



WASHINGTON STATE BOARD OF EDUCATION

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MATH AND SCIENCE TEACHER SUPPLY UPDATE FROM THE PROFESSIONAL EDUCATOR STANDARDS BOARD

SUMMARY OF POLICY ISSUE /STATE BOARD OF EDUCATION (SBE) STRATEGIC PLAN GOAL

The State Board of Education realizes a critical part of its success with increasing student achievement with its new high school graduation requirements and the Office of Superintendent of Public Instruction (OSPI) revising the math and science standards, is the need for increasing high quality teachers. The Professional Educator Standard Board is the state policy board responsible for addressing teacher recruitment and retention issues. The research strongly supports that quality teachers are one of the most important factors in increasing student achievement. The Board's first goal is to improve student achievement.

BACKGROUND

In November 2006, the State Board of Education and Professional Educator Standards Board, in collaboration with OSPI, released a Joint Math Action Plan that included strategies for improving teacher recruitment and retention as part of its overall systems approach to improving math and science achievement in Washington. The 2008 legislature charged the Professional Educator Standards Board (PESB) with:

- Quantifying, based on school districts' reports, current and projected supply and demand for math and science teachers;
- Providing information, based on a Washington State Institute for Public Policy Study, on differential pay for teachers in high-demand subjects like math and science; and
- Recommendations on how to meet the expected demand, including strategies for improving the rigor and productivity of current teacher preparation programs.

Jennifer Wallace, the PESB Executive Director, will share highlights from her report. Recommendations from the report are included behind this memo. For a full copy of the report you may go to the PESB Web site: <http://www.pesb.wa.gov/>

EXPECTED ACTION

None

STATE OF WASHINGTON
PROFESSIONAL EDUCATOR
STANDARDS BOARD

MEMORANDUM

To: The Honorable Christine Gregoire, Governor
Members, House and Senate Education Committees
Members, House and Senate Higher Education Committees
Members, Senate Ways and Means Committee
Members, House Appropriations Subcommittee on Education

From: Jill Van Glubt, Chair, Professional Educator Standards Board
Jennifer Wallace, Executive Director, Professional Educator Standards Board

Date: December 16, 2008

RE: Ensuring an Adequate Supply of Well-Qualified Math and Science Teachers

Research confirms what educators and parents have known all along: by far the most important influence on student learning in our schools is an effective teacher. At a time when the effectiveness of our math and science teachers is of crucial importance, achieving this is made more challenging by difficulties ensuring adequate supply.

In the three years since the legislature gave the Professional Educator Standards Board its charge, we have significantly increased the rigor and relevance of standards and assessments for teacher certification. We are committed to working with you and others to also ensure adequate supply, without compromising the high standards we have set.

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Because ensuring Washington has enough excellent math and science teachers for all students is a shared responsibility with which many education stakeholders struggle, the PESB assembled a short term Task Force with broad stakeholder representation to:

- Examine new data related to Washington's supply and demand for qualified math and science teachers;
- Analyze current recruitment efforts and promising practices suggested by research and other states; and
- Contribute to recommendations on needed next steps.

The task force was composed of representatives from:

Governor Gregoire's Office	Washington Association of Colleges of Teacher Education
Office of Superintendent of Public Instruction	Higher Education Coordinating Board
Association of Washington School Principals	Council of Presidents
Washington School Personnel Administrators Association	Partnership for Learning
Washington Association of School Administrators	Business Roundtable
Washington Education Association	Center for Strengthening the Teaching Profession
State Board of Education	State Board for Community and Technical Colleges

The report that accompanies this memo provides state policymakers with:

