

# Fixing Teacher Professional Development

A broken system of professional learning requires decisive action in order to ensure wise expenditure of limited resources.

BY HEATHER C. HILL

**T**he professional development “system” for teachers is, by all accounts, broken. Despite evidence that specific programs can improve teacher knowledge and practice and student outcomes, these programs seldom reach real teachers on a large scale. To use a shopping metaphor, these research-proven programs, which are often offered by university faculty or nationally recognized providers, are “boutiques” serving a handful of fortunate teachers while leaving many more to shop at the Wal-Marts of the professional development world. There, most teachers receive uninspired and often poor-quality professional development and related learning opportunities.

Typically, reformers address such perceptions of failure by discovering and celebrating new formats and content for teacher professional learning. In the past two decades alone, advocates of continuing teacher education have promoted school-based learning opportunities, such as coaching and lesson study; new topics, in the form of increased focus on subject

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matter content and, more recently, the analysis of assessment and related data; and new delivery mechanisms, including content transmitted only online.

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However, without a hard look at the actors in the system and the incentives facing those actors, these fads will prove the educational equivalent of pouring new wine into old bottles. Instead, policy makers must invest in fixing the system writ large in order to have a discernible impact on teaching and learning.

**Participation Doesn't Mean Results**

From the outside, one might not see the U.S. professional development system as particularly troubled. Nearly every teacher participates in some form of learning every year. Research articles trumpeting the success of a particular method or program appear practically monthly, and practitioner magazines burst with accounts of the phenomenal improvements in teacher knowledge and skills that result.

But buried beneath these often-glowing reports are colder facts. For instance, from the available evidence, teachers apparently have little use for their learning experiences: Most teachers engage in only the minimum professional learning required by their state or district each year. In 1999-2000, the most recent year available, National Center for Education Statistics (NCES) data showed that just over half of respondents to an NCES survey reported spending a day or less in professional development over the past year; only a small minority reported attending four or more days within the past year (2001). This generally low rate of participation closely matches many state's relicensure requirements, typically 15 days over a five-year period (NASDTEC 2004), suggesting that most teachers do the bare minimum required under law.

Furthermore, new and exciting forms of professional development guarantee neither high-quality

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delivery nor substantive effects on teachers, teaching, and learning. Consider lesson study, a Japanese model of site-based, ongoing study of how specific lessons affect student learning. Evidence suggests that lesson study has been widely implemented across the country. In my own recent survey (2008), 51% of middle

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school math teachers reported engaging in lesson study during the prior year. However, as with many educational innovations, lesson study appears to have been quickly subsumed into the standard operating structure of U.S. schools. Although the model calls for an intensive time commitment by teachers, almost 60% of those who participated reported spending eight or fewer hours during the year; only 4% reported engaging in over 80 hours. Perhaps as a result, this model did not predict teachers' gains in math knowledge over the year in question.

Finally, teachers themselves are lukewarm about their professional development experiences. When queried about the impact of the past three years of professional development experiences, less than a quarter, on average, reported that professional development affected their instruction (Horizon 2002). Most teachers, in fact, reported that professional development reinforced their existing practices, and a minority reported no effect at all.

Teachers' observations tend to match those made by academics who study "Wal-Mart"-style teacher learning opportunities. Such studies help shed light on both the system of professional development and teacher reluctance to participate. For instance, though boutique programs aren't immune from problems, my own observations over the past decade suggest that at least in mathematics, the professional development reaching regular teachers through district contracts, regional conferences, and similar means can be quite poor. Despite a number of high-quality programs and sessions, others covered math only superficially, contained mathematical ambiguities and errors, or provided inaccurate information about student learning.

One reason for this variability is the capacity of providers. Although some are highly skilled in the ar-

reas in which they provide training, this isn't universally the case. In 2005, I surveyed individuals providing mathematics professional development to teachers, asking them about their background and prompting them to solve a series of math problems. Most respondents said providing mathematics professional development was not their only responsibility; other responsibilities included teaching, coordinating curriculum for districts, and consulting. Roughly half provided professional development in subjects other than math. Their performance on the math assessment varied; in fact, when compared to a large sample of teachers who took the same assessment, roughly one-sixth of the professional development providers fell below the 50th percentile of the teacher sample.

