

Contact: Diana Gonzalez

REPORT ON THE BOARD OF REGENTS
MATHEMATICS AND SCIENCE COLLABORATIVE INITIATIVE

Action Requested: Receive the report.

Executive Summary:

The Board of Regents Mathematics and Science Collaborative Initiative was created in 2007 in response to the growing crisis in achievement by Iowa students in mathematics and science. A study of national, state, and local data confirmed the problem and revealed that most educators in the state believe that Iowa must dramatically improve the teaching of mathematics and science at all levels of the educational system. The Regent universities are committed to collaborating in the effort to address this crisis. Because of the University of Northern Iowa's mission and role as the premier teacher training educational institution in the state, the Board of Regents directed the University and, specifically, President Ben Allen, to spearhead this collaborative initiative between the three Regent universities and other key players in the state. This initiative will have long-lasting benefit for the citizens and the state of Iowa.

On May 9, 2008, Governor Chet Culver signed House File 2679, the Education Appropriations Bill, which includes \$4 million funding for the Board of Regents Mathematics and Science Collaborative Initiative.

The Initiative has three basic goals:

1. To improve mathematics and science performance of Iowa students.
2. To prepare more high-quality mathematics and science teachers for Iowa schools.
3. To promote statewide collaboration and cooperation.

Background:

In 2007, President Allen and an inter-university Steering Committee hosted a statewide "listening summit" of key stakeholders to identify challenges and opportunities. The summit resulted in identifying projects and partners necessary to achieve the goals of the Institute. The summit also described the most important variable in student achievement as teacher quality.

Projects.

- ➔ Mathematics and Science Majors to Teaching will address teacher shortages by recruiting talented students into mathematics and science teaching.
- ➔ Science and Mathematics Teacher Real World Interns will address modernized curriculum and student career awareness by placing mathematics and science teachers in internships in the private and public sectors.

- ➔ Wider implementation of Project Lead the Way (PLTW)¹ across Iowa will address the need for relevant, rigorous curriculum in mathematics and science to attract more students to science, technology, engineering, and mathematics fields.
- ➔ Community College STEM Instructor Preparation and Updates will address the shortage of mathematics and science instructors in community colleges.
- ➔ The Board of Regents Mathematics and Science Education Institute, which will be located at UNI with faculty and staff distributed at all three Regent universities, will address the need for long-term planning, coordination, and support. Approval to establish this institute will be requested from the Board of Regents at the September 17-18, 2008, meeting.

The Initiative Executive Board, under the leadership of Dr. Jeff Weld, UNI Associate Professor Biology, includes faculty from the three Regent universities and is responsible for translating plans to action. The Board has shifted its focus to implementation in a regular series of meetings through spring, summer, and beyond.

The Executive Board coordinates partnerships not only among the three Regent universities but also with individuals and organizations across Iowa through regular communications and meetings. Those partners include the executive director of the Iowa Academy of Science, the Governor's education advisor, the director of the Iowa Commission on the Status of Women, the executive board of the Corridor Stem Initiative (CSI), community relations officers of Rockwell-Collins, as well as teachers, AEA consultants, and community college representatives. Continuous efforts to establish vital partnerships across Iowa are one objective of the Initiative, in support of Goal 3. New partnerships will likely be forged with relevant student and faculty organizations, Iowa Department of Education, area education agency officials, various commissions, academies, coalitions, private and community college faculty initiatives, business and industry representatives, and policymakers.

Director Weld will meet with Executive Board members on their campuses in June 2008 to discuss more in-depth implementation plans, and the start-up of programs, including the recruitment of students in mathematics and science teaching.

Operationally, work is being completed to define membership for an advisory board that will include state and national experts in mathematics and science. The advisory board will meet twice a year with Director Weld and Executive Board to discuss developments, enhance communication about efforts to establish additional professional networks, and share additional ideas and opportunities.

¹ PLTW is a non-for-profit organization that promotes pre-engineering courses for middle and high school students. PLTW forms partnerships with public schools, higher education institutions, and the private sector to increase the quantity and quality of engineers and engineering technologists.

To establish sustainable projects, the Executive Board is in the process of defining the following:

- ➔ Guiding operational principles addressing the importance of accountability, assessment, and evaluation.
- ➔ Governance structure stating the reporting relationships between faculty, staff, advisory board, Executive Board, and ad-hoc groups.
- ➔ Project details, including the budget and implementation calendar.
- ➔ Operational manual with detailed business procedures and policies.
- ➔ Personnel decisions, including position descriptions that clarify the scope of work with specific objectives and goals.
- ➔ The establishment of office space for a coordinative center and institute at UNI. The proposed Institute will be located in the Center for Energy and Environmental Education building and will include work space, computers, phones, and signage.
- ➔ A Request for Proposal (RFP) application process for receiving requests for funding mathematics and science projects collected through an inventory process, as well as others that support Initiative goals.
- ➔ A sub-contract agreement process to ensure accountability of fund distribution to the three university partners.
- ➔ An assessment, evaluation, and reporting system to report progress and outcomes of the Initiative. The desired outcomes and goals are established; the mechanism for reporting measurements and goals is being completed.
- ➔ A student tracking system to account for students in each project and describe their progress.
- ➔ Marketing and public relations efforts, including website enhancements, logo, and comprehensive communication plan, to inform all stakeholders.
- ➔ Grant writing and additional outreach efforts to leverage state dollars for additional support from the public and private sectors.

The next steps in completing a comprehensive operational plan for the Initiative includes continued infrastructure for the Initiative and the four educational programs. Implementation of new programs and expansion of the Project Lead the Way program are underway. PLTW has experienced growth and plans are underway to increase the number of high school teachers and students involved and establish a student tracking system. Efforts to create a course for Fall 2008 to acquaint students with teaching careers in mathematics and science are being discussed.

A comprehensive report of the progress made to-date on the Initiative will be completed by August 1, 2008. At that time, operational details, including the following, will be finalized:

- ➔ Budgets;
- ➔ Marketing efforts;

- ➔ Personnel decisions;
- ➔ On-going partnerships;
- ➔ Assessment methodologies and evaluation mechanisms;
- ➔ Metrics;
- ➔ Student tracking systems;
- ➔ Name of Institute/Center.

The Collaborative Initiative is unfolding to improve the mathematics and science educational opportunities for students and teachers. Future reports to the Board of Regents will describe progress in mathematics and science education and impact of the Initiative on students, teachers, and the state of Iowa.

President Allen will present an update on the Initiative at the June 11-12, 2008, Board of Regents meeting.