

Section V: Summary and Implications

Excerpted From: Does Professional Development Change Teaching Practice? Results from a Three- Year Study

U.S. Department of Education, Office of the Under Secretary

The Eisenhower Professional Development Program's primary goal is to support professional development for teachers that will improve classroom practice and, ultimately, student achievement. AIR's multiyear evaluation of the Eisenhower Program sought to provide information to help the Eisenhower Program, and other professional development efforts, achieve this important goal. Our evaluation was intended to help policymakers and program managers by (1) describing professional development activities supported by the Eisenhower program and the way they are managed and implemented and (2) evaluating the effects of the professional development activities on teaching practice.

To describe Eisenhower-funded activities and the effects of professional development on teaching practice, the national evaluation included both a nationally representative cross-sectional component and a more focused longitudinal component. Our analyses based on national samples of district Eisenhower coordinators, state agency for higher education (SAHE)-grantee project directors, and teachers, were reported in Garet et al., 1999. They describe the type and quality of Eisenhower activities, who participates in them, how they fit into other reform efforts, and how they are managed and implemented by districts and SAHEs. The Longitudinal Study of Teacher Change, described in this report, examines the effects of Eisenhower-assisted and other professional development

on teachers in 30 schools. We analyzed the effects of professional development on broad and specific measures of teaching practice: the alignment of content coverage with national standards; an emphasis on performance goals for students; pedagogical strategies; and higher-order use of technology, instructional methods, and student assessments.

The findings and implications that we draw from both the national and longitudinal data, and summarize in the following section, extend beyond the Eisenhower Program. Although our national data on professional development focused only on Eisenhower-assisted activities, the longitudinal teacher survey included professional development funded by Eisenhower and other sources as well. This occurred because we asked teachers to describe

The results from our national data show the effectiveness of specific dimensions of coherence, such as discussing professional development experiences with colleagues and participating in follow-up activities that build on previous activities.

the most helpful activity they participated in during the school year, and some of the activities that teachers chose were not funded by Eisenhower. Nevertheless, because our focus in all aspects of our study was on relationships between features of professional development and teaching practice, our findings apply to teachers' professional development in mathematics and science in general,

whatever the funding source.

The Effects of Professional Development on Teaching Practice

On the basis of our national data, we concluded that six key features of professional development are effective in improving teaching practice: three structural features (characteristics of the structure of the activity)—reform type, duration, and collective participation—and three core features (characteristics of the substance of the activity)—active learning, coherence, and content focus (see Garet et al., 1999). These findings from our national data support other recent studies that highlight the importance of content focus in professional development (e.g., Cohen & Hill, 1998; Kennedy, 1998). The features of high-quality professional development identified in our national data also are consistent with ideas articulated in the Eisenhower legislation. Further, they deepen and extend the ideas in the Eisenhower legislation by providing details about what makes professional development effective. For example, the Eisenhower legislation promotes professional development that is linked to other reform efforts in a coherent, systematic way. The results from our national data show the effectiveness of specific dimensions of coherence, such as discussing professional development experiences with colleagues and participating in follow-up activities that build on previous activities.

The findings from our longitudinal data reinforce the im-

portance of the six features of professional development identified in the national study. In addition, results from our longitudinal study extend our national findings by providing evidence of the link between focusing on specific teaching strategies in professional development and having teachers use those specific strategies in the classroom. Specifically, in our longitudinal study, we found the following:

- Professional development focused on specific, higher-order teaching strategies increases teachers' use of those strategies in the classroom. This effect is even stronger when the professional development activity has features of high quality (e.g., reform type, active learning, coherence, and collective participation).

These findings are especially strong because they are based on only one professional development experience per teacher per year. Teachers may experience many professional development activities in one year, so it is especially noteworthy

Our results suggest that change in teaching would occur if teachers experienced consistent, high-quality professional development.

that we found effects on teaching practice of the one experience that teachers chose to describe on our survey.

Our longitudinal data also indicate that professional development is more effective in changing teachers' classroom practice when it has specific features of high quality, such as the collective participation of teachers from the same school, department, or grade; active learning opportunities, such as reviewing student work or obtaining feedback on teaching;

and coherence, for example, linking to other activities or building on teachers' previous knowledge. These findings are based on longitudinal data collected at three points in time. They validate the results from our national probability sample of teachers in Eisenhower-assisted activities, which indicated that features of quality were significantly related to teachers' self-reported outcomes (Garet et al., 1999).

