of Opportunities for Collaboration Among Teachers

Another feature of high-quality professional development is a learning strategy that teachers commonly employ with their students: group learning. Hill et al. (2010) summarize this collaboration well: “Teachers develop expertise not as isolated individuals but through job-embedded professional development, and as members of collaborative, interdisciplinary teams with common goals for student learning” (p. 10). For example, teachers who consistently discussed their professional learning in literacy instruction with their colleagues were associated with greater student gains in reading achievement in their classrooms (Harwell, D’Amico, Stein, & Gatti, 2000). Utilizing the capacity within school buildings for instructional and content expertise through collaboration is an effective way to generate high-quality professional learning.

Professional learning communities serve as the most obvious catalyst for teacher professional growth in a collaborative setting. As one avenue for teacher learning, professional learning communities are based on the concept that professional knowledge resides internally in schools and is cultivated both individually and socially (Butler, Lauscher, Jarvis-Selinger, & Beckingham, 2004; Vescio, Ross, & Adams, 2008). Professional learning communities are vital to teachers’ identity formation, acting as the primary motivation for professional growth (Butler et al., 2004; Lieberman, 2009). Within professional learning communities, teachers do more than share direct evidence of student learning; they also elicit feedback on how to improve their instructional practice while acting within a safe, stable structure of support for trying new approaches to teaching.

However, much of the research on professional learning communities analyzes changes in teacher perceptions of their practice rather than actual change observed in the classroom or documented through other sources of evidence. Metrics for judging the success of a professional learning community must be

defined by improvement in student achievement and teacher learning witnessed through sustained changes in teaching practice (Vescio et al., 2008), so more research is needed in this area.

Inclusion of Embedded Follow-Up and Continuous Feedback

In addition to opportunities for teachers to actively learn strategies and collaborate with their colleagues, follow-up and feedback support sustained change in teacher practice. Existing randomized controlled trials and quasi-experimental design studies of various professional development programs suggest that the duration of learning activities is statistically significant. In a study conducted by Yoon, Duncan, Lee, Scarloss, and Shapley (2007),

programs that provided between 30 and 100 hours of professional development were more likely to have an impact on participants' student achievement than programs that provided fewer hours. This study did not offer clear reasons for this relationship between duration and student achievement, but one plausible explanation is that "higher dosage" programs provide teachers more opportunities for continuous feedback after they have had a chance to practice what they are learning in the classroom (Garet et al., 2001). The Teacher Advancement Program presents an example of professional development embedded with ample time and continuous feedback (See "Teacher Advancement Program" for more information).



TEACHER ADVANCEMENT PROGRAM

The Teacher Advancement Program (TAP)* has been incorporated in more than 40 districts in 11 states, receiving positive reviews from program evaluators as an exemplary model of systemic education reform. TAP is grounded in four elements including applied professional growth (the other three are multiple career paths, instructionally focused accountability, and performance-based compensation). Student growth has a direct correlation to teacher growth in professional knowledge, skills, and abilities. Integral to professional development are master and mentor teachers who evaluate teachers, facilitate cluster group meetings, examine student data, and help each other learn instructional strategies through coaching and modeling (Daley & Kim, 2010). One of the program's strengths is building local capacity with those who know the school context best.

Teacher professional growth is based on a concrete set of standards used for evaluation titled "Skills, Knowledge, and Responsibilities" with a spectrum of 19 rubric indicators. These criteria ground collegial discussion in common language while supporting teacher self-assessment. They enable teachers to track their progress on each of these standards as they develop mastery of each one. Teachers receive annual written reports on their scores based on several observations throughout the year (Daley & Kim, 2010). These observation rubrics are derived from several widely accepted sets of standards such as the Interstate New Teacher Assessment and Support Consortium (InTASC) standards, National Board for Professional Teaching Standards (NBPTS), and Charlotte Danielson's *Framework for Teaching*. Evaluators must undergo rigorous training to ensure reliability in observations and diligence in professional growth planning (Little, 2009).

