

Do Changes in Patterns of Participation in Teachers' Professional Development Reflect the Goals of Standards-based Reform?

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The Importance of Professional Development

Teachers' professional development is a cornerstone of the standards-based reform and accountability movement that currently dominates the K-12 policy landscape. The central elements of standards-based reform—high academic standards, curriculum frameworks, and new-assessment approaches aligned to those standards—generate new expectations for teachers' classroom behaviors, as well as for student performance.¹ Specifically, standards-based reform requires teachers to implement content standards designed to provide an increased emphasis on higher-order content and more demanding thinking skills (e.g., conjecture versus memorization) for their students.

The success of standards-based reform depends on teachers' ability to foster basic knowledge, advanced thinking, and problem solving among their students, and these abilities require a deep understanding of content.² Although teachers generally support high standards for teaching and learning, many are not prepared to implement teaching practices based on the integration of high academic standards.³ Many teachers use a "traditional" model of teaching and learning that focuses heavily on memorization, without also emphasizing a deeper understanding of subject knowledge.⁴ Shifting to a more balanced approach to teaching, which places more emphasis on understanding subject matter, means that teachers must develop a detailed understanding of the subjects they teach and the processes students use to learn these subjects.

Professional development is considered an essential mechanism for deepening teachers' content knowledge and developing their teaching practices. Thus, the lasting success of standards-based reform initiatives hinges in large part on

the qualifications and effectiveness of teachers. Consequently, teacher professional development is a major focus of current systemic-reform initiatives.⁵ Given the importance of professional development in standards-based reform, we sought to determine whether changes in the patterns of participation in teachers' professional development actually reflect the goals of standards-based reform. Specifically, we used data from the 1993-94 and 1999-2000 Schools and Staffing Survey (SASS) to examine three major questions:

- 1) Are teachers participating in higher-quality professional development?
- 2) Are there more policy supports for teachers' participation in professional development?
- 3) Has professional development become targeted more to teachers most in need, according to school poverty and achievement, subject taught, and years of experience?

The following analysis of our results focuses only on public school teachers, including teachers in charter schools. Below we discuss each of the three main questions that drive the analysis and explain how we used the variables collected in the SASS to create the constructs. We then present and discuss the results of our analysis.

Are Teachers Participating in Higher-Quality Professional Development? Defining Quality. The quality of professional development plays a critical role in increasing teachers' knowledge and skills and in changing existing teaching practices.⁶ Further, quality can be measured along

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several dimensions, such as the form of the activity (e.g., workshop or network); its duration; who participates (e.g., teachers from the same school or grade); whether the activity includes active learning; a focus on subject-matter content; and whether it is linked to other activities.⁷

We would like to be able to examine trends in each of these qualities, but the SASS data do not allow it.⁸ Several other sources of national data measure several dimensions of quality, but these data were collected at only one point in time, so they cannot be used to examine change over time. The SASS data, however, provide information on three important aspects of quality—content focus, duration, and usefulness.

Content focus. Content focus stands out as one of the critical features of professional development.⁹ In particular, professional development focused both on using student assessments in instruction and on planning and using technology in instruction is important in the current standards-based reform environment.¹⁰

The SASS allowed us to compare teachers' participation in professional development in several aspects of content. Specifically, we examined change in teachers' participation in 1) subject-matter content, 2) student assessment, 3) methods of teaching, 4) uses of educational technology for instruction, and 5) student discipline and management.¹¹

Duration. Several recent studies suggest that the duration of professional development is related to the depth of teacher change.¹² Opportunities for teachers to participate in professional development sustained over time, rather than "one-shot" workshops that last only a few hours, have been linked to higher levels of student achievement.¹³

The SASS data do not indicate the time span over which the professional development occurred (e.g., one week or one month), but they do include measures of how many hours the activities in a particular content area lasted. Response categories are 8 hours or less; 9–16 hours; 17–32 hours; and 33 hours or more. For this analysis, we have defined "sustained" professional development as 9 hours or more.

