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A Cost Framework for Professional Development

BY ALLAN ODDEN, SARAH ARCHIBALD, MARK FERMANICH AND
H. ALIX GALLAGHER

In the context of today's standards-based education reforms, where the goal is for students to achieve to high performance standards, effective professional development is critical. In order for students to learn more, teachers must change what and how they teach. Though typical professional development has had little impact on teacher practice or student performance¹ effective professional development is considered by most a critical strategy for accomplishing today's ambitious student achievement goals.²

Research is beginning to link the key features of professional development programs that change teacher practice and in turn boost

1. Thomas Guskey, "Staff Development and the Process of Change," *Educational Researcher* 15, no. 6 (1986): 5-11; Judith Warren Little, "Teachers' Professional Development in a Climate of Education Reform," *Educational Evaluation and Policy Analysis* 15, no. 2 (1993): 129-151.

2. Thomas Corcoran, *Transforming Professional Development for Teachers: A Guide for State Policymakers* (Washington, DC: National Governors Association, 1995); Mark Smylie, "From Bureaucratic Control to Building Human Capital: The Importance of Teacher Learning in Education Reform," *Educational Researcher* 25, no. 9 (1996): 9-11; Dennis Sparks and Stephanie Hirsh, *A National Plan for Improving Professional Development* (Oxford, OH: Author, 1999); James Stigler and James Hiebert, *The Teaching Gap: Best Ideas from the World's Teachers for Improving Education in the Classroom* (New York: Free Press, 1999).

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student achievement scores.³ But while there is a growing consensus among researchers about the features of effective professional development,⁴ this knowledge is only slowly entering district and school practices. For these reasons, many districts still provide numerous, unfocused and ineffective professional development programs that are not aligned with goals for student learning.⁵ This proliferation of professional development costs money. Since districts and schools have limited resources, these expenditures diminish their ability to deploy more effective professional development strategies, which research is beginning to show require significant expenditures over a sustained time period. Even when reform-minded district and school leaders want to deploy effective professional development strategies, they rarely know how much the programs cost.

This paper begins to address this lack of knowledge about the costs of various types of professional development. While its main purpose is to develop a methodology for organizing the costs of professional development programs into an analytical framework, the authors also believe it is necessary to have a common language for discussing various professional development programs. For that reason, section one begins with a definition of professional development. For the purposes of this paper we have taken a comprehensive perspective on professional development that includes some strategies that are more commonly known as instructional improvement, such as providing a full time on-site instructional facilitator at each school site. Next, we review a small portion of the literature on what constitutes effective professional development, from which we draw six programmatic elements that effec-

3. (e.g., David Cohen and Heather Hill, "Instructional Policy and Classroom Performance: The Mathematics Reform in California," *Teachers College Record* 102, no. 2 (2000): 294-343; Michael Garet, Beatrice Birman, Andrew Porter, Laura Desimone and Rebecca Herman, *Designing Effective Professional Development: Lessons from the Eisenhower Program* (Washington, DC: United States Department of Education, 1999); Jonathan Supovitz, Daniel P. Mayer and Jane B. Kahle, "Promoting Inquiry Based Instructional Practice: The Longitudinal Impact of Professional Development in the Context of Systemic Reform," *Educational Policy* 14, no. 3 (2000): 331-356.

4. (e.g., Beatrice F. Birman, Laura Desimone, Andrew C. Porter and Michael S. Garet, "Designing Professional Development That Works," *Educational Leadership* 57, no. 8 (2000): 28-33; Dennis Sparks and Stephanie Hirsh, *A National Plan* (1999); Jonathan Supovitz and Herbert M. Turner, "The Effects of Professional Development on Science Teaching Practices and Classroom Culture," *Journal of Research in Science Teaching* 37, no. 9 (2000): 963-980.

5. Thomas Guskey, "Staff Development" (1986); Karen Hawley Miles, Francis Bouchard, Kendra Winner, Mary Ann Cohen and Ellen Guiney, *Professional Development Spending in the Boston Public Schools, A Joint Report of the Boston Plan for Excellence and the Boston Public Schools* (Boston: Boston Plan for Excellence, 1999).

tive professional development strategies have in common. Although it is not the primary goal of this paper to identify what constitutes effective professional development, we believe it is useful to have some notion of the key elements to guide a discussion of the costs of professional development programs. A common set of carefully defined terms that describe professional development facilitates a discussion in which it is easy to differentiate one program and its costs from another. In previous research, this has been difficult because neither a defined set of terms nor a common framework for identifying costs was used.

Having defined a common set of programmatic elements for discussing professional development in section one, section two establishes the need for a common framework for assessing the costs of professional development programs. It begins with a review of the literature on professional development expenditures and costs which reveals that current financial reporting structures do not facilitate identification of professional development expenditures and also reveals that the studies on costs used a number of different methods to determine costs. Because of these issues, section two concludes that there is not much known about what professional development costs and that a framework is needed to help guide future research so that expenditure and cost figures can be more comparable. Section three provides one such framework that can be used to structure future analysis of the costs of professional development programs.