TAP requires an investment in increased time for teachers to engage in substantive learning experiences. Schools implementing TAP consider restructuring options to increase faculty release time, such as block scheduling, hiring additional qualified substitute teachers, extending the school calendar, or changing existing faculty time commitments (Van Hook, Lee, & Ferguson, 2010). A reliable data system is essential to ensuring that time is well spent. The Comprehensive Online Data Entry system, a Web-based application, is used to create reports summarizing teacher performance across standards individually to develop growth plans or across groups according to grade levels, subject areas, or customized clusters so that administrators can effectively arrange group professional development. The National Institute for Excellence in Teaching (the organization behind TAP) provides technical assistance to schools on analyzing and using these data (Daley & Kim, 2010).

For more information on TAP, see <http://tapsystem.org/>.

* This program is highlighted (not prescribed) as one example of a systemic reform effort characterized by features of high-quality professional development, providing useful information for other programs or interventions.

Coaching is one way to implement embedded follow-up and continuous feedback. Although findings on the impact of instructional coaches on student outcomes are limited (Garet et al., 2008; Lockwood, McCombs, & Marsh, 2010), other research supports coaching as a powerful learning tool for teachers (Neufeld & Roper, 2003; Poglinco et al., 2003). School principals act as facilitators of this learning tool when they endorse the role of the instructional coach, have a more comprehensive understanding of what coaches do in working with teachers, and ensure that teachers have adequate time in their schedule to participate. Coaches are most effective when given the autonomy to observe teachers' classrooms, identify their instructional needs, and provide continuous feedback to teachers (Matsumura et al., 2009).

As discussed, another viable option for providing teachers formative feedback on their instructional practice is the development of professional learning communities (Vescio et al., 2008). Other professional development activities that provide rich sources of feedback include lesson study, action research, and data teams (Croft et al., 2010).

A Common Theme of High-Quality Professional Development

One aspect of high-quality professional development underlies the five previously noted characteristics: teacher buy-in. A fragmented system of standards, assessments, and teacher evaluation will frustrate teachers and hinder application of their professional learning (Characteristic 1). Teachers will perceive a lack of core content in professional development activities, deem the teaching strategies and active learning irrelevant to their classroom practice, and subsequently disengage from

that professional development effort (Characteristics 2 and 3). It is ineffective for teachers to engage solely in individual learning experiences isolated from their colleagues and lacking follow-up and feedback. Structures and opportunities for effective professional learning are inadequate without teacher motivation to engage in those experiences. Therefore, these features are necessary but not sufficient for changes in teaching practice and student growth to occur.

However, many districts and schools continue to deliver professional learning activities that are not marked by the defining characteristics of high-quality professional development and fail to include an accountability mechanism. The factors behind and strategies to address this problem are discussed in the next section.

ALLOCATING RESOURCES FOR HIGH-QUALITY PROFESSIONAL LEARNING ACTIVITIES

In order to ensure the effective implementation of high-quality professional development, states and districts must have a plan for financing the costs of professional learning activities. This section discusses approaches to accessing the resources needed to fund high-quality professional development proposals after examining the current allocations. It also highlights the need to schedule time for these professional learning activities and provides an example of what might constitute an adequate amount of activities for a given school.

Finding the Resources to Dedicate to High-Quality Professional Development

The current economic climate has reduced the discretionary resources that states, districts, and schools have at their disposal. Budget cuts have become the norm, dampening the availability of funds and hindering efforts to enhance classroom practice through content-focused, long-term, job-embedded professional development. However, shrinking budgets can actually provide the impetus needed to examine current expenditures to determine whether they contribute to the quality of teaching and learning in the district or school. Decision makers should consider funds spent on professional development and, more comprehensively, the allocation of resources in general.

Determining the resources currently spent on professional development and what exactly those resources are buying is an important first step, which facilitates the decision to fund only those professional learning activities that enhance classroom practice. However, making this determination is not an easy task. Lack of a shared definition of what constitutes professional development makes it difficult to decide which activities to include and exclude. As Desimone (2009) points out, opportunities from formal or informal learning communities among teachers to structured, topic-specific workshops may all be considered professional development, and determining the impact of any particular activity is a challenge.

In an effort to provide assistance in addressing this issue, Odden, Archibald, Fermanich, and Gallagher (2002) created a cost framework for professional development that divides expenditures into six categories. Table 1 lists the cost elements, defines them, and explains how the costs are calculated.