Even if teachers' learning opportunities are of moderate quality and contain no errors or unproven facts, there is also the problem of transfer. In one recent study, we saw teachers taking lessons or activities from professional development into their classrooms, often to ill effect. In many cases, the activities were imported into classrooms without the mathematics they were meant to represent; in others, the math was present but distorted (Hill 2008).

Finally, too much professional development can actually decrease instructional coherence. District officials have more than once expressed frustration because professional development advice and supplemental materials undermine district-adopted curricula and instructional approaches.

The four points above — quality of the product, capacity of the providers, transfer, and coherence — suggest that we must reexamine our assumption that "ineffective" professional development is benign. While the evidence for this point is anecdotal, the existence of "malignant" professional development would help to explain why, in many studies, teacher attendance at professional development has not been associated with gains in student outcomes.

## **Fixing What's Broken**

Rather than replacing one form of professional development with another, we would be wiser to examine what exists and to make it better. The problem is not that we lack promising programs, formats, or content; it's that they rarely reach the typical teacher in a form that maintains their integrity and effects. Use an economic perspective to consider why this occurs.

First, recognize that continuing teacher education is big business in the United States. Estimates place professional development spending at between 1% and 6% of district expenditures (Hertert 1997;

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Killeen, Monk, and Plecki 2002; Odden et al. 2002; Miles 2003). However, these figures don't consider professional development provided by states or federal spending to support professional learning for teachers. For example, the National Science Foundation and U.S. Department of Education Math-Science Partnerships spent nearly \$1.2 billion (NSF 2007) on mathematics and science learning for pre-service and inservice teachers between the years 2002 and 2007. And these figures are no doubt matched by what teachers spend to fund their own educational experiences.

### **Driving ineffective programs and providers from the marketplace is particularly critical, given the largely local nature of this enterprise and the low barriers to entry.**

Once the professional development system is recognized as a marketplace, tools for imagining improvements start to emerge. Economists often examine markets from four key perspectives: supply, demand, information, and efficiency. All four are useful in delineating the challenges facing efforts to reform continuing teacher education.

The most obviously applicable perspective is **supply**. Here, "supply" means all available professional development opportunities, analogous to the amount of oil on the world market or the number of widgets produced by manufacturers. The problem with the supply side of professional development is that there is an almost infinite supply. Perhaps because face-to-face interactions between providers and teachers are considered paramount, professional development is mostly local. In our 2005 survey, for instance, most professional developers lived in the state in which they provided services, often within 50 miles of the district that referred them to us. Local demand for providers means a large number of small firms (or individuals) enter this business, often without special training or specific expertise. This, in turn, leads to products that are low-quality, offering teachers only quick fixes and, in some worst cases, misinformation. The challenge is how to improve the quality, not the quantity, of what is available.

Think about the **demand** side of the professional

development marketplace. "Demand" means the average consumer's desire for professional development and related programs. Demand has a time component — teachers want or need a certain number of hours — and a content component. On both fronts, teachers face only modest inducements to invest in their own learning. States typically require only two to three days per year and, because of experience with poorly designed learning opportunities, teachers have little appetite for more, or more intellectually challenging, fare. Why spend a day attending a questionable program when that day could be spent correcting papers or planning a unit? These opportunity costs, coupled with a misguided formal incentive structure, mean that demand for high-quality professional development is typically weak.

**Information** about product quality is the glue that holds markets together. It allows consumers to make wise buying decisions and also informs suppliers about a product's sales potential and price. Yet virtually no information exists to help consumers of professional development. Teachers gamble on whether professional development program A or B will improve their ability to connect with students, deliver content, and enhance learning. The same is true for districts, which typically conduct only the barest of evaluations on their smorgasbord of professional development offerings. In this situation, consumers can't make "rational" choices — ones that improve their own practice and their student's outcomes. Nor do effective programs thrive and ineffective programs fade away, another feature of information-rich markets. Driving ineffective programs and providers from the marketplace is particularly critical, given the largely local nature of this enterprise and the low barriers to entry.