DEFINING PROFESSIONAL DEVELOPMENT AND ITS KEY ELEMENTS

To ensure that we include the most important aspects of effective professional development, we first define the term and then reference several recent studies to identify its key elements. Effective professional development is defined as professional development that produces change in teachers' classroom-based instructional practice, which can be linked to improvements in student learning. The practices and principles researchers and professional development organizations use to characterize "high quality" or "effective" professional development⁶ draw upon a series of em-

6. Susan Loucks-Horsley, Peter Hewson, Nancy Love and Katherine Stiles, *Designing Professional Development for Teachers of Science and Mathematics* (Thousand Oaks, CA: Corwin Press, 1998); National Partnership for Excellence and Accountability in Teaching (NPEAT), *NPEAT Principles for Effective Professional Development* (College Park, MD: Author, 1998); Dennis Sparks and Susan Loucks-Horsley, "Five Models of Staff Development for Teachers," *Journal of Staff Development* 10, no. 4 (1989): 40-57; Katherine Stiles, Susan Loucks-Horsley and Peter Hewson, *Principles of Effective Professional Development for Mathematics and Science Teachers*, *NISE Brief, Volume 1* (Madison, WI: National Institute for Science Education, 1996).

pirical research studies that linked program strategies to changes in teachers' instructional practice and subsequent increases in student achievement. These studies include, among others, the long-term efforts of Bruce Joyce,⁷ research on the change process,⁸ a longitudinal analysis of efforts to improve mathematics in California,⁹ research on change and improvement of the science curriculum;¹⁰ Elmore's¹¹ study of District #2 in New York City; the Consortium for Policy Research in Education's¹² longitudinal study of sustained professional development provided by the Merck Institute for Science Education; studies of comprehensive professional development to improve science teaching and learning;¹³ and an evaluation of the federal Eisenhower mathematics and science professional development program.¹⁴

These studies identified six structural features of effective professional development:

- 1) The form of the activity – that is, whether the activity is organized as a study group, teacher network, mentoring collaborative, committee or curriculum development group. Research suggests that effective professional development should be school-

7. Bruce Joyce and Beverly Showers, *Student Achievement Through Staff Development* (White Plains, NY: Longman Press, 1988); Bruce Joyce and Emily Calhoun, ed. *Learning Experiences in School Renewal: An Exploration of Five Successful Programs* (Eugene, OR: ERIC Clearinghouse on Educational Management, 1996).

8. Michael Fullan, *The New Meaning of Educational Change* (New York: Teachers College Press, 2001); Gene E. Hall and Shirley M. Hord, *Implementing Change: Patterns, Principles and Pitfalls* (Boston: Allyn & Bacon, 2000).

9. David Cohen and Heather Hill, *State Policy and Classroom Performance: Mathematics Reform in California* (Philadelphia: University of Pennsylvania, Graduate School of Education, Consortium for Policy Research in Education, 1998); David Cohen and Heather Hill, "Instructional Policy" (2000).

10. Susan Loucks-Horsley, Peter Hewson, Nancy Love and Katherine Stiles, *Designing Professional Development* (1998).

11. Richard Elmore and Deanna Burney, "Investing in Teacher Learning: Staff Development and Instructional Improvement," in *Teaching as the Learning Profession: Handbook of Policy and Practice*, ed. Linda Darling-Hammond and Gary Sykes (San Francisco: Jossey-Bass, 1999).

12. Consortium for Policy Research in Education, *Deepening the Work: A Report of the Sixth Year of the Merck Institute for Science Education, 1998-99* (Philadelphia: University of Pennsylvania, Graduate School of Education, Consortium for Policy Research in Education, 2000).

13. Jonathan Supovitz, Daniel P. Mayer and Jane B. Kahle, "Promoting Inquiry" (2000); Jonathan Supovitz and Herbert M. Turner, "The Effects of Professional Development" (2000).

14. Michael Garet, Beatrice Birman, Andrew Porter, Laura Desimone and Rebecca Herman, *Designing Effective Professional Development* (1999).

- based and job-embedded rather than a one-day workshop.
- 2) The duration of the activity, including the total number of contact hours that participants are expected to spend in the activity, as well as the span of time over which the activity takes place. Research has shown the importance of continuous, ongoing, long-term professional development that totals a substantial number of hours each year.
 - 3) The degree to which the activity emphasizes the collective participation of groups of teachers from the same school, department, or grade level. Research suggests that effective professional development should be organized around groups of teachers from a school that over time includes the entire faculty.
 - 4) The degree to which the activity has a content focus – that is, the degree to which the activity is focused on improving and deepening teachers’ content knowledge as well as how students learn that content. Research concludes that teachers need to know well the content they teach, need to know common student miscues or problems students typically have learning that content, and effective instructional strategies linking the two.¹⁵
 - 5) The extent to which the activity offers opportunities for active learning, such as opportunities for teachers to become engaged in the meaningful analysis of teaching and learning; for example, by scoring student work or developing and “perfecting” a standards-based curriculum unit. Research has shown that professional development is most effective when it includes opportunities for teachers to work directly on incorporating the new techniques into their instructional practice.
 - 6) The degree to which the activity promotes coherence in teachers’ professional development, by aligning professional development to other key parts of the education system such as student content and performance standards, teacher evaluation, school and district goals, and the development of a professional community. Research supports tying professional development to a comprehensive, inter-related change process focused on improving student learning.

Form, duration and active learning together imply that effective professional development includes some initial learning as well as considerable longer-term work in which teachers incor-

15. John Bransford, Ann Brown and Rodney Cocking, *How People Learn* (Washington, DC: National Academy Press, 1999); Mary Kennedy, “Form and Substance in Inservice Teacher Education,” (research monograph no. 13, National Institute for Science Education, University of Wisconsin-Madison, 1998).

porate the new methodologies into their actual classroom practice. Active learning implies some degree of coaching. It should be clear that the longer the duration, and the more the coaching, the more time is required of teachers as well as professional development trainers and coaches. Content focus means that effective professional development focuses largely on subject matter knowledge, what is known about how students learn that subject, and related curriculum strategies. Collective participation implies that the best professional development includes groups of teachers from a school, who then work together to implement the new strategies, and in the process, help build a professional school community. Coherence suggests that the professional development is more effective when the signals from the policy environment (federal, state, district and school) reinforce rather than contradict one another or send multiple, confusing messages. Coherence also implies that professional development opportunities should be given as part of implementation of new curriculum and instructional approaches.

