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December 2009

Nebraska Summit on Mathematics Education speakers inspire audience

The Nebraska Summit on Mathematics Education was held on Dec. 14, 2009, at the Embassy Suites Hotel and Convention Center in Lincoln, Nebraska, and successfully brought together the state's education and policy leaders to discuss the strengths and challenges of mathematics education.

More than 250 people braved the icy road conditions to attend the event on a day when many surrounding schools opened late due to the weather.

Steering efforts to build a statewide partnership, the Summit featured talks by the Nebraska Governor, the Nebraska Commissioner of Education, the University of Nebraska President, and former NCTM national president Cathy Seeley. Participants remarked after the Summit that the presentations they heard were inspiring and thought-provoking. Many were especially impressed by the sense of partnership and commitment they felt as a result of having so many leaders on board with the same

agenda. Indeed, all of us should be pleased with how Nebraska education and policy leaders are working together in a way to address the issues that will best help Nebraska to meet its educational goals.

The Summit opened with a message from Governor Dave Heineman. The Governor highlighted the first two of eight education goals his office, along with the Nebraska P-16 Initiative, released in September:

Goal 1: Adopt a college and career preparation core curriculum that requires four years of English and three years each of math, science, and social studies in Nebraska school districts by



Jim Lewis and Cathy Seeley

the 2014-2015 school year.

Goal 2: Eliminate the academic achievement gap between Nebraska's K-12 Caucasian students and its African-American, Hispanic, and Native American students. (For information about all eight educational goals and the Nebraska P-16 Initiative visit <https://p16.nebraska.edu/>).

Heineman stated that the mathematics courses that fulfill the graduation requirements (established in Goal 1) must also meet rigorous state-adopted standards for courses such as geometry, advanced algebra (Algebra II) and data analysis/probability. In reference to Goal 2, Heineman made the point that among the strategies employed to eliminate the achievement gap is the need

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NMSSI course offerings

The Nebraska Math & Science Summer Institutes course catalog for 2010 is now available online. Teachers interested in professional development or graduate courses should visit <http://scimath.unl.edu/nmssi> for details.

Join Nebraska Algebra

We are still accepting applications for the second cohort of Nebraska Algebra teachers. Courses will be offered in Grand Island. For more details and application materials, visit: <http://scimath.unl.edu/nebraskamath/teacherapplication.php>

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to increase parental involvement in children's education, and, in some cases, to help parents simply appreciate the value of education.

University of Nebraska President J.B. Milliken and Nebraska Commissioner of Education Roger Breed followed the governor. Milliken and Breed are working in cooperation with the governor as part of the P-16 Initiative, and are focusing their attention on issues that will move education in Nebraska in the right direction. While they reminded the audience of the realities of Nebraska's current situation, they also highlighted key steps required to improve education in Nebraska, including the importance of making college education more accessible to Nebraska's high school graduates and the need to increase high school graduation rates among Nebraska students, particularly in STEM disciplines (science, technology, engineering and mathematics). Matt Blomstedt, Executive Director of the ESU Coordinating Council and Jim Lewis, NebraskaMATH Principal Investigator, offered responses to President Milliken and Commissioner Breed's presentation.

One of the highlights of the Summit was the presentation by Cathy Seeley, NCTM president from April 2004 through April 2006 and past president through April 2007. Seeley has been very active in improving mathematics education in the state of Texas since the early 1990s, and also has worked as a consultant and speaker for school districts in the rest of the country.

Seeley's presentation narrowed the focus from the panoramic scene (what legislation, the state department and the university system need to do to improve math education) to what teachers of mathematics can do in their own classrooms.

Seeley showed the audience graphs from Stigler and Hiebert's *The Teaching Gap* (1999), which utilized data from the TIMSS to demonstrate that when compared with their counterparts in Japan and Germany, teachers in the United States have a tendency to "rescue" their students from challenging mathematics. Specifically, instead of allowing their students to grapple and come to terms with important mathematical ideas, American teachers often

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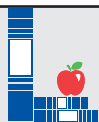
(Above) University of Nebraska President J.B. Milliken and Nebraska Department of Education Commissioner Roger Breed



(Left) Nebraska Governor Dave Heineman

(Below) Jim Lewis and Matt Blomstedt

All Summit photos by RuthAnn Royer/UNL



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(Above, from left) UNL Professor Steve Dunbar, Summit organizer, speaks with Geri Steinbrink, Lexi Wichelt and Michaela Goracke, three Math in the Middle Cohort 4 graduates who participated in the poster session.



Summit participants chat during break at the Embassy Suites.

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step in and show their students how to solve problems. As a result, many American students lack the perseverance and thinking skills needed to problem-solve.

To address this, Seeley encouraged teachers to participate in what she refers to as “Upside-down Teaching.” Rather than starting a lesson with the identification of procedures and simple examples, and working up to a rich, challenging problem, teachers who practice Upside-down Teaching begin with the rich, challenging problem. Seeley suggests the following outline:

- Start with a rich problem;
- Engage students in dealing with the problem by discussing, comparing and interacting;
- Help students connect and notice what they’ve learned;
- Then, assign exercises and homework.

Seeley recommended a video showing a high school teacher demonstrating upside-down teaching in action at: utdanacenter.org/amdm.

Five breakout sessions kicked off the afternoon at the Summit. Those breakout sessions covered the topics of Early Childhood Learning in Mathematics, Rural Education, Student Diversity, What Elementary Teachers Need to Know to Teach Math and the Rigor of Nebraska’s Grade 8-12 Math Standards. A teacher panel discussing the day’s topics and a wrap-up by Executive Director of the Nebraska P-16 Initiative, Marty Mahler, rounded out the afternoon.

A reception and poster session followed the closing session, highlighting work from Math in the Middle researchers and past graduates.

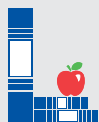
The Nebraska Summit on Mathematics Education is jointly funded by NebraskaMATH, Math in the Middle and the University of Nebraska-Lincoln, and represents an important step forward in focusing the state’s leadership on issues related to mathematics education and to the need for a statewide partnership to strengthen mathematics education in Nebraska.

The agenda for the Nebraska Summit on Mathematics Education can be found online at <http://scimath.unl.edu>. By early January, the Web site will have streaming video of the Summit’s major speakers and PowerPoint slides.

HAPPY HOLIDAYS!



Warm wishes for a safe and merry winter break



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