Using a cost framework allows for a more complete calculation of all resources allocated to professional development, which is necessary to purposefully budget for high-quality professional development. For example, it is essential to recognize that teachers need scheduled time during the school day to work with instructional coaches if they are to maximize the benefits of having the coaches on site. If a district deploys instructional coaches without having ample time for teachers to work with them, as many districts do, they will be less effective. Therefore, both the cost of the coaching and the cost of the student-free time for teachers to work with those coaches must be included in the calculation.

Table 1. A Cost Structure for Professional Development

Cost Element	Ingredient	How Cost Is Calculated
Teacher Time Used for Professional Development	Time Within the Regular Contract	
	When students are not present before or after school or on scheduled inservice days, half days, or early release days	Teachers' hourly salary times the number of student-free hours used for professional development
	Planning time	The cost of the portion of the salary of the person used to cover the teachers' class during planning time used for professional development
	Time Outside the Regular Day/Year	
	Time after school, on weekends, or for summer institutes	The stipends or additional pay based on the hourly rate that teachers receive to compensate them for their time
	Release time provided by substitutes	Substitute wages
Training and Coaching	Training	
	Salaries for district trainers	Sum of trainer salaries
	Outside consultants who provide training; may be part of comprehensive school reform design (CSRD)	Consultant fees or comprehensive school design contract fees
	Coaching	
	Salaries for district coaches including on-site facilitators	Sum of coach and facilitator salaries
Administration of Professional Development	Outside consultants who provide coaching; may be part of CSRD	Consultant fees or comprehensive school design contract fees
	Salaries for district or school-level administrators of professional development programs	Salary for administrators times the proportion of their time spent administering professional development programs
Materials, Equipment, and Facilities Used for Professional Development	Materials	
	Materials for professional development, including the cost of classroom materials required for CSRDs	
	Equipment	
Travel and Transportation for Professional Development	Equipment needed for professional development activities	
	Facilities	
	Rental or other costs for facilities used for professional development	
Tuition and Conference Fees	Travel	
	Costs of travel to off-site professional development activities	
Tuition and Conference Fees	Transportation	
	Costs of transportation within the district for professional development	
Tuition and Conference Fees	Tuition	
	Tuition payments or reimbursement for university-based professional development	
Tuition and Conference Fees	Conference Fees	
	Fees for conferences related to professional development	

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Note. Rice (2001) has created a similar cost framework for teacher preparation and professional development.

Even with the guidance provided by these frameworks, decisions about which activities should constitute professional development require a number of judgment calls. Some examples of activities that may be difficult to categorize or to decide whether to build into cost estimates include the following:

- A weekly staff meeting that is now used entirely for professional learning activities rather than administrative business (The time for the weekly staff meeting is built into the teacher contract; however, it is a part of the time during which teachers in this school receive professional development.)
- Teacher time spent in collaborative planning (This time also may be built into the contract and may or may not actually be used in ways that improve teaching and learning.)

How does one decide whether these expenditures should be considered professional development? One answer is to include only activities that, based on anticipated outcomes, can be directly tied to a change in instructional practice.

Even when there is agreement about which learning activities should constitute professional development, it can be difficult to track the supporting resources because activities tend to be funded by multiple sources—state, federal, and private grants at varying levels—at the district and school sites. Often, an analysis of professional development spending at the district level is incomplete because it does not include the professional learning activities provided at the school level and vice versa. This issue is difficult to disentangle because of the nature of resource allocations. An example of this issue is a district that reports supporting mathematics coaches in each school. Upon further investigation, some of these coaches have a full teaching load, and others have either full or partial release from classroom instruction. If one used the district

description of this professional development strategy without understanding this nuance, it would result in a miscalculation of the actual resources allocated to coaching as opposed to classroom teaching.

In addition, these analyses need to extend beyond professional development to include the district's or school's overall allocation of resources meant to support the human capital development continuum—from recruitment to advancement. However, because of the complexity of this task and because administrators are so often overworked, these important analyses frequently are not pursued. But experts and tools are available to assist districts with this process. One example is Education Resource Strategies, a consulting firm in Boston that offers tools and services for assessing district resource use (For more information, see Education Resources Strategies, 2010). This type of analysis can be useful in determining whether expenditures are being used in ways that benefit student learning as opposed to routine approaches based on the premise “that’s how we’ve always done it.” Allocation by the latter method can lead to inefficient use of resources and unnecessarily tie up funds that could be used for more effective efforts, including professional learning activities that improve instructional practice.