Each of these six structural features has cost implications. Form, duration, collective participation and active learning require various amounts of both teacher and trainer/coach/mentor time, during the regular school day and year and, depending on the specific strategies, outside of the regular day and year as well. This time costs money. Further, all professional development strategies require some amount of administration, materials and supplies, and miscellaneous financial support for travel and fees. Both the above programmatic features and the specifics of their cost implications are helpful to comprehensively describe specific professional development programs and their related costs. Our cost framework provides a method of organizing that information in terms of six cost elements. But before presenting our cost framework, the next section reviews some of the existing studies of professional development expenditures, highlighting the need for a more specific cost framework to guide the identification of the costs of all the features of various professional development programs.

PREVIOUS RESEARCH ON PROFESSIONAL DEVELOPMENT COSTS

Most research has sought to identify district professional development expenditures. To be technical, professional development costs would include all costs – whether paid for by the school or district or not – that comprise a professional development strategy that produces an impact on student learning. Some studies have sought a more comprehensive picture of costs that includes un-

compensated teacher time,¹⁶ but most have simply tried to identify what districts or schools actually spend for professional development. For a number of reasons, even this has been problematic. For example, in one district, researchers learned that the reported budget for professional development was \$460,000. Following a detailed study, however, those researchers, Miles and Hornbeck,¹⁷ found that the district actually spent \$8.9 million on professional development – about a twenty-fold difference. Similarly, a 1981 study of three urban districts found that actual professional development spending exceeded the districts' own estimates by a factor of 50.¹⁸ Correcting such misunderstandings is important if the country's extant and new investments in professional development are to payoff in improved instruction and higher levels of student achievement.

Previous research on professional development expenditures suffered from three major problems, all of which limited the ability of the research to speak authoritatively about the fiscal side of professional development. These problems were:

- Using data from school district budgets and fiscal accounting records, which produced crude and inaccurate cost estimates because current accounting codes do not allow for accurate tracking of professional development expenditures.
- Using different frameworks for capturing professional development expenditures, which made fiscal estimates widely different and not comparable.
- Collecting data from only the district level, which underestimates professional development expenditures as many schools augment – sometimes substantially – professional development opportunities provided by districts.

A discussion of each of the problems with existing research on professional development expenditures follows.

16. J. W. Little, W. H. Gerritz, D. S. Stern, James W. Guthrie, M. W. Kirst, and D. D. Marsh, "Staff Development in California: Public and Personal Investments, Program Patterns, and Policy Choices," (Berkeley and San Francisco, CA: Far West Laboratory for Educational Research and Development and Policy Analysis for California Education, 1987).

17. Karen Hawley Miles and Matthew Hornbeck, "Rethinking District Professional Development Spending to Support a District Comprehensive School Reform Strategy." 10: New American Schools Strategy Brief, Resource Reallocation, Issue #3, (2000).

18. Thomas B. Corcoran, "Helping Teachers Teach Well: Transforming Professional Development (Rb-16)," (New Brunswick, NJ: Consortium for Policy Research in Education, Rutgers University, 1995).

PROBLEMS WITH CURRENT FISCAL ACCOUNTING CODES

A primary reason for the difficulty in tracking spending for professional development is the weakness of state and district financial reporting systems.¹⁹ State education agencies and local school districts almost universally use cost accounting models for reporting revenues and expenditures.²⁰ These models, generally mandated by state and/or federal administrators, are used to support program reporting and compliance functions. Current fiscal accounting codes track expenditures by object (salary, benefits, equipment, materials), function (administration, instruction, instructional support), and/or education program (regular education, special education, bilingual education, etc.). Though standardized, these expenditure categories are broad and rarely allow good identification of the subcategory of professional development.

Studies that have used national, standardized school district expenditure databases to conduct analyses of professional development spending are frequently stymied by the system's limitations. Expenditures for professional development are often lumped together with other unrelated spending in a broadly construed expenditure category such as instructional support, an expenditure category used by Killen, Monk, and Plecki.²¹ Unfortunately, this category includes curriculum development, instructional supervision, computer technologies and other multi-media, and often library costs in addition to professional development. Further, large quantities of professional development are also ignored in reporting expenditures for special education or compensatory education, both of which often have significant training components. Moreover, because there is no common definition of professional development or method to determine its costs, even when districts attempt to track its expenditures, under-reporting can occur if more recent variations of professional development such as mentoring or coaching are excluded in the professional development expenditure total. Thus large inconsistencies are represented in national fiscal data bases because individuals in the states and districts producing the numbers are each making their own decisions about how to categorize, label

19. Linda Hertert, "Investing in Teacher Professional Development: A Look at Sixteen School Districts," (Denver, Co: Education Commission of the States, 1997); Thomas B. Corcoran, "Helping Teachers Teach Well" (1995); J. G. Chambers, (1999) "Measuring Resources in Education: From Accounting to the Resource Allocation Model Approach" (Report Working Paper No. 1999-16).

20. J. G. Chambers, "Measuring Resources in Education" (1999).

21. K. M. Killen, D. H. Monk, and M.L. Plecki, "School District Spending on Professional Development: Insights Available from National Data," *Journal of Education Finance* 28 (2002): 25-50.

and track professional development expenditures.²²

Another study that encountered these fiscal accounting system shortcomings was Hertert's²³ multi-district analysis. Hertert's goal was to use district budget data to estimate state and district professional development expenditures, evaluate the connections between spending and improvements in student performances, and suggest ways of reallocating resources to the most effective types of professional development. She initially approached 60 districts to participate, but only 16 kept the data necessary for even a basic cost estimate. Of those, none were able to furnish information that would allow her to address the second and third questions in her study.