**Efficiency** asks whether teachers have access to the professional learning they need. Do teachers who require assistance in teaching early reading enroll in programs specifically designed around these topics? Do teachers who need more mathematical content knowledge appear in mathematics-focused learning opportunities? This is a seldom-investigated question in the United States, for little is known about most teachers' capabilities and knowledge. Yet the evidence that exists is not promising. In my own recent study, teachers whose mathematical knowledge was low were not more likely, over the next year, to enroll in content-focused workshops. This reframes debates about whether teachers or districts should "choose" which program to attend. Rather than debating the merits of teachers versus districts, analysts should note

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that such decisions are rarely made through an analysis of specific teachers' deficits and needs.

## Improving Policies

State and district policy makers can restructure the professional development system in four ways.

**Fix the supply side.** Adopt a medical model. In medicine, the Accreditation Council for Continuing Medical Education (ACCME) developed and maintains a set of standards for continuing medical education. In education, the National Staff Development Council has identified a set of standards for professional development but does not certify or endorse providers. However, in medicine, there are teeth in the regulations that govern the supply of providers. Those teeth come in the form of an accreditation process with attached incentives for practitioners.

First, medical doctors must complete 20 to 40 hours of continuing medical education (CME) each year through an ACCME-accredited organization. Second, ACCME exerts moderate control over who and what can be accredited. For instance, ACCME accredits only specific models of continuing medical education, including live interactions, journal reading, Internet coursework, writing test items for licensure exams, and reviewing for journals. ACCME also holds providers accountable for the content they teach doctors, specifies how it will validate that content, and approves all course material. In particular, the organization requires that all recommendations made by providers must be based on evidence – and further, that the evidence itself be generated through experimental design.

In education, such guidelines would eliminate workshops or related learning opportunities in which the provider “discovers” an idea about content or student learning or “invents” a new way to teach materials, then passes recommendations along to teachers based only on his or her own thinking. Instead, content would have to be grounded in empirical study.

A challenge in education is whether the empirical research base in education is wide enough to sustain such content restrictions and which organizations would step forward to help regulate the quality of learning opportunities. Could those organizations effectively monitor members of their own community? Nevertheless, the need for quality control is urgent, and medicine's experiences provide one model.

**Fix the “demand” side.** Increasing the demand for professional development depends on improving the quality of such experiences; teachers won't attend unless they perceive benefit, and rightly so. However, if

we want teachers to invest in substantial and effective learning opportunities, we must also change teachers' “taste” for learning.

The main strategy is to align professional education incentives, models, and norms with what we wish to see teachers do. Although there is a strong utopian ideal surrounding teacher learning — that every teacher is a “continual learner” striving to better herself for the good of students — the reality is that teachers, like other professionals, respond to the incentives, norms, and models that surround them. This suggests that states and districts reconsider professional development requirements that ask only for a certain number of hours within a certain time span and establish incentives for deeper investment — or even criteria based on student learning.

Policy makers also should explicitly encourage, both in official policy and rhetoric, teacher investment in the programs that we know work, as well as in more general types of professional development thought to improve teaching and learning. Recently, some have argued that content-focused professional development based on classroom practice — including evidence around student learning, the study of curriculum materials, and so forth — is most likely to affect teacher knowledge and performance and student outcomes (Cohen and Hill 2001; Garet et al. 2001; Hill and Ball 2004). Explicitly encouraging investment in these opportunities via policy and education's bully pulpit, so to speak, can help.

**Improve “information” about program quality.** Conduct small-scale but rigorous studies that measure the effectiveness of local and regional professional development programs and suppliers. There would be complications: Suppliers often change the content of their activities according to district specifications; local evaluators lack capacity to engage in rigorous research, often preferring to observe and offer “formative” feedback; providers themselves are often loathe to be evaluated; and studies involving the outcome that matters most — student learning — are difficult to mount. Yet with time and attention, educators can solve all of these problems.