States, districts, and schools often cut professional development and the positions that support it in times of shrinking budgets because of the perception that doing so does not compromise the basic operation of the school: teaching and learning. However, if the teaching in some classrooms is not at a level that allows students to achieve at least one year of growth, this perception is false, and resources need to be reallocated accordingly so that they are directly linked to improving teaching and learning.

Finding the Time to Dedicate to High-Quality Professional Development

Time is another issue that makes it challenging for districts and schools to implement professional development characterized by what the literature identifies as effective. Teacher contracts often dictate the amount of time that teachers are available for professional development as well as other broader resource allocation terms like the length of the school day.

A report developed through a collaboration of the American Federation of Teachers, Council of Chief State School Officers, National Education Association, and National Staff Development Council (2010) acknowledged that high-quality professional development is much more likely to be sustained if it is incorporated into collective bargaining agreements. The same report reviewed such agreements in six states and found few examples that sufficiently addressed the time commitment necessary for high-quality professional development.

Further, the report suggests that one way to address this issue without adding time to the school day and increasing compensation is to creatively use time already included in the bargaining agreement. For example, some schools that were using their weekly staff meetings for announcements and administrative business now use this time for professional development. They then use e-mail to communicate the information that used to take up the majority of these staff meetings. This approach is one way to build in regular collaborative time for teachers to focus on improving instruction.

However, to fully satisfy the collaboration element of high-quality professional development, districts and schools must build time into the school day for teachers in the same grade level or subject area to meet

regularly and discuss student work, instructional strategies, and student performance. This collaborative time can vary in the degree of difficulty to implement. In some cases, teachers have time in their school day for planning, and it is a matter of adjusting schedules and priorities to make some of the time collaborative. In other cases, teachers do not have this time, making it necessary to find significant additional resources to provide this time.

Other considerations of time for professional development include release time from classroom instruction for mentors and coaches in which they visit other teachers' classrooms to model strategies, observe, and provide feedback. Often, in this time of economic adversity, mentors and coaches are also classroom teachers, which limits their ability to provide the kind of professional development that has a positive impact on student learning. Professional development offered within the St. Francis Independent School District illustrates an effective approach to addressing these challenges (See "St. Francis Independent School District 15" for more information).

Adequately Allocating Funds for High-Quality Professional Learning Activities

As part of an effort to quantify the resources needed to adequately fund a school system, Odden, Goetz, and Picus (2008) constructed an evidence-based adequacy model that suggests the necessary level of time and financial resources for teachers to engage in professional learning activities that improve classroom practice. Although these recommendations have not been validated in terms of this particular level of professional development, producing a specific increase in classroom learning, this model provides an example of what the research suggests would be necessary.



ST. FRANCIS INDEPENDENT SCHOOL DISTRICT 15

For nearly a decade, St. Francis Independent School District 15 in Minnesota has provided the Teacher Academy alongside career ladder options for teachers on a voluntary basis. The Student Performance Improvement Program (SPIP) includes multiple ways for teachers to engage in professional development, evaluation, and compensation.

Professional learning is the core of the program; teachers enroll in one of twelve Teacher Academy classes or study group courses each year. These courses, taught by peer leaders, are based on the Educational Research and Dissemination program of research-based practices created by the American Federation of Teachers. Teacher Academy courses also assist teachers in meeting the state's teacher relicensure requirements. Study groups, headed up by peer leaders, consist of clusters of collaborating teachers in similar grades and subject areas. As a third option, tenured teachers may engage in independent study work once every three years.

