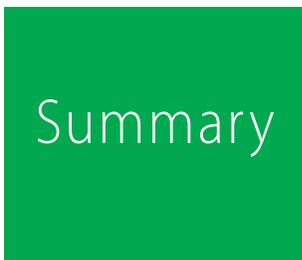




Analysis of Title IIB Mathematics and Science Partnerships in the Northwest Region



Institute of Education Sciences
U.S. Department of Education



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Summary

June 2007

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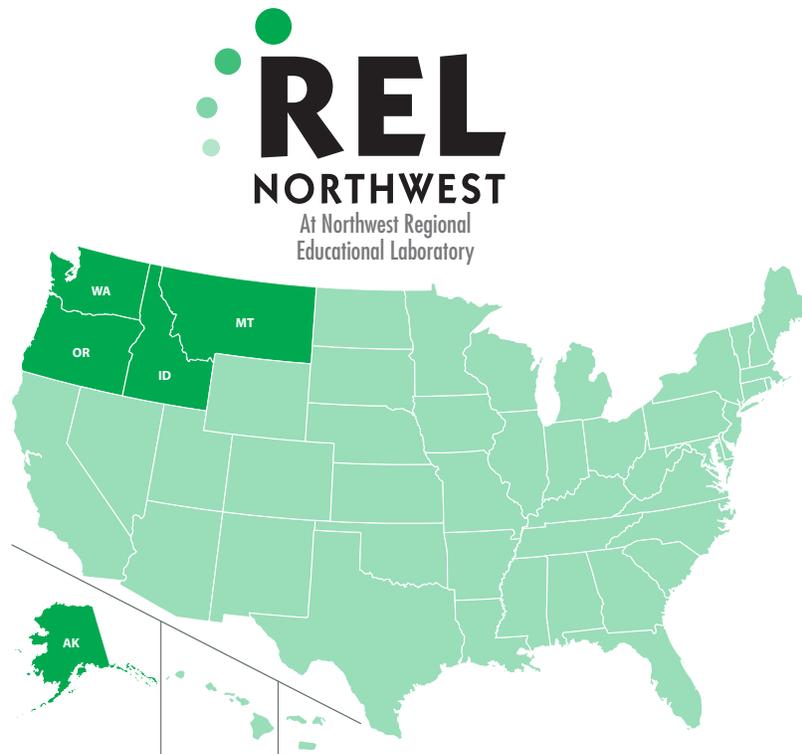
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This report is available on the regional educational laboratory web site at <http://ies.ed.gov/ncee/edlabs>.

Summary

Analysis of Title IIB Mathematics and Science Partnerships in the Northwest Region

This report describes the first year of the funded professional development activities in the Title IIB Math and Science Partnership projects in the Northwest Region and the evaluation models. The analysis is structured around the factors of professional development associated with changes in teacher knowledge and practice.

Title IIB Mathematics and Science Partnerships (MSPs) are the main resource in the No Child Left Behind Act to support the ongoing professional development of science and mathematics teachers. Funds available to states must be used to purchase high-quality professional development. In addition, with increasing concerns about accountability throughout the field—from federal agencies to the individual classroom teacher and student—educational interventions must demonstrate a positive impact on important educational outcomes. The Title IIB MSPs are intended to positively affect content knowledge and pedagogical skills for mathematics and science teachers. The ultimate goal is improved student achievement in mathematics and science.

This report describes the nature of the funded professional development activities in the Title IIB MSP projects in the Northwest Region and characterizes the models of evaluation during their first year of implementation, 2004–05.

The analysis is structured around the factors of professional development that have been identified as associated with changes in teacher knowledge and practice (Desimone et al., 2002; Garet, Birman et al., 1999; Garet, Porter et al., 2001; Porter et al., 2000). The description of the evaluations examines the extent to which the projects have connected their activities to measurable outcomes for teacher knowledge and practice and for student achievement, measured those outcomes, and clearly articulated their qualitative and quantitative study designs.

All projects met at least some of the criteria for high-quality professional development

The prevalent model of professional development in the MSP projects was a two-week, content-focused workshop or institute held during the summer, with follow-up support for teachers during the school year. One reason that this model was so common is that three of the five Northwest Region states required it in their requests for proposals. However, most of the projects in Idaho and Montana—the two states that did not require an institute—also conform to this model. This may be because the model is highlighted and defined in both the legislation and the requests for proposals, or it may also reflect the prevalence of the institute model in the previously funded Eisenhower Professional Development Program.

Although the summer institute was prevalent, the projects in the Northwest Region did feature many variations on that model. Projects differed in the way they structured and conducted the follow-up activities, as well as in the amount of ongoing support. Some projects included less emphasis on the summer workshop and more on ongoing, school-embedded, and collaborative activities for teachers. Despite these variations, the multiple authorized activities suggested in the legislation—such as recruitment of mathematics, engineering, and science majors to teaching through a variety of mechanisms—are not the focus of projects funded in the Northwest Region.

All of the projects provided evidence in the documentation that they met at least some of the criteria for high-quality professional development. It is far from clear whether projects must meet all criteria in every category to be considered effective. No available evidence indicates that professional development projects are more effective when they are rated highly in all categories than when they receive high ratings in only some categories. Nor is there evidence that any criterion is more important or less important than the others.

Evaluation presented significant challenges to the Title IIB MSP projects

Evaluation design and implementation in year one of the Title IIB MSP projects were problematic. In interviews many project staff and evaluators reported difficulties designing and implementing adequate evaluation due to the late awarding of the Title IIB MSP contracts for professional development. In addition, limited budgetary resources were identified as barriers to effective evaluation.

Evaluations of many projects relied on capturing participant reactions and self-reporting as the only sources of evidence of their effectiveness. Few projects used well developed instruments to measure changes in teacher content knowledge. Projects indicated difficulties using state assessments to directly measure the impact of projects on student achievement. For instance, the professional development might include a majority of teachers who were teaching at a level different from that targeted by the state science assessment. The lack of instruments for measuring changes in teacher and student knowledge of specific content led some projects to attempt to develop their own measures, while other projects resorted to less rigorous methods.

Care should be taken in interpreting these findings because this analysis is based on the first year of implementing the Title IIB MSP programs, when evaluation designs may not be fully mature. However, the minimal extent to which the project evaluations addressed evaluation standards that should be well known in the evaluation and professional development community indicates larger issues than the barriers identified above. Clearly, there is room for improvement in the project evaluations.

Ongoing technical assistance is necessary to increase the evaluation skills of the state education agency staff responsible for the Title IIB MSP programs and the staff and evaluators of the individual projects. The U.S. Department of Education regional forums are a start in informing stakeholders about the method and instruments to improve evaluations, but access to these regional forums is limited by project budget constraints.