Hertert was able to analyze professional development spending across six categories of activities: the central district professional development office; district provided conferences and workshops; non-district provided conferences and workshops; in-service training days built into the normal school year; university/college coursework and sabbaticals; and temporary assignments. None of these categories were captured by a typical expenditure object, function or program. Further, these categories excluded nearly all site-provided professional development, as well as many other professional development opportunities provided outside the central professional development office (such as "program support" activities from the Title I or special education offices). Nevertheless, the analysis showed significant professional development spending, ranging from 1.7 percent to 7.6 percent of net operating expenditures.

Although Hertert did not calculate professional development expenditures on a per teacher basis, she did construct an estimate of \$3,385 (or \$3,825 in 2000 dollars) per teacher. She calculated this estimate by taking the percent of net operating expenditures that districts spent on professional development and calculated that it was approximately 6.8 percent of teachers' salaries. She then used a hypothetical teacher who earned an average salary (plus benefits) of \$50,000, which allowed her to arrive at the \$3,385 estimate. Though the estimate cannot be directly compared with other per-teacher estimates, her study is important in showing how categories of professional development spending are not neatly captured in traditional fiscal accounting categories.

In conjunction with Killeen, Monk and Plecki's²⁴ work, these studies show why it is difficult to estimate professional development spending by using data collected in current fiscal accounting systems.

22. *Ibid.*

23. Linda Hertert, "Investing in Teacher Professional Development" (1997).

24. K. M. Killeen, D. H. Monk, and M.L. Plecki, "School District Spending" (2002).

DIFFERENT FRAMEWORKS FOR CAPTURING PROFESSIONAL DEVELOPMENT COSTS

Recognizing the futility of using numbers in fiscal accounting systems, several other studies have tried to capture professional development expenditures by conducting detailed analyses of district-wide professional development activities, the ingredients for the activities, and the costs of each ingredient. For example, Little et al.²⁵ used interviews, surveys and state documents to analyze California's professional development spending in terms of school, district, regional, and state expenditures for participants' time and for the cost of providing the professional development activity. This landmark study analyzed both the quality of professional development and all professional development expenditures, including personal spending by teachers on professional development. The study found that, on average, professional development expenditures equaled approximately 5 percent of the total classroom costs – \$4,600 per teacher (\$6,973 in 2000 dollars).

Little et al.'s estimates, however, included two items that are normally not included in such studies: uncompensated teacher time (worth an estimated 60 cents for every direct dollar spent by the school system on professional development) and lane salary²⁶ increases resulting from credits earned through professional development activities (estimated as 61 percent of total staff development costs). Combined, these two items dramatically increased estimated professional development expenditures, but the figure, though comprehensive, is not a particularly useful number. Since the bulk of total costs is uncompensated teacher time, the figure does not represent an actual district expenditure per se; it could represent what it should be, but not what it was. Since another significant portion is expenditures for teacher salaries, the figure overstates what would need to be in a *professional development* budget. With the present value of semester credits and uncompensated teacher time excluded from the analysis, Little et. al. found that professional development accounted for around 1.4 percent of total classroom expenditures – \$1,360 per teacher or \$2,062 in 2000 dollars.

Corcoran²⁷ describes a 1981 study by Moore and Hyde that also included salary lane increases in their costs, but analyzed only three urban districts, found that professional development spend-

25. J. W. Little, W. H. Gerritz, D. S. Stern, James W. Guthrie, M. W. Kirst, and D. D. Marsh, "Staff Development in California" (1987).

26. Lane refers to the part of a teacher's salary that goes up in proportion to the number of additional educational credits the teacher obtains.

27. Thomas B. Corcoran, "Helping Teachers Teach Well" (1995)

ing ranged from 3.3 percent to 5.7 percent of total budget, or \$1,000 to \$1,767 (\$1,894 to \$3,347 in 2000 dollars).

Another classic study of professional development costs by Miller, Lord and Dorney²⁸ produced quite different estimates. This study used district-level, principal, and teacher interviews to build an in-depth understanding of professional development activities and their costs. They identified professional development spending in six categories: baseline (district staff development office); district and school-level staff development salary; materials, services, travel, consultants, and miscellaneous; substitutes; externally funded programs; and personal contributions.

Though reasonable, it should be noted that these categories are different from those used by Little et al.²⁹ And while they include personal contributions on the part of teachers, that category is not defined the same as “uncompensated teacher time” in the Little et al. study. Further, the Miller et al.³⁰ study does not include any amount of salary increases that derived from salary lane movements. Last, Miller et al. estimated that 15 percent of all principals’ time was for professional development, but did not explain very clearly how they determined that time estimate.

Their findings, shown in Figure 1, while interesting in themselves also reveal very compelling differences from the Little et al.³¹ study. They are less than the Little et al. figures including uncompensated time and salary increases, but greater when these two items are excluded.

FIGURE 1
MILLER, LORD AND DORNEY’S³² ESTIMATES OF PROFESSIONAL DEVELOPMENT COSTS

District	Cost per Regular Classroom Teacher	Cost as a Percentage of Operating Budget
Large	\$3,529	2.30%
Large	\$1,755	1.80%
Medium	\$2,706	2.00%
Small	\$3,528	2.80%

28. Barbara Miller, Brian Lord, and Judith Dorney, “Staff Development for Teachers: A Study of Configurations and Costs in Four Districts,” (Newton: Education Development Center, 1994).

29. J. W. Little, W. H. Gerritz, D. S. Stern, James W. Guthrie, M. W. Kirst, and D. D. Marsh, “Staff Development in California” (1987).

30. Barbara Miller, Brian Lord, and Judith Dorney, “Staff Development for Teachers: A Study of Configurations and Costs in Four Districts,” (Newton: Education Development Center, 1994).