Elements of cost-effective professional development are integrated into the program in the following ways:

- Content
 - Information to guide professional development is rooted in observations of the teacher engaging students in classroom instruction.
 - For their first three years or when changing grade levels/subjects, teachers are assigned mentors in their schools matched according to grade level and content area (if possible).
- Time
 - Teacher Academy courses and study groups require a 32-hour commitment with observations and meetings with peer evaluators providing additional hours of professional learning.
 - Floating substitute teachers enable teachers to have additional release time to observe peers' lessons and engage in other learning experiences.
- Cost
 - Integration into the Quality Compensation for Teachers (Q Comp) program, approved by the state governor in 2005, covers the cost of the SPIP.
 - At lower cost than many professional development experiences, teachers frequently observe colleagues informally to see how they incorporate strategies in their classrooms.
- Context
 - Teachers collaborate with peer leaders, mentors, and other teachers who are familiar with the school and individual classroom context.

Teacher Academy classes and study groups are intended to be suitable for all classroom contexts, which inform professional goals. Teachers take experiences from these venues for professional learning and directly apply them to classroom practice in the following ways:

- Teachers set goals for changing their classroom practice that align with the content of their class or study group.
- Peer evaluators (a team of the peer leader, the Teacher Academy course instructor, and an administrator) follow up on these goals by looking for relevant classroom events during observations.
- Multiple observations conducted by peer evaluators are spaced throughout the year so that growth can be tracked between points of time.
- Peer evaluators also consider student performance data collected by the teacher to create a comprehensive view of the classroom.
- During meetings with peer evaluators at the beginning and end of each year, teachers lead discussions about their performance.

SPIP in St. Francis, Minnesota, is an effective system of teacher feedback and learning that relies and builds on local capacity for professional learning grounded in instructional expertise and assessed by student achievement results.

The model includes the following:

- Instructional coaches (1 per every 200 students) to provide embedded follow-up
- 10 days of professional learning time in the summer for in-depth training
- \$100 per pupil for other expenses, such as trainers, conferences, or travel

This model not only recommends significantly more time and staff dedicated to high-quality professional development than most districts currently allocate, but it also suggests a different allocation of the time and staff currently dedicated to professional development.

Therefore, a reallocation of resources from other spending that does not specifically target improved instruction may be necessary. Given the importance of teacher quality to student learning and the link between improving teacher quality and professional development, the greater investment is likely to lead to greater levels of student learning.

The next section explains how to evaluate professional learning activities to help ensure that they are driving positive changes in classroom practice.

EVALUATING THE IMPACT OF PROFESSIONAL LEARNING ACTIVITIES TO ENSURE EFFECTIVE ALLOCATION OF RESOURCES

High-quality evaluations of professional development programs and systems are few and far between, which frustrates decision makers as they attempt to determine which tools, approaches, and programs to adopt to meet their specific goals. This discrepancy can be partially attributed to the fact that evaluating the impact of particular professional learning activities on teacher practice or student learning (or both) can be difficult, time-consuming, and costly. However, evaluation is important because it:

- Provides evidence of effectiveness and efficiency to decision makers and funders, whether it is a foundation or taxpayers (via the school board, county or state legislature, or the federal government).
- Facilitates program improvements or decisions to scale up or discontinue.
- Ensures that teachers' time and investment was not (and will not) be wasted.
- Advances the field.

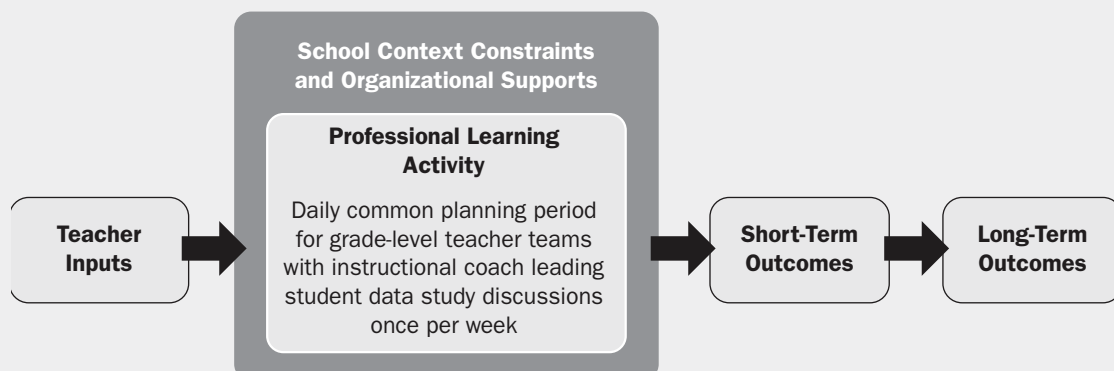
The following types of evaluations will help to serve those purposes: process evaluations, impact evaluations, and cost-benefit/cost-effectiveness analyses, which will be described in more detail later in this section. (See Killion, 2008, for more detailed information on logic models/theories of action and Guskey, 2000, for guidance on multiple levels of professional development evaluation.) The first step in all three types of evaluations is to articulate a theory of action, which is a set of hypotheses that essentially answers the following question: How will Tool/Approach/Program X achieve Goal Y? This step should be completed early in the implementation process, either during the selection stage or the initial stage of evaluation design.