Participation in Professional Development

Our findings on the effects of professional development should be considered in the context of the nature and quality of teachers' experiences in professional development. Our results suggest that change in teaching would occur if teachers experienced consistent, high-quality professional development. But we find that most teachers do not experience such activities. On average, the activities experienced by teachers in our Longitudinal Study of Teacher Change are about the same quality as those experienced by our national sample of teachers in Eisenhower-assisted activities. Our national data indicated the following about district-supported Eisenhower activities: an average of only 23 percent of teachers participating in Eisenhower-assisted professional development were in reform types of professional development; the average time span of a professional development activity was less than a week; the average number of contact hours was 25 and the median was 15 hours; most activities did not have collective participation or a major emphasis on content; and most activities had limited coherence and a small number of active learning opportunities (see Garet et al., 1999 for more

details). In short, nationwide, the typical professional development experience was not high-quality. Nevertheless, our national data also documented great variation in the quality of teachers' professional development experiences, which indicates that at least some teachers participate in high-quality activities, at least some of the time.

Our longitudinal data indicates that the quality of professional development experiences varies considerably not only across teachers at a single point in time but also over time for the same teachers:

- Teachers experience professional development that varies in quality from one year to the next. Further, teachers in the same school tend to have quite different professional development experiences.

We find a substantial amount of year-to-year variation in the

Both our national and our longitudinal data indicate that professional development is more effective when teachers participate with others from their school, grade, or department.

quality of the professional development of individual teachers. For example, 79 percent of the variation in the span and 62 percent of the variation in the content focus of a teacher's professional development experience are due to year-to-year variation. This finding indicates that the average teacher's professional development experiences do not add up to a long-term, coherent, high-quality program—the type of program that has the most potential for fostering significant and lasting teacher change.

We find some variation in participation in professional development between schools (e.g., 14 percent of the variation in collective participation and 7

percent of the variation in active learning is due to between-school variation), but most of the variation in the quality of the professional development in which teachers participate lies *within*, not *between*, schools. This finding supports the idea that professional development continues to be an individual teacher experience. Both our national and our longitudinal data indicate that professional development is more effective when teachers participate with others from their school, grade, or department. Thus, the variation in teachers' professional development experiences within the same school helps explain why professional development is not as effective as it could be.

Trends in Teaching Practice

Perhaps partly as a result of the uneven quality of professional development, we find the following:

- In our longitudinal sample, we find little change in overall teaching practice from 1996 to 1999.

Beyond the specific and targeted instructional practices, where we do observe change as a result of professional development, more generally we see little overall change in self-reported teaching practice. Given the usual low quality and inconsistent nature of professional development in which teachers participated, it is perhaps not surprising that we find little change in overall teaching practice over the period of the study. Our data show that teachers' alignment of content with national standards, the goals that teachers have for their students, and their basic pedagogical strategies appear to remain highly stable over time. It may be true that teachers changed on dimensions that we did not measure or that they changed the way they *implemented* cer-

tain practices instead of changing their relative emphasis on

Our data show that teachers' alignment of content with national standards, the goals that teachers have for their students, and their basic pedagogical strategies appear to remain highly stable over time.

these practices. However, given the multiple and high-profile efforts of standards-based and school-based reforms to provide professional development to change teachers' practice in desirable ways, we are surprised that teachers, as a group, did not move in the directions in which reforms intend to push them.

This lack of results may be a function of weak and fragmented professional development. We find professional development with desirable features in short supply, and where it does occur, it does not occur systematically over time for particular teachers. Few teachers experience the kind of consistent, high-quality professional development that we have found changes teachers' instruction in desirable ways.

Measuring instruction at multiple points over a more extended period of time might increase our ability to capture change in average teaching practice. However, we are confident in our results that at least for the three years of our study, teachers changed little in terms of the content they teach, the pedagogy they use to teach it, and their emphasis on performance goals for students.

- Despite little *average* change over time in teaching practice in our longitudinal sample, individual teachers in our sample do vary in their classroom practices, and moderate variation does occur in the classroom practice of individual teachers from

year to year.

Although in our longitudinal sample, teachers' practice did not change on average, individual teachers did make moderate changes in their teaching practice from one year to the next. For example, 30 percent of the variation in alignment and 28 percent of the variation in the use of traditional pedagogy is due to year-to-year variation. This year-to-year variation might be due to teachers' adapting to the ability levels of their students or to other influences related to their students or school.

Further, we find a great deal of variation across teachers in their classroom teaching practice. Most of this variation is between teachers in the same school, not between schools. For example, 40 percent of the variation in teachers' use of generating hypotheses and 31 percent of the variation in teachers' use of discussion-oriented instruction are due to variation between teachers in the same school. A substantial amount of variation between schools might suggest a coherent, organized school-fostered system of instruction. Instead, we find that individual teachers in the same school have very different teaching practices. This finding only adds support to the concept that both teaching and professional development are typically individual experiences.