Usefulness. The goals of professional development are to increase teachers' knowledge and skills and to improve their classroom practices. Several recent studies link features of the quality of professional development to teacher change.¹⁴ To measure the usefulness of professional development, we would ideally want to track teachers'

instructional behavior over time. This would allow us to examine how much teachers' instruction changed due to participation in professional development. Although the SASS does not provide this capability, the survey does ask teachers how useful they found activities in a particular content area, on a five-point scale from "not useful at all" to "very useful." We use this measure as a proxy of how effective the activities were in improving teaching practice.

Are There More Policy Supports for Teachers' Participation in Professional Development? Defining Supports. Professional development is an essential mechanism for bringing standards-based reform to the classroom. A key policy mechanism of state and district accountability systems is assisting schools and individual teachers who use state standards in classroom practice.¹⁵ Although states have requirements for continuing-education and in-service professional-development hours, the actual content of the activities is usually the teachers' choice.¹⁶ Thus, states and districts must help teachers seek out the professional development that relates directly to standards-based reform initiatives.

One type of policy support for professional development is the extent of the incentives states, districts, or schools provide for teachers to participate in professional development. The SASS provides data on whether teachers received: 1) release time from teaching; 2) a stipend; 3) reimbursement of college tuition; 4) a reimbursement for conference or workshop fees; or 5) reimbursement for travel or daily expenses. We examine how much such supports have increased during the six-year period from 1993–94 to 1999–2000.

Has Professional Development Become More Targeted to Those Teachers Most in Need, According to School Poverty or Achievement, Subject Taught, and Years of Experience? Defining Targeting.

School Poverty or Achievement. Teachers of low-achieving students and high-poverty students are more likely than other teachers to have little teaching experience; work at schools with fewer resources; have larger classes; confront behavior, safety, and other non-academic issues; face students who are more challenging to teach than more advantaged students; and teach subjects for which they are not certified.¹⁷ Such factors help teachers from high-poverty schools the most in professional development, but sometimes such

teachers have fewer opportunities to participate in certain types of professional development than do teachers in more-advantaged schools.¹⁸

Standards-based reform efforts attempt to address this problem by establishing an incentive structure that focuses resources on schools with low-performing students.¹⁹ In addition, major federal and state redistributive programs (e.g., Title I) are designed to provide high-poverty schools with additional resources; consequently, studies have shown, high-poverty districts possess more capacity than other districts to provide high-quality professional development.²⁰ Further, the capacity of districts with larger populations of teachers and students to provide high-quality professional development is greater because economies of scale at the district level allow large districts to hire additional specialized staff (e.g., a curriculum coordinator and a professional development coordinator).²¹

By allowing us to compare patterns of teachers' participation in professional development according to the poverty level of the students who attend the school, the SASS enables us to examine how equitably professional development is distributed between teachers in high- and low-poverty schools.²²

Subject. The current standards-based reform environment emphasizes reading/language arts and mathematics over other subjects, such as science and social studies. For example, there are stronger policy levers in mathematics than science, partly because of the activities of the National Council for Teachers of Mathematics and partly because accountability testing invariably focuses on mathematics, not science. We wanted to find out if the emphasis on accountability testing in reading/language arts and mathematics has increased participation in professional development in reading/language arts and mathematics compared to other subject areas. In this analysis, we examine whether patterns of participation differ according to the teacher's main subject area.

Years of experience. Teachers have different professional-development needs depending on their years of experience. Although the demands of standards-based reform require new learning for teachers of all experience levels, novice teachers have unique additional needs. Providing new teachers with the professional development and support they need is critical for a reform agenda focused on recruiting, preparing, licensing, and developing the nation's teaching force.²³

In this accountability environment, many policymakers see strong induction programs as an issue of fairness—that is, teachers held accountable the first year on the job should be provided with the tools and training necessary to meet the standards. Whether the professional development of new teachers should focus on process, methods, and classroom management or on content is under debate.²⁴ Certification and re-certification needs also influence the trajectory and pattern of teachers' participation in professional development.

In order to analyze patterns in types of professional development that correspond with the differing needs of novice versus veteran teachers, we have examined the patterns of participation in professional development according to years of teaching experience. We have also analyzed these patterns based on the demands of certification and re-certification, which occur at different points in teachers' careers.

Are Teachers Participating in Higher-Quality Professional Development? Results.