Logic Models

To articulate a theory of action and select the metrics to use to determine whether the theory is borne out in reality, it helps to draw a logic model. See Figure 1 for a simple example.

In this logic model, teacher inputs might include participants' qualifications or their prior knowledge of a particular concept or skill. Short-term outcomes might include a change in teachers' knowledge, beliefs, or level of satisfaction with the support they receive. Long-term outcomes might include a change in teachers' instructional practice or their impact on student behavior, engagement, or learning outcomes. Some of these outcomes might be

Figure 1. Simple Logic Model for Use in Evaluating Teacher Development Approaches, Tools, or Programs



Note: For more detailed examples, see Garet et al. (2008, Appendix A) or Gersten, Dimino, Jayanthi, Kim, and Santoro (2010, p. 698).

realized over the course of months; others may take years. After evaluators and program implementers clearly understand each piece of the logic model, evaluators can decide which types of data to collect for each step and which metrics to use to measure outcomes.

Metrics for Measuring Outcomes of Professional Development Activities

Process Evaluations

Process evaluations focus only on the first part of the logic model, examining how the tool, approach, or program is implemented. A process evaluation examines levels of participation; the qualifications of the implementation staff; the levels of administrative support for the program (whether it was explicit and public); and/or whether the tool, approach, or program is being implemented as designed (i.e., with fidelity). A process evaluation can determine the extent to which the program as implemented comports with the characteristics of high-quality professional development outlined in the “Selecting High-Quality Professional Learning Activities” section. High-quality process evaluations go beyond collecting end-of-activity questionnaires that ask participants how they liked the activities and focus on deeper issues, such as how the implementation was facilitated, whether there were sufficient resources for implementation, and whether problems were addressed quickly and efficiently.

Impact Evaluations

Impact evaluations combine the components of a process evaluation with a determination of whether and to what extent the tool, approach, or program results in the desired short- and long-term outcomes. As such, this type of evaluation takes into account the entire logic model. Of course, in education, causality is extremely difficult to determine. There are numerous intervening factors, and it is likely that the implementation of a particular professional learning activity is not the only intervention school leaders are enacting that

is designed to change instruction and improve student learning outcomes. Moreover, real learning and instructional change take time. Impact studies should allow a sufficient amount of time for program implementers to work out the kinks and enable deep change to occur.

A valid impact evaluation may require resources beyond the internal capacity of many school districts. Thus, districts may combine resources with other districts, perhaps hire an external evaluator, or only focus on those aspects of the logic model that are feasible to study while considering the limitations of such an approach.

Cost-Benefit/Cost-Effectiveness Analyses

Finally, cost-benefit analyses estimate the extent to which a given course of action yields benefits greater than the financial costs, and cost-effectiveness analyses compare different courses of action to determine which is most effective relative to their costs. In short, both analyses help decision makers identify which tools, programs, or approaches are worth the investment of scarce resources. This approach is rarely used to evaluate professional learning activities in part because of the difficulty of determining the costs of professional development (e.g., equipment, materials, and personnel time). Measuring short- and long-term outcomes also can be challenging as described previously.

Despite these difficulties, it is possible to conduct useful cost-benefit analyses. For example, one cost-benefit analysis of an induction program found that the five-year rate of return for investing in new teacher mentoring yielded positive benefits for the district in terms of reduced turnover costs and increased teacher effectiveness (Villar & Strong, 2007). By cleverly monetizing the benefits, the authors estimated that the district recouped \$1.88 in benefits for every dollar spent. They calculated the return on teacher effectiveness in terms of the salary differential between a third-year teacher without mentoring and a second-year teacher with mentoring. As a consequence of the mentoring program, reduced teacher turnover rates increased district savings.

