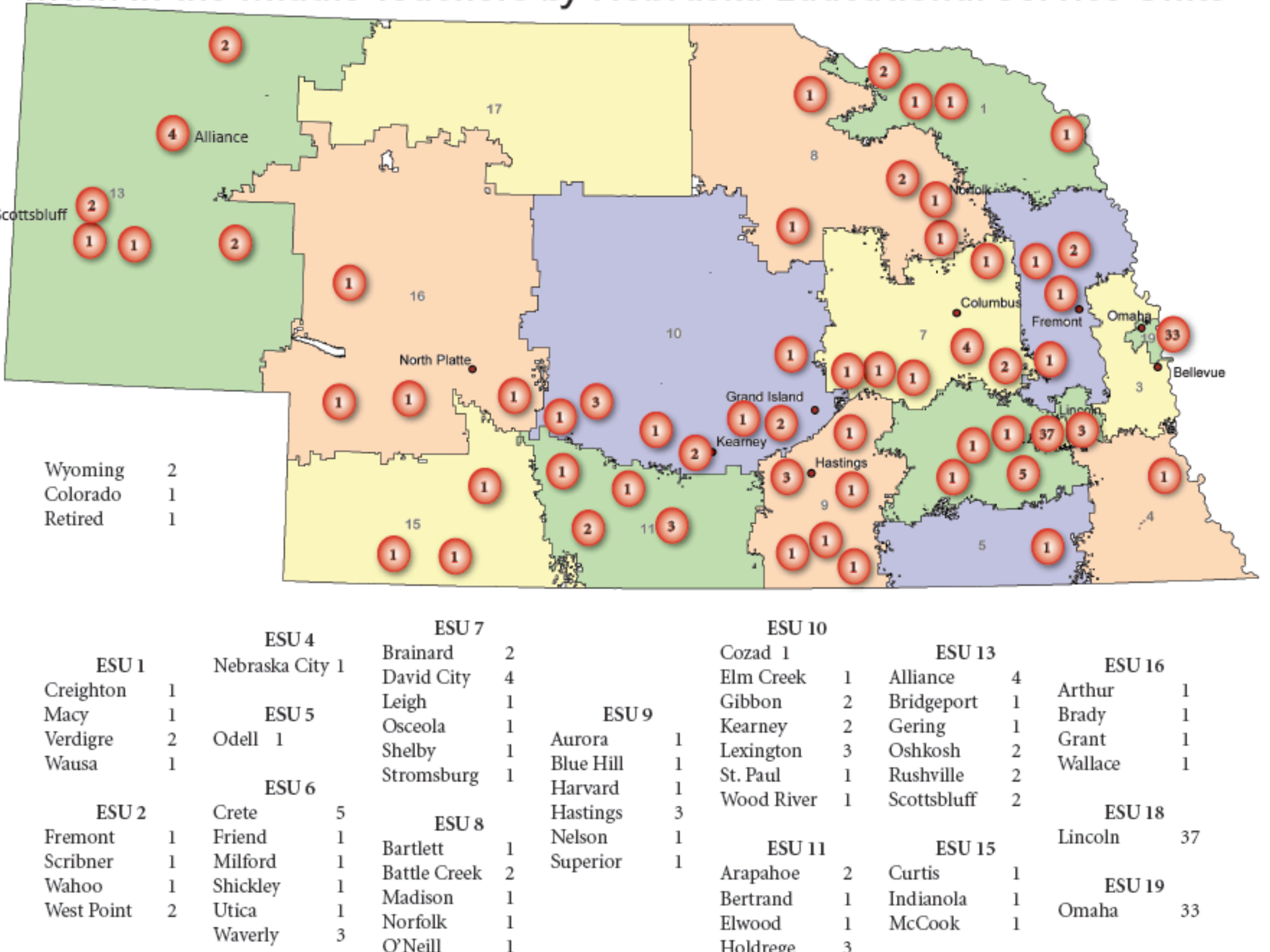


## Principal Investigators

- Jim Lewis, Mathematics Department, UNL (below left)
- Ruth Heaton, Teaching, Learning and Teacher Education, UNL (below right)
- Barb Jacobson, Lincoln Public Schools
- Tom McGowan, Teaching, Learning and Teacher Education, UNL



Math in the Middle Teachers by Nebraska Educational Service Units



## Mission Statement

By investing in high quality teachers, the M<sup>2</sup> mission is to improve student achievement in mathematics and significantly reduce the achievement gaps in the mathematical performance of diverse student populations in Nebraska.