31. J. W. Little, W. H. Gerritz, D. S. Stern, James W. Guthrie, M. W. Kirst, and D. D. Marsh, “Staff Development in California” (1987).

32. Barbara Miller, Brian Lord, and Judith Dorney, “Staff Development for Teachers “ (1994).

A detailed study³³ of the sophisticated, multi-faceted, and effective professional development strategy deployed in New York City Community District 2 found that the district spent about three percent of the total operating budget, about \$1,300 per teacher, on professional development each year over a three year period from 1994 to 1996. Their estimate did not include either salary increases caused by lane movements or any uncompensated teacher costs, either for time or for materials. Interestingly, the study showed that while the largest portion of professional development expenditures in the first year of the program was on teacher time, the largest portion in the subsequent years of the program was for trainers and consultants.

Several recent studies of professional development expenditures by Karen Hawley Miles and colleagues³⁴ support the need to establish a common framework of professional development activities and costs in order to gain a clearer understanding of the fiscal aspect of effective professional development. In a study of Boston's professional development spending, Miles et al.³⁵ interviewed directors of all relevant central office programs (curriculum, instruction, professional development, compensatory education, special education, etc.) to identify all professional development activities, whether shown in the district budget or not, and coded the data by focus (e.g. mathematics, science, leadership), form (e.g., workshop, coaching), object of expenditure (e.g. salary, stipend), and source (federal, state, local, private). In total, they found that the district spent over \$23 million per year (\$4,894 per teacher and principal) on professional development, or 3.8 percent of the total operating budget. Both of these figures are high relative to the Little et al.³⁶ and Miller et al.³⁷ studies, a surprise because they do not include expenditures for either salary lane movements or for uncompensated teacher time.

33. Richard Elmore and Deanna Burney, "Investing in Teacher Learning" (1997).

34. Karen Hawley Miles, Francine Bouchard, Kendra Winner, Mary Ann Cohen, and Ellen Guiney, "Professional Development Spending" (1999); Karen Hawley Miles and Matthew Hornbeck, "Rethinking District Professional Development Spending" (2000).

35. Karen Hawley Miles, Francine Bouchard, Kendra Winner, Mary Ann Cohen, and Ellen Guiney, "Professional Development Spending in the Boston" (1999).

36. J. W. Little, W. H. Gerritz, D. S. Stern, James W. Guthrie, M. W. Kirst, and D. D. Marsh, "Staff Development in California" (1997).

37. Barbara Miller, Brian Lord, and Judith Dorney, "Staff Development for Teachers" (1994).

In subsequent work, Miles and Hornbeck³⁸ used the same methodology to identify professional development expenditures in four urban districts. They found that the districts spent between 2.4 percent and 4.3 percent of their operating budgets on professional development, not including the cost of contracted in-service training days. When these expenditures were included, the range was 2.4 percent-5.9 percent of the operating budgets, or from \$2,010-\$6,628 per teacher. However, the district spending was frequently fragmented across many departments and many topics, generally unrelated to the core content areas, and thus not focused on the districts' highest priority areas. Finally, district spending differed by strategy. While some districts invested heavily in workshops or subsidizing university course-taking, others spent a higher proportion on stipends for teachers to take on responsibilities outside of traditional teaching.

LACK OF SCHOOL-LEVEL ANALYSIS

Further, none of the aforementioned studies systematically traced professional development expenditures to the school level. In districts that have decentralized school funding and school decision-making (and even in those that do not), the school can enhance or reduce district provided professional development. For example, schools that have adopted comprehensive school designs often spend from their own sources between \$50,000 and \$70,000 for design-specific training provided by the school design team.³⁹ On the other hand, schools can take funds for professional development for some areas, such as technology, and simply purchase more technology and ignore the training. Only an analysis of school level decision-making would reveal these budgetary decisions.

SUMMARY OF PREVIOUS RESEARCH

Though the studies shed some needed light on professional development expenditures, the pictures presented are still quite incomplete and inconsistent because of three inter-related issues. Definitions of professional development varied among the studies, which meant that some studies included elements that others excluded. For example, some studies included indirect professional development costs such as related salary increases (because of lane shifts) and uncompensated teacher time while others did not. Not surpris-

38. Karen Hawley Miles and Matthew Hornbeck, "Rethinking District Professional Development Spending" (2000).

39. Allan Odden and Sarah Archibald, *Reallocating Resources: How to Boost Student Achievement Without Asking for More* (Thousand Oaks, CA: Corwin Press, 2001).

ingly, including those items dramatically increased total costs. Some studies included planning and preparation time, while others did not. Again, the differences led to large differences in cost estimates. Also, no common set of terms was used so the studies did not capture the costs of a similar set of professional development activities. If the studies had all identified the costs of the six key elements of professional development outlined in section one, they would have produced more comparable cost specifics about the professional development programs analyzed.

The contributions of each of the studies cited above would have been significantly enhanced if they had used a common framework and methodology for capturing professional development expenditures. This would have allowed differences and similarities to be systematically sorted out. The next section of the paper outlines a framework that can be used to guide future research on professional development expenditures and costs.

A FRAMEWORK FOR CAPTURING PROFESSIONAL DEVELOPMENT COSTS

As the last section showed, a framework is necessary for systematically assessing the costs of various professional development programs. To meet this need, we have created a framework that includes six cost elements: 1) teacher time, 2) training and coaching, 3) administration, 4) materials, equipment and facilities, 5) travel and transportation, and 6) tuition and conference fees.⁴⁰ Table 1 depicts this framework.

This cost structure provides a way to identify, calculate and analyze the professional development resources that districts and schools make available to teachers at a given school site. Below, each element of the cost structure is explained in more detail. Where possible, the terms and key elements from

section one are used as a way of linking the six descriptive elements of effective professional development and the six cost elements. Both form and duration have clear time implications; workshops require less time than 2-3 week summer institutes, and the longer the duration, the more teacher time is required. Further, the greater the collective participation, the more combined teacher time is required. Teacher time, and trainers and coaches comprise the largest component of professional development costs.