Duration and Content. We compared rates of participation in professional development according to the quality features of duration and content focus. As illustrated in Figure 1 (next page), we found that public school teachers' participation in professional development appears to have increased substantially between 1993–94 and 1999–2000. We say “appears to have” because the wording on professional-development questions changed between the two SASS administrations; increases in both participation and in reported hours of participation may be related to those changes.²⁵ Nevertheless, rates of participation calculated from the 1999–2000 SASS are substantially higher than rates from 1993–94, with greater increases in some content areas than in others. For example, for professional development that focused on in-depth study of the content in teachers' main assignment field, reported participation rates increased twice as much as those in methods of teaching. Teachers are thus apparently taking more content-focused professional development (“content-focused” indicating a focus on subject-matter content, as opposed to methods, technology, student assessment, or discipline and management). In spring 1994, 70 percent of teachers reported taking no content-focused professional development since the end of the previous year, and 35 percent reported taking no professional development focused on

methods of teaching. By spring 2000, the percentage of teachers reporting no participation in the previous twelve months had fallen to 41 percent for content-focused professional development and to 27 percent for methods-focused professional development. The proportion taking "sustained" content-focused professional development (defined as nine or more hours) increased correspondingly—from 12 percent to 48 percent between 1993-94 and 1999-2000. Similarly, the proportion of teachers taking sustained methods-focused professional development increased from 27 percent to 43 percent.²⁶

Public school teachers were also less likely to report no participation and more likely to report sustained participation in professional development related to student assessment and the instructional use of computers. The percentage of public school teachers reporting participation in college- or university-level courses was similar in 1993-94 and 1999-2000 (both at about 25 percent). It is thus likely that most of this new professional development is offered either through school-district or school-sponsored workshops or through in-service programs.

Usefulness. In addition to duration and content focus, teacher reports of how useful they consider their professional development are another valuable measure of quality. We could not examine trends on this dimension of professional development because the relevant questions changed considerably between the 1993-94 and 1999-2000

SASS administrations. Instead, we have compared the usefulness ratings across content areas. As shown in Figure 2, we found that most public school teachers define the professional development in which they participate as useful. For example, while only 18 percent of public school teachers in 1999-2000 found all their professional development from the previous year "very useful" (a rating of 5 on a five-point scale ranging from "not useful at all" to "very useful"), 59 percent rate their professional development nearly as high (a rating of 4 or more). Teachers who participated in content-focused professional development were the most likely to find it useful (with 32 percent rating it a 5 and 72 percent rating it a 4 or a 5). Teachers who participated in methods-focused professional development or activities related to using computers for instruction rated such activities less useful than did the participants in content-focused professional development, although six of ten teachers still rated them positively. These findings are displayed in Figure 2. The percentage of public school teachers rating the usefulness of professional development in each content area a 3, 4, or 5 is portrayed in the first bar; the percentage rating the usefulness a 4 or 5 is portrayed in the second bar; and the percentage rating it a 5 is portrayed in the third bar.

Based on these results, the SASS data indicate that teachers have increased their participation in professional development in all areas, but the greatest increase is in content-focused profession-

Figure 1

Percentage of teachers who reported participating in more than 9 hours of professional-development activities in different content areas in the previous year