Another avenue is to observe and rate professional development opportunities according to stringent and content-specific guidelines. This would be similar to accreditation, but with a focus on enactment rather than simply materials and plans. Programs focused on improving teachers' mathematical knowledge, for instance, would have to display dense and accurate mathematics, opportunities for teachers to delve deeply into mathematical ideas and perform de-

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manding mathematical work, and opportunities for practice and refinement of key mathematical tasks of teaching. One can imagine similar criteria for other subjects.

Whatever occurs, publicize the results. Little is gained from collecting information for only bureaucratic purposes. Instead, put the information, in digestible form, into the hands of those making choices about ongoing learning opportunities.

## **We should abandon professional development that exists only to fulfill state licensure requirements.**

*Improve efficiency.* Perhaps the most difficult problem will be ensuring that continuing teacher education is suited to and suitable for the educators it serves. Ironically, the U.S. education system has a long history of differentiated instruction — placing students in courses or tracks according to perceived talent and prior achievement. But, teacher learning opportunities are typically generic, one size fits all. Selection into these opportunities occurs almost randomly; a highly expert writing teacher is as likely to attend a writing workshop as an unskilled teacher in this arena. This means professional development dollars, in particular, may not be used as efficiently or effectively as they could be.

Professional development will be more effective and more efficient if we link specific teachers' weaknesses with the learning opportunities most likely to remedy those weaknesses. For instance, teachers scoring below a cutoff in math knowledge would be required to attend math-focused coursework. Or, teachers who fail over several years to perfect classroom management routines would be paired with others who are expert in this arena. This entails a much more nuanced and intrusive system of teacher evaluation than we now have.

One possibility, now under consideration in Massachusetts (2008), is to test all math teachers in low-performing schools on their mathematical knowledge. My own research shows that teachers' math knowledge correlates highly with what we call the "mathematical quality of instruction" — or the presence/absence of math errors, the richness of the math presented to students, and teachers' ability to work with student math productions and errors (Hill et al. in press). Teachers' math knowledge also predicts gains in student achieve-

ment (Hill, Rowan, and Ball 2005). Using math knowledge as a proxy for problematic instruction and student gains, then, the state would identify teachers in need and require a remediation plan, developed in consultation with the building principal or math coach. While this approach hasn't been implemented, it provides one possible model for improving the efficiency of the system, matching need to resources.

## **If You Don't Fix It, Scrap It**

Professional development *has* led to improvements in teachers' knowledge, instruction, and student outcomes. Both a body of research studies and anecdotal evidence suggest such effects. But the question is this: In the wider system, are improvements in teaching and learning worth the expense, in terms both of dollars and teachers' time? Currently, there is no way to answer this question. We can't estimate what percentage of professional development is worthwhile, in terms of return on investment, or whether those learning opportunities would continue to occur in the absence of formal requirements to participate in professional development.

Nonetheless, here's some advice for the states, districts, and providers who jointly govern the professional development system: *If you don't fix it, scrap it.* We should abandon professional development that exists only to fulfill state licensure requirements. Funders, whether from government or foundations, should support only proven and highly promising programs.

Fixing it would mean moving to a system charac-

terized by improvements in many of the elements described above: high-quality suppliers; teacher “demand” for challenging, relevant, and lengthy opportunities to learn; efficient matching of teacher needs to resources and programs; and lots of information to help calibrate market forces. Continuing the economic theme, we might see a transition from a largely locally driven market to what economists call an oligopoly, in which a few providers dominate the market because of their proven quality and effects. To work, such programs would have to be nationally scalable, accessible, and affordable to all districts. Several programs, such as Marilyn Burns’ Math Solutions, PBS TeacherLine, and LessonLab’s modules, seem headed in this direction and offer models from which to work. Should they be proven effective and become widely adopted, they could revolutionize professional development in the United States.

Finally, getting to such a system will not be easy. It would require major overhauls of nearly every element that supports the current system, from how districts and teachers identify and buy professional development to program evaluation to renegotiation of union contracts, which govern teacher work commitments and effort. This work would require partnerships on the part of key components of the system, including districts, professional organizations, higher education institutions, and providers themselves. But, unless this work is done, we must consider whether the return on investment is appropriate given demands on schools and teachers today. If not, it’s time to invest precious resources elsewhere. **K**

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