40. We collaborated with Jennifer King Rice on this cost framework, although hers includes two additional elements that we chose to exclude: 1) research and development; and 2) future salary obligations. See her paper for more information: "Cost Framework for Teacher Preparation and Professional Development," (Washington, D.C.: The Finance Project, 2001).

TABLE 1
A COST STRUCTURE FOR PROFESSIONAL DEVELOPMENT

Cost Element	Ingredient	How Cost is Calculated
Teacher Time Used for Professional Development	<i>Time within the regular contract:</i>	
	-when students are not present before or after school or on scheduled in-service days, half days or early release days	teachers' hourly salary times the number of student free hours used for pd
	-planning time	the cost of the portion of the salary of the person used to cover the teachers' class during planning time used for pd
	<i>Time Outside the regular day/year:</i>	
Training and Coaching	-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
	<i>Training</i>	
	-salaries for district trainers	sum of trainer salaries
Administration of Professional Development	-outside consultants who provide training; may be part of CSRD	consultant fees or comprehensive school design contract fees
	<i>Coaching</i>	
	-salaries for district coaches including on-site facilitators	sum of coach and facilitator salaries
	-outside consultants who provide coaching; may be part of CSRD	consultant fees or comprehensive school design contract fees
Materials, Equipment and Facilities Used for Professional Development	Salaries for district or school level administrators of professional development programs	salary for administrators times the proportion of their time spent administering pd programs
	Materials	materials for pd, including the cost of classroom materials required for CSRDs
	Equipment	equipment needed for pd activities
Travel and Transportation for Professional Development	Facilities	rental or other costs for facilities used for professional development
	Travel	Costs of travel to off-site pd activities
	Transportation	Costs of transportation within the district for professional development
Tuition and Conference Fees	Tuition	Tuition payments or reimbursement for university-based pd

TEACHER TIME

There are several types of expenditures that schools and districts can have when paying for time for teachers to engage in professional development. Expenditures for teacher time can be separated into two broad categories: time that is within the teacher contract and time outside of the contract. Although explained in more detail later, it is important to note that not all of the costs discussed here will be additional costs in all schools or districts. We include these costs in order to estimate exactly how much time and money might be required under each cost element to account for the complete costs of professional development programs in place in district and school programs.

Teacher time within the teacher contract. Time within the regular teacher contract used for professional development can be further divided into two categories: student-free teacher time when no students are present in school, such as time before and after school as well as in-service days; and student-free time when students are present in school, usually provided by another teacher or staff member, which most frequently consists of planning time used for professional development.

Calculating the cost of student-free time (when no students are present) within the regular teacher contract used for professional development is ideally done at the school level by asking principals when teachers have regularly scheduled student-free time that is used for collective participation in professional development and active learning. This includes meeting with other teachers to improve the instructional program, working with a coach, or engaging in other professional development activities.

The following example shows the cost of a hypothetical school's use of student-free time within the regular contract for professional development. The hypothetical school for this example employs 20 teachers with an average teacher salary (including benefits) of \$54,000, a 180 day/36 week contract year, and a 6 hour contract day. At this school, the teachers' daily salary is \$300 and their hourly salary is \$50.

If all teachers engage in one hour of professional development meetings per week before or after school, the cost can be determined by multiplying the number of teachers by the number of hours they spend on professional development each week, by their hourly wage, by the number of weeks in the contract year. This expenditure at our hypothetical school would be 20 teachers \times 1 hour per week \times \$50 \times 36 weeks in a contract year = \$36,000.

Some school districts regularly schedule early release days, half days or in-service days as part of the regular teacher contract. Early

release days are often used to encourage collective participation in various professional development activities that take place at the school site, which are often ongoing. In-service days, on the other hand, are often used for activities of shorter duration, in the form of a district-wide one or two-day workshop. The expenditures for this student-free time would be added to this estimate to determine the total expenditure on professional development during student-free teacher time.

Continuing the above example, if the contract also includes two district-wide in-service days, one of which is used for professional development, the cost of that day for the school would be obtained by multiplying the number of teachers times their daily salary times the number of in-service days used for professional development. This expenditure at our hypothetical school would be 20 teachers \times \$300 per day \times 1 in-service day per year, or \$6,000. Combined, this school would spend \$42,000 (\$36,000 for time before or after school + \$6,000 for the in-service day) on teacher time for professional development when students are not present over the course of the school year.

Schools and districts can also provide teachers with planning time or duty-free lunch during the school day. Although expenditures to provide teachers with planning time are frequently part of the negotiated contract, and some of this time is used for personal needs, preparation, and other duties, some schools create schedules that provide common planning time. Common planning time is then often used for collective participation in professional development activities like discussions about curriculum that focus on specific content or working with coaches on implementing new teaching practices. Through interviews it is possible to verify the portion of planning time that is used for professional development at a given school.

During planning time, the teachers' classes are covered by other "specialist" staff members. The cost of this time element is ideally calculated at the school level by multiplying the number of hours of specialist teachers, such as art, music, or other special teachers' time that is used to free teachers for professional development each week, by the hourly wage of those providing the student-free time, by the number of weeks in a year.

Continuing from the earlier example, if all teachers use one hour per week of planning time provided by music, art or other similar teachers (with an hourly salary of \$50) for professional development, the school's expenditure for this type of teacher time would be 20 hours of special teachers' time per week \times \$50 per hour \times 36 weeks in the contract year = \$36,000. If a school de-

cided to reallocate resources so that two regular classes were combined for music (or other similar instruction), the cost would be 10 hours of special teachers' time per week \times \$50 per hour \times 36 weeks in the contract year = \$18,000; this reflects potential cost savings of doubling the class size for these non-core areas, thereby requiring only half the specialist teachers' time to provide time for professional development.