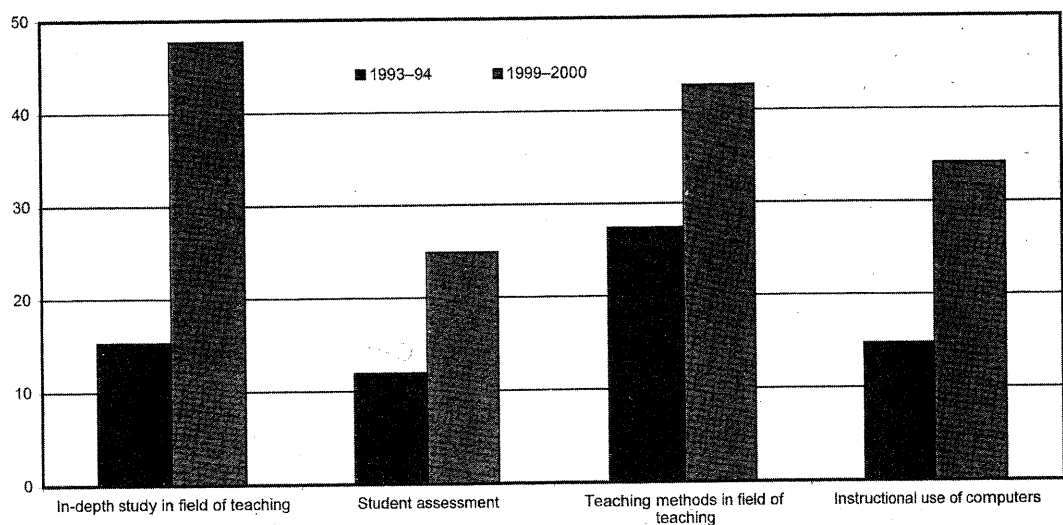
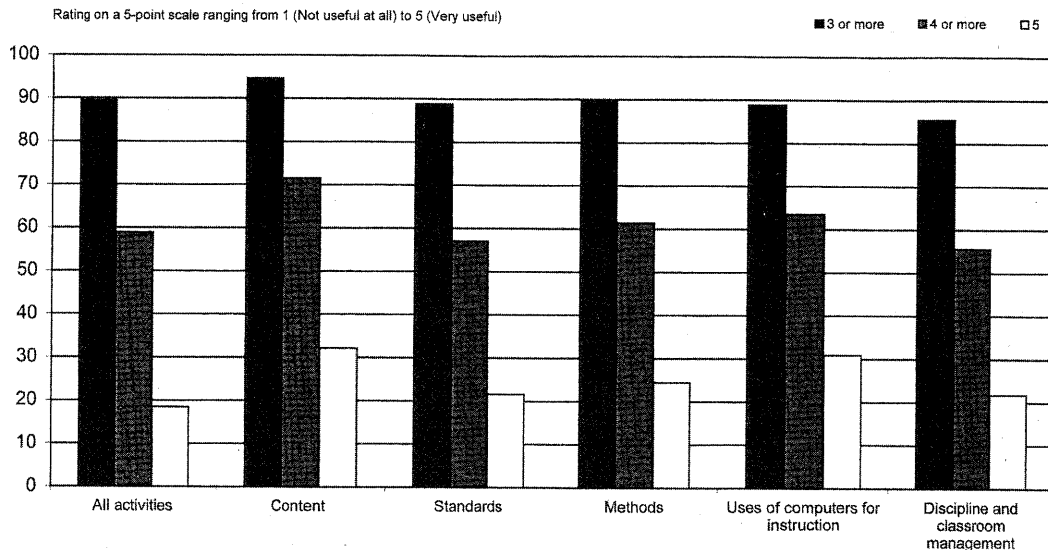


Figure 2

Percentage of professional-development participants who found the activities useful, by type of activity and rating of usefulness: 1999-2000



al development. This finding is consistent with the push of standards-based reform to increase teachers' knowledge and skills in more advanced content. Similarly, given the reform emphasis on student assessments and integrating technology into instruction, the data confirm increased participation in professional development related to student assessment and technology use. The results suggest that teachers are participating in more high-quality professional development than they did six years ago. The analysis of usefulness indicates that, consistent with previous research findings, professional development is most effective when content focused and least effective when focused on process issues such as discipline and classroom management. Unfortunately, the SASS does not allow us to examine the question of quality in professional development more comprehensively. For example, questions unrelated to either the teaching methods used in each activity (e.g., active learning) or the duration of particular activities were included in the 2000 questionnaire.

Are There More Policy Supports for Teachers' Participation in Professional Development? Results. Between 1993-94 and 1999-2000, support for participation in professional development appears to have increased. As with participation rates, we say "appears to have" because several questions were rephrased in the 1999-2000 survey. For example, the 1993-94 survey asked teachers in the spring term about sup-