SUMMARY AND CONCLUSION

The imperative for education leaders to ensure that all students have access to effective teachers is unambiguous. One essential component in fulfilling that imperative is the strategic allocation of human, financial, and time resources to guarantee that all teachers have access to high-quality professional development. In an effort to assist states and districts in the effective allocation of resources, this brief describes factors to consider when selecting professional development tools, approaches, or programs that have shown the most promise for improving instruction and student learning; new ways to think about resource allocation; and effective approaches to allocation decisions.

In sum, the five characteristics of high-quality professional development, as described by current research, are as follows:

1. Alignment with school goals, state and district standards and assessments, and other professional learning activities including formative teacher evaluation
2. Focus on core content and modeling of teaching strategies for the content
3. Inclusion of opportunities for active learning of new teaching strategies
4. Provision of opportunities for collaboration among teachers
5. Inclusion of embedded follow-up and continuous feedback

Professional learning activities marked by these characteristics support teacher buy-in and create the opportunity for teachers and schools to better meet student needs.

The factors of cost and time also influence the implementation of well-designed professional development. Schools and districts must assess current allocations of time and resources to find a way to provide high-quality professional development to teachers. With the current scarcity of resources, reallocation of funding and teacher time can be the best strategy. Cost frameworks are helpful for making these decisions in a comprehensive, informed manner.

Finally, rigorous evaluations of investments in professional learning (i.e., process, impact, or cost-benefit/cost-effectiveness analysis) are essential to driving effective decision making about the allocation of resources. Such evaluations also will serve to guide future efforts while advancing the field.

Unfortunately, there are no shortcuts to long-lasting teacher professional growth and improvement in student achievement. As the self-reflection tools provided in Appendix A likely demonstrate, there is a lot of work to be done. The key factor is the provision of time—for both individual reflection and collaboration. Districts and schools not only need direct fiscal support but also guidance on how to analyze, advocate, and protect these investments in human capital. Lastly, design and evaluation of professional learning activities need to be informed by the context in which teachers engage students daily. Careful consideration of all these factors can lead to effective, sustainable professional learning experiences for all teachers and increased student achievement for all students.

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APPENDIX A. HIGH-QUALITY PROFESSIONAL LEARNING ACTIVITIES SELF-ASSESSMENT TOOLS

How Supportive Is Your State or District of High-Quality Professional Learning Activities for All Teachers?

States have traditionally played a significant role in structuring inservice professional development activities for teachers. By requiring teachers to take specific courses, enroll in continuing education classes, or obtain advanced degrees for licensure renewal or advancement and developing standards and frameworks for teaching, induction, and professional development, states have attempted to ensure that professional learning activities are of high quality and that teachers work to stay current in their fields. Unfortunately, these efforts tend not to be aligned, implemented with fidelity, nor based on research of their capacity to ensure teacher quality and effectiveness in all schools, particularly in schools that serve children at risk of educational failure. Thus, states need to work to ensure that their resources support learning.

Districts, too, serve a critical role in guiding schools through policy implementation of well-designed professional learning activities for teachers. Schools within districts vary to the extent that they are heterogeneous with regard to teacher and student needs, so the district should tailor support to meet the specific needs of each school. Schools need district assistance in adhering to federal funding requirements and state regulations without undermining the professional learning that is optimal for each unique school and its staff.

The following two self-assessment tools can be used in conversations with regional comprehensive center staff, state or local education agency personnel, or on your own. The more *yes* and *to a great extent* responses recorded, the more your state or district is moving toward the effective allocation of resources for the advancement of teacher learning.