- What is known, as well as what lack of data makes unclear, about the current supply and projected need for math and science teachers in Washington State;
- Concise descriptions of what is known from research and best practices in other states;
- Who is in the pool of potential math and science teachers and what factors influence their pursuit of teaching; and
- Recommendations for action, with strategies for both public and private investments, including:
 - Establish an adjunct teaching corps;
 - Expand eligibility and scope of Washington's Alternative Route Programs;
 - Restructure enrollment in colleges of education to produce more teachers in shortage areas; fewer in surplus areas like elementary education;
 - Create new connections between Work Source and Alternative Routes to Teaching;
 - Retool current teachers in other subject areas into math or science;
 - Pursue third-party recruitment assistance from national organizations such as The New Teacher Project or Teach for America;
 - Create the Washington Teacher Cadet program;
 - Create and maintain aggressive marketing and communications strategy, backed by improved web presence linking prospective teachers to clear, actionable information;
 - Increase scholarship support for future STEM scholars;
 - Strengthen the pipeline from high school, to community college, on to baccalaureate; and
 - Implement compensation-related incentives, such as recognition of professional experience for math or science career changers.

We welcome the opportunity to discuss this report and its recommendations with you further.

Recommendations for Action

As we examined efforts in other states, we were struck by the fact that few states have much of a coordinated approach – more of a hodge podge of projects. Although the Task Force and the PESB recognize that ensuring an adequate supply of well-qualified math and science teachers requires an ongoing commitment on the part of many education stakeholders, we also believe the interrelatedness of the various strategies needed to achieve that goal requires centralized coordination and oversight. This was particularly evident as we tried to compare cost to potential productivity for the various strategies we considered. It is crucial to be able to centrally track and analyze evaluative data on an ongoing basis, to be able to inform policymakers about how various strategies – as a whole – are working to address statewide need. Whether the legislature determines this best the responsibility of the PESB, OSPI or another entity – assigning this responsibility we believe a crucial legislative decision.

The Task Force and PESB also recognize that in tough fiscal times, it is useful to identify the best immediate versus longer-term investments of public and private funds. Below are options discussed in this report, identified in terms of anticipated level of cost. Investments that seem appropriate for state funding are indicated with a “●”; those that have components appropriate for either/both public and/or private funding are indicated with a “❖”.

NO / LOW COST – Act Now

- **Create an Adjunct Teaching Corps** of part-time math and science faculty at community colleges and baccalaureate institutions with interest in teaching secondary math and/or science part-time in Washington public middle- or high-schools.
 - State Board for Community Colleges, Higher Education Coordinating Board and Professional Educator Standards Board (PESB) should coordinate to provide information to part-time faculty at community colleges and baccalaureate institutions on part-time K-12 secondary math and science teaching opportunities as well as information to Washington K-12 public school districts on employing part-time faculty.
 - PESB will work with the U.S. Department of Education to ensure compliance with the Highly-Qualified Teacher provisions of the No Child Left Behind Act and amend WAC as needed.
 - Legislature should address potential disincentives caused by lack of compatibility between the differing benefit and pension systems between K-12 schools and college/university systems.
- **Remove Unnecessary Entry Barriers to Washington’s Alternative Routes to Teaching Program.** Based on PESB’s six years of experience implementing this successful program, we recommend removing some of the entry requirements established at the program’s creation that are proving unnecessary in light of careful candidate screening; and that further serve as unnecessary barriers for some outstanding candidates. We therefore request legislation amending RCW to remove the five year work experience requirement for Alternative Routes 3 and 4 and reduce the paraeducator work experience requirement for Routes 1 and 2 to one year.

- **Ensure Math and Science Teacher Preparation Adequately Prioritized by Public Institutions.** We recommend that Governor Gregoire convene, per PESB budget request to OFM, a Task Force of Public Higher Education Institution Leadership, along with other key K-12 stakeholders, to examine the place of educator preparation in public institutional mission and how institutional leaders may better prioritize and support it. The Task Force would consider:
 - Increasing high need enrollments in shortage teaching areas and shifting enrollments from surplus to high-need areas;
 - Providing more innovative program designs, such as:
 - Requiring all four-year public institutions to offer a fully field-based post-baccalaureate certification-only program in partnership with one or more schools in a school district;
 - Converting School Improvement Focused Assistance Schools into Professional Development Schools with high concentrations or saturations levels of teacher candidates; and/or
 - Creating teaching “fellowships” or “residencies” focused on shortage subject areas and/or on training needs of a particular community / student population that emphasis a “grow our own” model to recruit, train and retain teachers within a community.
 - Legislative and institutional support to implement programs that establish unique and strong partnerships between the colleges of liberal arts and the colleges of education, including building stronger pipelines for candidates transitioning from community colleges to baccalaureate and teacher preparation programs; and
 - Higher education institution reporting, such as performance agreements, as a means of measuring and reporting the production of highly qualified teachers.