port received during the "current school year"; the 1999-2000 item asked them about support received in the "previous twelve months." In 2000, 84 percent of public school teachers reported either receiving release time from teaching or having time scheduled in the contract year for professional development; 53 percent said that they were reimbursed for college tuition, conference fees, or workshop fees; and 34 percent said that they were reimbursed for travel or daily expenses. In contrast, only 70 percent of teachers reported receiving release time or scheduled time for professional development in 1993-94; 22 percent reported receiving tuition or fees; and 22 percent reported receiving travel or per diem expenses. Furthermore, the percentage of teachers reporting that they received each form of support (release time, scheduled time, tuition or fee reimbursement, and reimbursement of travel expenses) increased from 5 percent in 1993-94 to 17 percent in 1999-2000; the percentage reporting that they received three or more (of four) of these supports increased from 17 percent to 40 percent; and the percentage reporting that they received two or more supports increased from 38 percent to 67 percent. Correspondingly, the percentage of teachers reporting that they received none of these three supports for their participation in professional development fell from 34 percent to 9 percent over this six-year period.

We found substantial increases in the number of teachers who received different types of supports for their participation in professional development. From these data, we conclude that states, districts, and schools are providing increased supports and incentives for teachers' participation in professional development. Cost and time are two key factors that constrain teachers' ability to take advantage of learning opportunities, and these noticeable improvements in teachers' release time, as well as financial support, indicate that policies have evolved to deal with these constraints.

We know, however, that in an era of accountability, resources and time still constrain teachers' efforts to build their knowledge and skills. It is encouraging that the policy environment seems to have responded, but efforts should continue in this area.

Has Professional Development Become More Targeted to Those Teachers Most in Need, According to School Poverty, Subject Taught, and Years of Experience? Results.

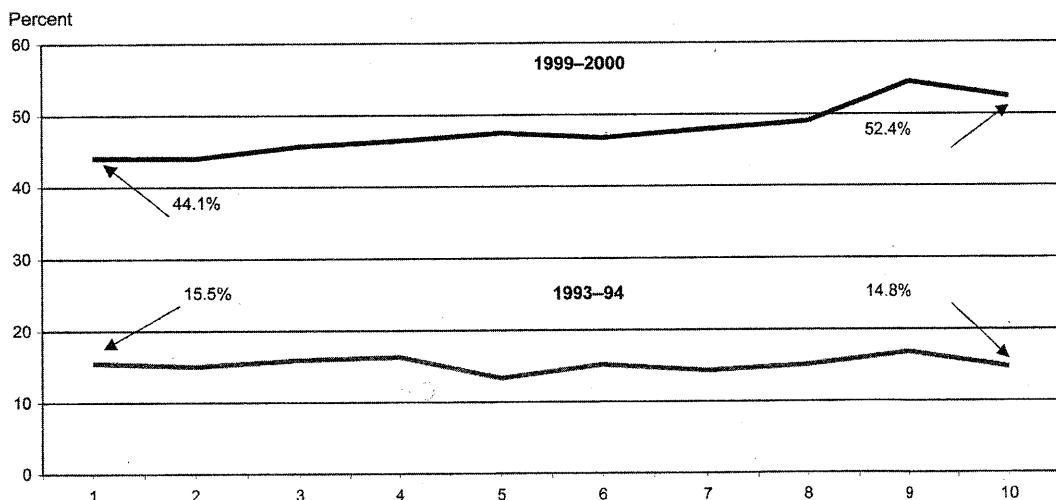
School poverty. The SASS data indicate that teachers' participation rates in professional development increased for both poor and wealthy schools between 1993-94 and 1999-2000, although the rates of participation rose faster for teachers in poor schools in both content-related and student-assessment-related professional development. For example, in 1994 similar percentages

of teachers in very poor and very wealthy schools reported no participation in content-related and student-assessment-related professional development—69 percent of teachers in the poorest 10 percent of schools (based on free-lunch participation) and 71 percent of teachers in the wealthiest 10 percent of schools (based on free-lunch participation). The percentage of teachers participating in sustained content-focused professional development was about 15 percent in both types of schools (see Figure 3). By 2000, the percentage of teachers in the wealthiest schools reporting no participation in content-focused professional development fell to 44 percent, and only 35 percent of teachers in very poor schools reported no content-focused participation in professional development. Correspondingly, the percentage of teachers in very poor schools reporting sustained participation in content-focused professional development rose to 52 percent; 44 percent of teachers in the wealthiest schools reported sustained, content-focused participation in professional development (see Figure 3).

