



Legislative Fiscal Bureau

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Joint Committee on Finance

Paper #644

Science, Technology, Engineering, and Mathematics Education (DPI -- Categorical Aids)

Bill Agency

[LFB 2007-09 Budget Summary: Page 469, #12]

CURRENT LAW

No provision.

GOVERNOR

Provide \$109,500 GPR annually to promote education in science, technology, engineering, and mathematics. Of the total, \$61,500 annually would provide grants from a new appropriation for this purpose to school districts to: (a) develop innovative instructional programs in science, technology, engineering, and mathematics; (b) support pupils who are typically under-represented in these subjects; and (c) increase the academic achievement of pupils in these subjects. The remaining \$48,000 annually would increase the Department of Public Instruction (DPI) general program operations appropriation to provide professional development for teachers in these subjects.

DISCUSSION POINTS

1. In its 2007-09 agency budget request, DPI proposed an initiative to improve achievement and participation in science, technology, engineering, and mathematics classes, and to encourage careers related to these fields. According to the Department of Workforce Development, many of the state's fastest-growing career fields, including computer software engineering, data systems analysts, and health care, require academic backgrounds in these curricular areas. DPI

asserted that job growth and above-average salaries in these fields warranted additional state investment in professional development and improved academic opportunities in science and math in elementary and secondary education.

2. The Department has argued that if educators receive professional development aimed at improving achievement in science and math, and specific training in helping academically challenged pupils in those subjects, then progress could be made toward closing the achievement gap for certain pupils. Low-income students consistently lag behind their peers on the Wisconsin knowledge and concepts exam (WKCE). For example, 81% of pupils who were not low-income scored proficient or advanced on the November, 2005, WKCE in grade four mathematics. Only 55% of low-income pupils were proficient or advanced. In grade four science, 61% of low-income pupils were proficient or advanced, versus 87% of non-low-income pupils. For grade 10 mathematics, 79% of non-low-income pupils were proficient or advanced, compared to 48% of low-income pupils. For grade 10 science, 46% of low-income pupils were proficient or advanced, while 78% of higher-income pupils were. Similar achievement gaps exist in all grades tested, and in all subjects, although the gaps are slightly larger in science and mathematics than other subjects. For example, the difference for grade 10 reading was 27 percentage points, compared to 32 points in science and 31 points in math. The fourth grade reading gap was 22 percentage points, versus 26 points in science and math.

3. The budget bill as introduced included a provision to require all students to take three years of mathematics and science to graduate from high school. The Budget in Brief asserts that math and science are essential ingredients to prepare students academically and attract students to careers involving science, technology, and engineering. The graduation requirements provision was removed for consideration as separate legislation. However, consistent with that recommendation, the Governor included the science, technology, engineering and mathematics proposal to improve instruction in these areas, as requested in the DPI agency budget request.

4. The DPI agency budget request identified four major components relating to this proposal. These components include assessment, professional development, closing the achievement gap in this area, and development of a leadership network.

5. With regard to the achievement gap in this area, DPI requested funding of \$61,500 annually for a competitive grant program for school districts to develop and implement innovative instructional programming targeting students who are under-represented or academically challenged in science and math classes, and to increase academic achievement in those classes. The DPI agency budget request indicates that this would be implemented by providing mini-grants to school districts to be used as seed money for the school to develop this programming.

6. To address the other components of the proposal, DPI also requested funding for a number of state operations activities, in order to allow DPI personnel to: (a) attend and present at several professional conferences relating to assessments each year (\$7,500); (b) facilitate four professional development and pedagogy meetings per year (\$8,000); (c) collect and publish best practices instructional materials for teachers (\$12,500); and (d) hold four professional development

assessment workshops per year (\$4,000). In addition, the Department proposed a program to assist school districts with integrating science and math in other school content areas (\$20,000). Finally, with respect to a leadership network, DPI requested \$44,000 to establish a science, technology, engineering, and mathematics education council, in order to gather input from regional economic development groups, community organizations, technical colleges, and other groups to provide students with additional learning opportunities related to science and math. The Governor's recommendation includes \$48,000 in total for these state operations activities, or half the amount originally requested by DPI.

7. Science and mathematics are core subjects in K-12 education. Given the magnitude of state, local, and federal resources in the K-12 system (\$9.98 billion in 2005-06), it is unclear what effect an initiative with modest funding would have.

ALTERNATIVES TO BILL

1. Approve the Governor's recommendation to provide \$109,500 annually to promote education in science, technology, engineering, and mathematics.

ALT 1	Change to Bill Funding	Change to Base Funding
GPR	\$0	\$219,000

2. Modify the Governor's recommendation to provide \$61,500 annually for grants to school districts promote education in science, technology, engineering, and mathematics. Under this alternative, funds would not be provided for state operations activities related to professional development.

ALT 2	Change to Bill Funding	Change to Base Funding
GPR	-\$96,000	\$123,000

3. Delete provision.

ALT 3	Change to Bill Funding	Change to Base Funding
GPR	-\$219,000	\$0

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