Clearly the cost of student-free time *within the regular contract* is not an additional expenditure for schools and districts that are already paying teachers for some of the time they spend in school engaged in professional development – whether before or after school or during planning time. However, this cost is important to note because districts across the country have taken different approaches to how many hours of time they include in the teachers' contract. A district that pays for a significant amount of student-free time before or after school and/or provides in-service days and/or provides substantial planning time within the teacher contract might not need to rely as heavily on some of the other categories of expenditures for teacher time, such as stipends or substitutes, which are described in the next section. Thus understanding the cost of student-free time within the contract day used for professional development is necessary to compare costs across different professional development strategies.

For example, we have found districts that have a seven-hour contract day for teachers, only six hours of which is used for instruction. These districts already pay for an hour a day that could be used for professional development. On the other hand, we have studied districts that provide only a six-hour contract day, all used for instruction. These districts need to pay stipends or hire substitutes in order for their teachers to have time for professional development.

Teacher time outside of the teacher contract. Sometimes schools need to create teacher time for professional development outside of the contract. One common way of doing this is to pay for substitutes to cover teachers' classes during the regular school day so teachers can attend professional development activities. The expenditure is calculated based on the substitutes' wages. At the school level, it would be calculated by summing the amount spent on substitutes who released teachers for professional development. Another frequently used strategy is to pay teachers stipends for participating in a professional development activity outside the teachers' contract day or year. An example of this would be a \$1,000 stipend (e.g., \$100 a day for 10 days) to attend a two-week summer institute. The expenditure here is calculated by summing all of

the teachers' stipends for professional development over the school year.

Uncompensated Teacher Time

It has been well documented that teachers spend time on professional development for which they are not compensated. Although some (see for example, Little et al.⁴¹ have tried to estimate the cost of this strategy, uncompensated teacher time carries no expenditures for schools or districts and is not part of our analysis.

Time and Costs

It should be clear that the *form, duration and collective participation* characteristics of a professional development strategy each has significant time and therefore cost implications. In terms of *form*, one-day workshops would be lower cost than two-week summer institutes where the teachers are paid for their time. The longer the overall *duration*, i.e., the more time that is involved in professional development, the higher the costs. And research shows that effective professional development generally requires more than 100 hours of professional development a year. Further, variation in duration is largely determined by whether a professional development strategy has ongoing opportunities for *active learning with coaching*; those that do are much more effective, but it should be clear that they also have higher costs.

TRAINING AND COACHING

This category can be divided into two subcategories, which represent the form of professional development provided. The first category, training, refers to teachers sitting and getting training of any length, from one-day workshops to three-week summer institutes; the second, coaching, refers to opportunities for active learning that are often ongoing in nature and assist teachers in active learning. Within these categories, the cost is either in the form of salaries for trainers and/or coaches, or the contract cost of consultants used to provide training and/or coaching.

Training. Training covers much of traditional professional development, including district and school expenditures to provide or contract out professional development activities in the form of workshops, summer institutes or other district-sponsored professional development classes. Many comprehensive school designs include annual contracts for design-based technical assistance and train-

41. J. W. Little, W. H. Gerritz, D. S. Stern, James W. Guthrie, M. W. Kirst, and D. D. Marsh, "Staff Development in California" (1987).

ing. Training can be funded by both district and site budgetary sources.

Coaching. Coaching captures the sort of professional development that is often of a longer duration and provided by a mentor or coach who increasingly works at the school site. We include school-site instructional facilitators and district coaches here as well as stipends for teachers who assume additional roles involving training others to improve instructional performance. While we acknowledge that all of these positions may include some time on administration, it is difficult and often impossible to accurately parse this time out and so we include the total expenditure under coaching. Expenditures are calculated based on coaches', mentors' or instructional facilitators' salaries or stipends.

ADMINISTRATION

This cost element includes any identifiable and substantial cost to the district or school for administering its professional development programs. This cost element includes full-time district positions in charge of administering professional development. We also estimate a percentage of other positions when staff members spend at least 20 percent of their time (approximately one day per week) administering professional development.

MATERIALS, EQUIPMENT AND FACILITIES

This cost element covers expenditures for materials and facilities necessary for all forms of professional development. This includes the cost of any classroom materials required for implementation of a comprehensive school design as well as equipment costs for professional development workshops.

TRAVEL AND TRANSPORTATION

This includes the costs of teachers or other staff members to attend off-site professional development activities. This could include travel costs to annual meetings of professional associations, annual meetings of those involved in comprehensive school designs, or for the weekly travel to cross-school and cross-district professional development network activities. It does not include the travel costs that a district might provide for a consultant presenting a workshop at a school site. Such costs are included as part of the cost of hiring the consultant and so are considered a part of the training and coaching cost element.

TUITION AND CONFERENCE FEES

This includes tuition reimbursement for university courses that qualify as professional development and conference fees for all conferences related to professional development. Many comprehensive

school designs have conferences where participants have opportunities for active learning as well an opportunity to deepen content knowledge; those conference fees are included in this category.

TOTAL PROFESSIONAL DEVELOPMENT COSTS

In order to determine the total costs of all professional development activities at either the school or district level, one would need to calculate the costs for each of the above six cost categories, and then sum each to determine the total costs. Total expenditures in each of the six cost categories could differentiate the cost structure of different professional development strategies, even if total costs were the same. For example, as noted above, the District 2 strategy spent more on teacher's time in the first year and more on trainers and coaches in subsequent years, but the overall annual costs were about the same.