By 1999-2000, teachers in poorer schools were more likely than teachers in wealthier schools to report sustained professional-development participation in content, methods, and student assessment. Results differed, however, regarding professional development related to using computers for instruction. Teachers in poorer

Figure 3

Percentage of teachers reporting sustained participation in content-related professional development (9 or more hours) in the previous year, by school poverty level



Percentage of students approved to receive free or reduced prices in the teacher's school (in deciles, e.g., 1 = 10% of schools have a lower free-lunch participation rate; 10 = 90% of schools have lower participation rate)

schools were more likely than teachers in wealthier schools to report no participation in this content area in 1999–2000 and less likely to report sustained participation in such activities. Correspondingly, the use of educational technology for instruction is a topic area that teachers in very poor schools rank as a lesser emphasis than do teachers in wealthier schools. Teachers' ratings of the usefulness of various activities in professional development were similar across poor and wealthy schools, with one exception: teachers in very poor schools were more likely to find professional development focused on content and performance standards useful (a rating of 4 or higher) than were their counterparts in very wealthy schools (62 percent and 56 percent, respectively).

Although "time" for professional development was equitably distributed across poor and wealthy schools in 1999–2000, teachers in wealthier schools tended to receive tuition reimbursement for their participation; teachers in poorer schools tended to receive stipends and reimbursement for expenses. For example, 44 percent of teachers in very poor schools and 61 percent of teachers in very wealthy schools reported that they were reimbursed for either college tuition or conference and workshop fees. Nineteen percent of teachers in very wealthy schools reported receiving only reimbursement for college tuition, compared to 11 percent in poor schools. In contrast, teachers in very poor schools were more likely to receive stipends for participation in professional development that took place outside regular work hours (52 percent) than were teachers in very wealthy schools (37 percent). This disparity is not due to differences in university-course participation: teachers in poor and wealthy schools are equally likely to participate in university courses for re-certification or advanced certification in their main teaching fields (between 29 and 33 percent); take other university courses in their main assignment fields (between 20 and 26 percent); participate in individual or collaborative research on topics of interest to them professionally (between 43 and 51 percent); and attend workshops, conferences, or training (between 94 and 96 percent).

The quality of professional development, defined by content-focus and duration, was comparable for high- and low-poverty schools, although teachers in high-poverty schools participated in sustained, content-focused professional development at an increased rate. This finding

reflects the increased targeting of teachers in high-need schools in the late 1990s. Standards-based reform was conceived in part to encourage schools to concentrate resources on at-risk students, and these data suggest that such efforts have in part been successful. The question remains, however, given the extent and complexity of challenges faced by teachers in high-poverty schools, whether the relative participation in professional development increases significantly. Large-scale surveys of teachers such as the SASS do not allow us to answer this question.

Many teachers are not prepared to implement teaching practices based on the integration of high academic standards.

The differing types of reimbursements provided to teachers in high-poverty and in low-poverty schools open another area of inquiry. Both types of teachers are equally likely to attend college courses. We conjecture that this difference might be explained by variations in funding requirements and systems in wealthy versus poor schools. High-poverty schools often utilize Title I and other federal funding to support professional-development initiatives, which might not be readily spent on college or university courses. Wealthier schools are likely to draw from local and state tax revenues to support participation in professional development, which may allow more flexibility in mechanisms of support. That said, if the result is equal levels of participation in forms of professional development, the funding mechanism may not matter—a result consistent with the finding that teachers in both poor and wealthy schools appear to hold their professional development in equally high regard.

Subject area. Trend analysis of the SASS indicates that participation in professional development increased for teachers in all teaching fields between 1993–94 and 1999–2000. In 1999–2000, more general elementary teachers took sustained content-focused professional development (57 percent) than did teachers in other fields; science and social studies teachers took the least amount of sustained content-focused professional development, 36 and 35 percent, respectively (data not shown). Participation in sustained, content-focused professional development over this period increased most rapidly among math teachers.