Implications for Policy and Practice

In sum, we find that high-quality professional development that focuses on specific teaching strategies does affect teaching practice and that this effect is stronger if the professional development has the six dimensions of quality identified in the analysis of our national sample of teachers—the professional development is a reform rather than traditional type, is sus-

tained over time, involves groups of teachers from the same school, provides opportunities for active learning, is coherent with other reforms and teachers' activities, and is focused on specific content and teaching strategies. However, teachers generally do not experience consistent, high-quality professional development. Professional development remains an experience that varies substantially from one teacher to the next, and even from one year to the next for a given teacher. Districts and schools face several challenges in providing high-quality professional development to all their teachers.

First, districts and schools often must choose between serving larger numbers of teachers with less focused and sustained professional development or providing higher-quality activities for fewer teachers. As we noted in *Garet et al. (1999)*, good professional development requires substantial resources. Re-allocating resources and combining funding sources can be effective in increasing funds for professional development. However, in the absence of increased resources, the federal government, states, districts, and schools still have to make difficult choices whether to sponsor shorter, less in-depth professional development that serves a large number of teachers or to support more effective, focused, and sustained professional development for a smaller number of teachers. The Eisenhower legislation encourages the idea of sustained, intensive professional development, and the results of this study support the idea that districts and schools might have to focus professional development on fewer teachers in order to provide the type of high-quality activities that are effective in changing teaching practice.

Second, many districts and schools have limited capacity to translate into practice the knowledge about effective professional development. This evaluation has shown that professional development is most effective when it has the six features of quality that we identified earlier—reform type, duration, collective participation, active learning, coherence, and content focus (also *Cohen and Hill, 1998*; and *Kennedy, 1998*). As we stated in our last report, more information is needed on the characteristics and conditions that give some districts the capacity to provide this type of high-quality professional development. States and districts could benefit from more detailed information and guidance from the federal government about how to use the Eisenhower program to design and provide professional development that has the specific high-quality features that make it effective for teachers.

Third, districts and schools often do not have the infrastructure to be able to manage and implement effective professional development. Improving

Our longitudinal study indicates that much of the variation in professional development and teaching practice is between individual teachers within schools, rather than between schools.

the quality of professional development is an ambitious undertaking. The analysis of data from our national probability sample of district Eisenhower coordinators showed that planning that includes system alignment (e.g., the alignment of professional development with standards and assessments), funding coordination, and continuous improvement efforts significantly improves the quality of professional development

activities that districts provide (*Garet et al., 1999*). Case data from our 10 districts and data from both our national and our longitudinal studies indicate that some of this planning exists but that it is not systematic or widespread. Our longitudinal study indicates that much of the variation in professional development and teaching practice is between individual teachers within schools, rather than between schools. This finding provides evidence that schools generally do not have a coherent, coordinated approach to professional development and instruction, at least not an approach that is effective in building consistency among their teachers. Participation in professional development is largely an individual teacher's decision; teachers often select the professional development in which they will participate from a number of options available from a highly disparate set of providers. An increased emphasis by the Eisenhower program on the importance of strategic, systematic planning for professional development may encourage both districts and schools to improve their efforts in this area.

In sum, our findings show that the most effective professional development is focused on specific higher-order teaching strategies and has features of high quality. Our national data, however, showed that on average, teachers do not experience high-quality professional development. Having a coherent, long-term plan would enable districts and schools to provide both the depth of professional development experiences needed for them to be effective and the breadth of coverage of specific content and teaching strategies that teachers should learn over time. The provision of high-quality programs of professional development by

schools and districts may not completely solve the problem of the variation in the quality of professional development, since participation in professional development remains primarily the decision of individual teachers. Nevertheless, districts and schools could go a long way in developing high-quality professional development activities. To develop meaningful professional development plans, districts and schools would have to overcome challenges to focusing on and setting priorities for professional development activities over time, given limited resources; acquiring knowledge about the features of effective professional development; and building the infrastructure to

design and implement the types of activities that teachers need to improve student learning. The Eisenhower Professional Development program and other sources of funding could continue to play an important role in helping districts and schools overcome these challenges and develop high-quality professional development experiences that will lead to better teaching and better learning.

References

- Cohen, D. K. & Hill, H. C. (1998). *Instructional policy and classroom performance: The mathematics reform in California* (RR-39). Philadelphia: Consortium for Policy Research in Education.
- Garet, M., Birman, B., Porter, A., Desimone, L., & Herman, R. with Suk Yoon, K. (1999). *Designing effective professional development: Lessons from the Eisenhower Program*. Washington, DC: U.S. Department of Education.
- Kennedy, M. M. (1998). *Form and substance in in-service teacher education* (Research monograph no. 13). Arlington, VA: National Science Foundation.

The previous excerpt is Section V of the following document: U.S. Department of Education, Office of the Under Secretary, Planning and Evaluation Service, Elementary and Secondary Education Division, *Does Professional Development Change Teaching Practice? Results from a Three-Year Study, Executive Summary*, Washington, D.C., 2002.