Cost implications of the six key elements. In addition, using the terms from the six key elements of effective professional development can help make the differences clear. Again, the more comprehensive the form (summer workshop with follow-through coaching versus a one-shot workshop), the longer the duration (one day versus multiple days or weeks), and the greater the collective participation (all teachers rather than just some volunteer teachers), the higher the cost – and, incidentally, the more effective the program. On the other hand, there is no clear cost implication for the content focus of a professional development program; all programs have some content. The most effective focus is on subject-specific content and related instructional strategies.

Total hours. Finally, in addition to cost, it is also useful to attach where possible a time variable – number of hours – to the total costs of the professional development program. In this way, the analysis can relate the total costs of the program to the total time required by the program; again, programs of longer duration are generally both much more effective and higher cost.

SUMMARY

The cost elements described in this section are the pieces of information that, if used systematically by researchers, could, over time, help identify and quantify the costs and cost structures of effective professional development programs. This would allow for greater comparison across different studies.

One final example will help make this point. In a recent study,

42. Fred M. Newmann, M. Bruce King, Peter Youngs, "Professional Development that Addresses School Capacity: Lessons from Urban Elementary Schools," *American Journal of Education* 108, no. 2 (2000): 259-299.

Newmann, King and Youngs⁴² estimated that an effective professional development strategy that accompanies implementation of the Success for All comprehensive school design cost only \$1,300 per teacher, a figure they stated was much lower than other professional development cost figures that have been calculated for that program.⁴³ But they excluded such costs as use of planning time for professional development and a full-time instructional facilitator as these elements were “already in the budget” or could be funded via resource reallocation. But no matter how they are paid for, such elements are not only important for an effective professional development strategy, but are high cost elements and must be included in any valid estimates of the actual costs of such strategies. To be sure, the funds for these elements might already be in some school or district budgets and can be funded via resource reallocation. But they are part of the overall costs and it is misleading not to include them; use of the cost framework would ensure that such costs are included. When included, the Newmann, King and Youngs cost estimates would increase from \$1,300 to about \$3,500 a teacher, i.e., rise by an additional 170 percent.

CONCLUSION

Almost everyone involved in the standards-based education reform movement agrees that providing effective professional development is crucial to changing what and how teachers teach and students learn. As identified in section one, research is now beginning to identify somewhat confidently the key features of effective professional development. However, fewer researchers have studied the costs of professional development.

Estimating the costs of professional development programs is difficult. Specific information about both the key programmatic elements and the costs of each element are needed in order to determine a more precise cost figure for the program at a given district or site. This kind of information has rarely been provided by extant research, in part because it has been difficult to collect. This is also true because all districts – and schools – include different program elements as part of their cost estimates, and because there is no standard set of budget items used to calculate professional development costs. Especially now that job-embedded professional de-

43. Allan Odden and Carolyn Busch, *Financing Schools for High Performance: Strategies for Improving the Use of Educational Resources* (San Francisco, CA: Jossey-Bass Publishers, 1998); Allan Odden, “New and Better Forms of Teacher Compensation are Possible,” *Phi Delta Kappan*, 81 no. 5 (2000): 361-366.

velopment activities – which often occur during regular teacher planning periods – are becoming more prevalent, it is increasingly difficult to estimate the costs of professional development in a given district or school. Therefore, a common framework with distinct, well-defined cost elements is needed, as well as interviews to obtain resource use particulars and programmatic characteristics about professional development that cannot be culled from the general fiscal records or budget documents.

This paper presents a cost-framework that enables researchers to systematically categorize professional development costs in terms of six key cost elements: 1) teacher time; 2) training and coaching; 3) administration; 4) materials, equipment and facilities; 5) travel and transportation; and 6) university tuition and conference fees.

These cost elements provide a meaningful level of detail on how money is spent for professional development at the district and school. As explained in section two, the usefulness of this sort of framework for making comparisons across studies becomes most apparent when analyzing the studies by Miller, Lord and Dorney,⁴⁴ Miles, et. al.⁴⁵ and Miles and Hornbeck.⁴⁶ Since these studies used different definitions of professional development and their costs, it is difficult to draw conclusions across the studies about the typical level of professional development spending; had each study used the cost framework in this article, comparisons would have been facilitated. Further, the cost framework should be used to analyze programmatic and expenditure data at both the district and school level to ensure that the full range of professional development programs and their related expenditures are captured.

Finally, we should note that we have often used “expenditures” and “costs” as interchangeable terms, but in fact they are not. Expenditures refer to what is spent, and calculating expenditures has been the primary goal of most fiscal studies of professional development. Costs, however, are incurred to produce a certain outcome, such as a certain level of increased student performance. These costs include infrastructure, inputs of production, and opportunities foregone to pursue the specific outcome. Our cost framework is particularly useful for capturing all of these costs, except oppor-

44. Barbara Miller, Brian Lord, and Judith Dorney, “Staff Development for Teachers” (1994).

45. Karen Hawley Miles, Francine Bouchard, Kendra Winner, Mary Ann Cohen, and Ellen Guiney, “Professional Development Spending in the Boston Public Schools” (1999)

46. Karen Hawley Miles and Matthew Hornbeck, “Rethinking District Professional Development Spending” (2000).

tunity costs.

As fiscal research on professional development moves forward, we hope studies use the proposed cost framework to identify the full scope of professional development spending that already is occurring. As should be clear from the research that has been done, many districts and schools already spend large amounts of money on professional development. At some point research also needs to identify professional development costs – what are the full costs of various professional development strategies that produce various impacts on increased student learning. It is only when we have that kind of information that we can begin to focus professional development spending on those programs that provide the improved student outcomes that are the goal of standards-based education reform. With such information, schools and districts can make better-informed decisions about professional development in both program and spending.