Professional development increased for all teachers between 1993-94 and 1999-2000, but more so for elementary and mathematics teachers than for other teachers. This trend is consistent with the policy environment; in most states, "high-stakes" testing occurs in fourth grade, so there is an added accountability for elementary school teachers. Additionally, the standards-based reform movement targets mathematics and reading/language arts, so we would expect mathematics teachers to increase their professional development more than science, social studies, and other teachers. We were surprised to find no increase in reading/language arts professional development, relative to other subjects. The absence of such an increase could be due to several factors, including the possibilities that 1) much elementary school professional development already focuses on reading/language arts and 2) recent assessments in reading/language arts focus more on writing and comprehension, which might not fall into the categories used on the SASS.

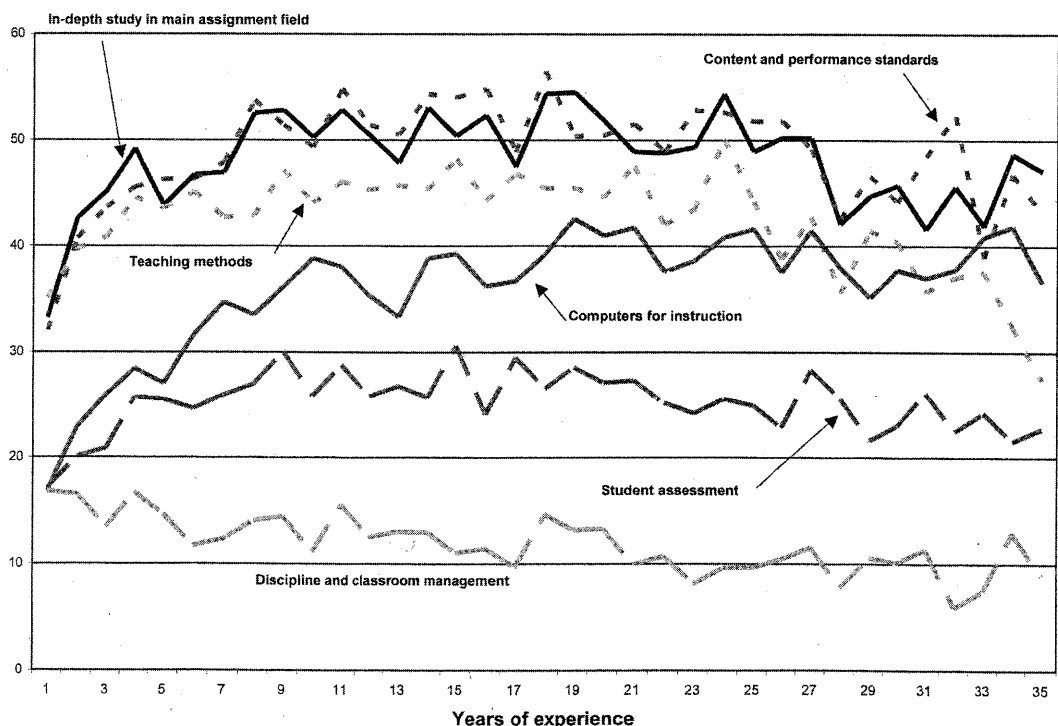
Years of experience. In most content areas, teachers' participation in professional development increases for the first eight years or so of teaching, levels off, and then declines after about

twenty-five years. For example, only about one-third of first-year teachers in 1999-2000 took sustained content-focused professional development, compared to about half the teachers with eight to twenty-seven years experience and 40 to 45 percent of the most experienced teachers (see Figure 4). Patterns are similar for sustained participation in content and performance standards and methods-focused professional development, although participation in the latter increases less with experience and then drops off more after year 25. The percentage of public school teachers reporting sustained professional development in the instructional use of computers and student assessment also rises substantially in the early years of teaching, although participation rates among more experienced teachers tend to be more stable in these content areas. Sustained participation in discipline and classroom management, however, declines with experience.

The correlation of content-focused professional-development participation and years of experience—increasing, leveling off, then decreasing—is consistent with two perceptions of new teachers: 1) that their pre-service preparation met their needs or 2) that incentives and requirements

Figure 4

Percentage of teachers who participated in sustained (9 or more hours) of professional development in the previous 12 months: 1999-2000



for earning professional growth credits, for either re-certification or movement along the salary schedule, do not begin until teachers accumulate more experience. Further, novice teachers tend to take sustained content-focused professional development at different rates than do their senior counterparts and to take more professional development focused on discipline and management early in their careers. These trends might indicate a tension between novice teachers' need to focus on methods and management and process issues rather than content. The fairly high and stable rates of participation in professional development focused on technology and student assessment, even for experienced teachers, perhaps reflects the perceived need among many experienced teachers to learn about new technologies and recently implemented state-level assessments.