Table A1. State Self-Assessment Tool

Professional Learning: Questions for States	Circle one.			
Systems Alignment				
Does your state have high-quality professional development standards that are based on recent research? <i>Notes:</i>	Yes	No	Planned	Don't know
Does your state have high-quality professional teaching standards that are based on recent research and aligned with student learning standards? <i>Notes:</i>	Yes	No	Planned	Don't know
If they exist, to what extent are your state's professional development standards aligned with your state's professional teaching standards? <i>Notes:</i>	To a great extent	To some extent	Not at all	Don't know
To what extent is your state's evaluation system aligned with your state's professional teaching standards? <i>Notes:</i>	To a great extent	To some extent	Not at all	Don't know
Do your state's professional development requirements for teacher licensure ensure that teachers participate in high-quality professional learning activities as described in this brief? <i>Notes:</i>	Yes	No	Planned	Don't know
Data Infrastructure				
Does your state's data system track the types and amount of professional learning tools, activities, and programs in which teachers participate? <i>Notes:</i>	Yes	No	Planned	Don't know
Does your state's data system currently provide teachers and instructional leaders timely access to student achievement and teacher performance data to help them assess professional learning needs and conduct program evaluations? <i>Notes:</i>	Yes	No	Planned	Don't know
Technical Assistance				
Does your state provide technical assistance to districts on evaluating the quality, expenditures, and outcomes of professional learning (e.g., cost analyses, surveys)? <i>Notes:</i>	Yes	No	Planned	Don't know
Does your state have personnel with the expertise to monitor and provide technical assistance to districts to ensure that they allocate ample time for teachers and principals to engage in high-quality professional learning? <i>Notes:</i>	Yes	No	Planned	Don't know
Does your state disseminate information about evidence-based professional learning activities particularly to teachers of special populations (i.e., students with disabilities and English learners)? <i>Notes:</i>	Yes	No	Planned	Don't know

Table A2. District Self-Assessment Tool

Professional Learning: Questions for Districts **Circle one.**

Analysis of School Professional Learning Activities

To what extent does your district engage in a structured vetting process to select high-quality professional learning tools, activities, structures, or programs as described in this brief?	To a great extent	To some extent	Not at all	Don't know
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Notes:

Does your district encourage school leaders and teachers to prioritize ongoing professional learning as part of their daily work (through, for example, memoranda, teacher evaluation protocols, district employee policies, school handbooks, and/or the district's website)?	Yes	No	Planned	Don't know
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Notes:

To what extent does your district use performance metrics to evaluate the impact of professional learning tools, activities, and programs on teacher practice and/or student achievement?	To a great extent	To some extent	Not at all	Don't know
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Notes:

To what extent does your district use this impact information to inform program improvement?	To a great extent	To some extent	Not at all	Don't know
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Notes:

Technical Assistance to Schools

To what extent does your district provide support to principals to select high-quality professional development tools, activities, structures, and programs as described in this brief?	To a great extent	To some extent	Not at all	Don't know
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Notes:

To what extent does your district support principals to structure teachers' school days to provide time for individual and group professional learning, including opportunities for peer learning (e.g., observing master teachers during planning period or lesson study)?	To a great extent	To some extent	Not at all	Don't know
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Notes:

Alignment With Teacher Evaluation

To what extent does teacher evaluation inform decisions about the types of professional learning activities in which teachers participate?	To a great extent	To some extent	Not at all	Don't know
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Notes:

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ABOUT THE NATIONAL COMPREHENSIVE CENTER FOR TEACHER QUALITY

The National Comprehensive Center for Teacher Quality (TQ Center) was created to serve as the national resource to which the regional comprehensive centers, states, and other education stakeholders turn for strengthening the quality of teaching—especially in high-poverty, low-performing, and hard-to-staff schools—and for finding guidance in addressing specific needs, thereby ensuring that highly qualified teachers are serving students with special needs.

The TQ Center is funded by the U.S. Department of Education and is a collaborative effort of ETS, Learning Point Associates, and Vanderbilt University. Integral to the TQ Center's charge is the provision of timely and relevant resources to build the capacity of regional comprehensive centers and states to effectively implement state policy and practice by ensuring that all teachers meet the federal teacher requirements of the current provisions of the Elementary and Secondary Education Act (ESEA), as reauthorized by the No Child Left Behind Act.

The TQ Center is part of the U.S. Department of Education's Comprehensive Centers program, which includes 16 regional comprehensive centers that provide technical assistance to states within a specified boundary and five content centers that provide expert assistance to benefit states and districts nationwide on key issues related to current provisions of ESEA.



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