- **Target Information on Alternative Routes to Teaching for Math and Science Professionals Facing Layoff from Current Employment.** PESB and the Employment Security Department’s Work Source program will work together to connect employers and their employees anticipating layoffs with information, guidance, and financial support related to opportunities to transition to a career in teaching through the Alternative Routes to Teaching and other programs.

MAINTAIN CURRENT INVESTMENTS

- Washington’s **Educator Retooling Program**, already enormously well-supported and successful in its first year, is the only source of scholarship support (up to \$3,000/year for two years) for teachers to “retool” from elementary education or other non-shortage teaching areas, into fully-qualified math or science teachers. Scholarship support is in the form of loan forgiveness, with two years of teaching service required for each year of scholarship support.

- **Pipeline for Paraeducators Program** should be continued, with expanded eligibility to include all community college students pursuing Direct Transfer Associate Degrees in Math or Science followed by commitment to baccalaureate in math and science and Alternative Route Program to gain teaching credentials. Since roughly half of our teachers begin postsecondary education at a community college, ensuring a strong pipeline through baccalaureate degree and into teaching is critical.

- ❖ The **Alternative Routes Partnership Grant Program** is entering its seventh year. When it began in 2002, in addition to its mission to prepare paraeducators and midcareer professionals for teaching careers in shortage areas, its innovative program design was also intended to increase the existence of truly field-based preparation models statewide. The challenge for the PESB is to continue with this goal, while incorporating new and emerging high-quality alternative preparation models as well. With continued support from the legislature, the PESB will:
 - Cultivate residency and fellowship-type models, akin to existing Route 4, but better reflecting role of district in determining workforce needs and incorporating preparation programs as part of learning improvement strategies;
 - Collaborate with Teach for America, The New Teacher Project, and other national non-profit recruitment and preparation organizations entering Washington State; and
 - Create quality standards and reporting requirements for online programs approved in other states.
- The **Future Teacher Conditional Loan Scholarship Program** is an important pipeline support in that it sustains future teachers through their pursuit of degree and preparation program requirements in a state-identified shortage area.

NEW SMALL / MEDIUM INVESTMENT

- ❖ **Pilot data-driven rural regional hiring collaboratives in two Educational Service Districts** serving rural and remote school districts. Based on two model initiatives operated by California’s Center for the Future of Teaching and Learning, regional collaboratives build the collective capacity of rural and remote districts to:
 - Maintain clear and accurate understanding of their teacher workforce needs;
 - Implement effective recruitment and hiring strategies that meet their collective needs, rather than competing with one another;
 - Leverage dialogue and planning with higher education institutions for new “grow your own” preparation programs serving the region.

A program coordinator for both sites would draw upon emerging data systems within OSPI to facilitate dialogue and planning related to improving district recruitment and hiring practices, and broker site-based teacher preparation options in partnership with approved preparation programs. While scope and scale for a Washington-based program may differ, for reference, the Stuart Foundation has provided \$250,000 annually in support of the Kern County initiative in California.

- ❖ **Create tighter, more formal collaboration between colleges of education and liberal arts and sciences.** Modeled after the nationally-renowned U-Teach program at University of Texas and a similar program at University of Colorado, Washington institutions should implement:
 - Compact degrees that allow most students to graduate with a degree and certification in math or science in four years;
 - New strategies and guidance aimed at recruiting math and science majors into the program;

- True partnerships with schools focusing on not only enhanced field-based preparation, but also professional development of existing teachers, and furthering K-12 student improvement goals;
- Partnerships with community colleges as pipeline into the program; and
- Early and intensive field experiences throughout the program – including early opportunities for math and science majors to tutor high school students for work-study pay and/or credit toward later teacher preparation coursework.