These results support two conclusions: that novice and veteran teachers have different professional-development needs and that different forces in the policy system create incentives for teachers depending on their experience. However, these data cannot tell us whether teachers are obtaining the professional development that they need at the right stage in their careers. For example, if new teachers continue to select activities focused on methods and management rather than on content, will they be prepared to respond to state-level content and performance standards?

Conclusions

Although changes in the professional-development survey questions between the 1993-94 and 1999-2000 SASS preclude sweeping conclusions about the magnitude of change in professional-development participation in the 1990s, we believe that there is sufficient evidence to conclude that emerging patterns of participation in professional development, forms of support for that participation, and teachers' feedback on the value of that participation all reflect the push of standards-based reform. More teachers are taking professional development focused on subject-matter content, more policy supports have been made available to provide incentives and opportunities for teachers to participate in activities, and more resources to support professional development have been targeted to high-poverty schools. Furthermore, mathematics, a focus area in standards-based reform, is the subject area that has seen the largest increase in sustained, content-based professional-development participation.

The question remains, however, given the extent and complexity of challenges faced by teachers in high-poverty schools, whether the magnitude of the relative increase in teachers' participation in professional development is enough to make a difference.

However, these affirming trends do not allow us to answer what is perhaps the most important question related to professional development—is professional development truly improving teaching and learning? A full evaluation of the success of professional development as an effective component of standards-based reform would include more about the nature of the learning process for teachers (e.g., is there active learning?), assessment of the degree to which professional development augments a solid content base or fulfills a remediation role, and the degree to which these activities promote coherence in teachers' professional development.

Professional development is potentially a valuable reform tool. Although there is some evidence that it is an integral component of the standards-based reform movement, a more comprehensive analysis should be undertaken to examine patterns of participation in high-quality professional development and its effects on teaching and learning.

Notes

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 22. Comparisons of patterns of teachers' participation in professional development are based on principal's responses to the questions 1) "Does this school participate in the National School Lunch Program?" and 2) "Around the first of October, how many applicants at this school were APPROVED for free or reduced-price lunches?" Schools where the principal's reported "no" to the following question were classified as having no students approved for free or reduced price lunches: "Regardless of whether this school participates in the National School Lunch Program, around the first of October, were any students in this school ELIGIBLE for free or reduced-price lunches?"
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 24. For various views, see D. M. Brooks (ed.), *Teacher Induction: A New Beginning. Papers from the National Commission on the Teacher Induction Process* (Reston, Va.: Association of Teacher Educators, 1987); D. C. Berliner, "In Pursuit of the Expert Pedagogue," *Educational Researcher* 15, no. 7 (1986): 5-13; Darling-Hammond, *Doing What Matters Most*; H. Borko and R. Putnam, "Learning to Teach," in *Handbook of Educational Psychology*, 673-708 (New York: Simon and Schuster Macmillan, 1996); S. Feiman-Nemser and J. Remillard, "Perspectives on Learning to Teach," in F. Murray (ed.), *The Teacher Educator's Handbook*, 63-91 (San Francisco: Jossey-Bass, 1995); P. L. Grossman, *The Making of a Teacher: Teacher Knowledge and Teacher Education* (New York: Teachers College Press, 1990).
 25. In the 1993-94 SASS Teacher Questionnaire the frame of reference for participation in professional-development programs was "since the end of the last school year," while in the 1999-2000 it was "in the last 12 months." Since the SASS questionnaires were typically filled out in the spring, the reference period for 1999-2000 would have been longer for some teachers. In addition, the duration questions were also different, with the 1993-94 questionnaire asking "how many hours did the program last" and 1999-2000 asking "how many hours did you spend on these activities." This change could also have contributed to the increase in the number of hours reported for each content area.
 26. Teachers' participation in professional development focused on content and performance standards was not included in the 1993-94 SASS survey.