U-Teach started with 25 prospective math and science teachers and has grown to 450 in its tenth year. While the PESB would like to fund this model at all Washington institutions, a more modest approach would be to pilot at U-Teach or similar model at 2 Washington public baccalaureate institutions, with preference for largest producers of math and science teachers. An evaluation component should be built into the pilots focusing on impact and what would be required for eventual statewide implementation. The U-Teach Institute was established to assist in replication of the U-Teach model. Their model replication operating budget assumes a start-up budget of roughly \$300,000 in the planning year and \$438,000 in the first year of operation. U-Teach is funded by a combination of public and private funds.

- **Restructure enrollment funding** for colleges of education to encourage and support greater production in shortage areas and less in surplus teaching areas. High-need enrollment funding should support both the enrollment shift at the higher education institutions and the district partner role in ensuring high-quality field placements, and recruiting and screening candidates in anticipation of hiring needs.
- ❖ Particularly appropriate for private sector support, **create Corporate-to-Classroom Programs** aimed at either supporting individuals transitioning into the teaching profession, or funding assistance for interested school districts to contract with corporate employees on a short-term conditional certificate to serve as “adjunct” teachers for one or more math or science classes. IBM’s Transition to Teaching program provides financial and other support to mid- to late-career IBMers with bachelor’s degrees or credentials in math, science, engineering and related fields pursuing a second career in teaching. Up to \$15,000 in financial assistance is available to program participants to defray the costs of training, and a stipend for the period participants are on a leave of absence for student teaching.
- ❖ **Fund analysis of multi-district hiring practices**, with implications for improved statewide practices, by The New Teacher Project (TNTP). This would mirror reports and analysis conducted nationally and in numerous states and districts by TNTP. Estimated cost = \$300,000.

Larger Investments - Long-Term for State Funding or Potential for More Immediate Implementation with Private Funding

- ❖ Produce and operate an aggressive, sustained public awareness, marketing and communications strategy aimed at encouraging talented math and science students to commit to a career in math and science teaching. Linking private sector expertise in this area with specific options and requirements identified and coordinated by the PESB, this initiative would encompass:
 - Campaign emphasis that stresses incentives, professional respect and career ladder opportunities to enhance public image of teaching profession as career choice;

- Improved web presence linking campaign to clear, accurate information on options:
 - Region-specific marketing and preparation options;
 - Employer incentives to council retiring and exiting employees;
 - Coordination with STEM programs at colleges and universities;
- ❖ **Create the Washington Teacher Cadet Program**, modeled after the South Carolina teaching cadets program, in multiple Washington districts statewide, to enhance the future teacher pipeline in all regions and demographics. Middle- and High-School students that pursue math and science degrees and enter teaching could be provided loan forgiveness. South Carolina's program operates in 175 high schools. Since the program began in 1987, 40% of the 2,400 cadets have become teachers.
 - ❖ **Fund Teacher Residency and Fellowship programs**, with oversight by the PESB, operated by Teach for America or The New Teacher Project, in which teaching interns earn significant stipends or salary.
 - **Fund completion and full implementation of E-cert and CEDARS data systems at OSPI.** Accurate teacher workforce data is an important foundation of many of the recruitment strategies discussed in this report and the extremely outdated nature of our current state system by which individuals apply for licensure is a significant barrier and disincentive.
 - ❖ Increase **scholarship support for future STEM scholars** overall; with targeted loan forgiveness for those who commit to specified years of teaching.
 - **Address the primary barrier to interest and entry into the teaching profession – adequate compensation.** Allow pay recognition for past professional experience in math and science and provide adequate compensation for teachers supervising teaching interns / student teachers.