## About the Institute

- Funded by a five-year, \$5 million grant from the National Science Foundation, with a two-year, \$900,000 supplement from the Noyce Foundation.
- Committed to supporting teachers as intellectual leaders in mathematics so all students are successful.
- Recruits outstanding middle-level (grades 5-8) teachers for a two-year master's degree program.
- During the Institute's first five years, 125 teachers have earned a master's degree.
- The supplement will enable 32 Omaha Public Schools teachers to earn a master's degree through the program.

## Research Questions

- What are the capacities of teachers to translate the mathematical knowledge and habits of mind acquired through the professional development opportunities of M<sup>2</sup> into measurable changes in teaching practices?
- To what extent do observable changes in mathematics teaching practice translate into measureable improvement in student performance?

## The M<sup>2</sup> Curriculum

- The M<sup>2</sup> curriculum consists of 12 challenging courses: three in pedagogy, eight in mathematics content, and one that fully integrates mathematics content and pedagogy.
- M<sup>2</sup> courses are completed during the summer or are taken online (with a face-to-face component) during the academic year and are taught by faculty in mathematics and mathematics education.
- M<sup>2</sup> Institute courses are offered for graduate credit to lead to a master's degree.
- M<sup>2</sup> courses focus on helping participants develop the habits of mind of mathematical thinkers.
- M<sup>2</sup> participants develop a stance of inquiry through the cycle of action research: making a change to teaching practices, then collecting and analyzing data to investigate and reflect on what happened.
- The M<sup>2</sup> Institute has made an effort to focus on rural education and educational leadership, having held multiple workshops since 2004 on these topics.

## Indicators of Success

- As stated in the proposal to NSF, the vision of the Math in the Middle Institute Partnership was to create a University/Educational Service Unit (ESU)/Local School District partnership with the capacity to educate and support teams of outstanding middle level mathematics teachers to become intellectual leaders in their schools, districts and ESUs. The basic strategy was to:
  - i) Build a sustainable partnership starting with LPS, ESU 6, ESU 7 and ESU 13;
  - ii) Create the Math in the Middle Institute, a master's program for middle level math teachers;
  - iii) Make a special investment in supporting rural Nebraska schools and teachers;
  - iv) Work with our ESU/local school district partners to support the M2 teacher leaders.
- During the past six years, we have worked with almost 160 teachers representing more than 106 schools and 60 school districts including Lincoln Public Schools and Omaha Public Schools. Despite the challenging nature of the program, the Institute boasts a 92 percent retention rate. We have worked with teachers from all 15 of Nebraska's rural ESUs. We have involved faculty from all three universities in the University of Nebraska system, as well as from Nebraska Wesleyan University.
- We have established the Nebraska Math and Science Summer Institutes to continue to offer Math in the Middle Institute courses to Nebraska teachers each summer.

## Selected Publications

- Heaton, R. M., Lewis, W. J., & Smith, W. M. (2009). Building middle level mathematics teachers' capacities as teachers and leaders: The Math in the Middle Institute Partnership. *The Journal of Mathematics and Science: Collaborative Explorations*, 11, 1-18.
- Pustejovsky, J.E., Spillane, J.P., Heaton, R.M., & Lewis, W.J. (2009). Understanding teacher leadership in middle school mathematics. *The Journal of Mathematics and Science: Collaborative Explorations*, 11, 19-40.
- Heaton, R. M., Smith, W., Kromminga, R., & Hartman, D. (2008). Understanding the meaning of rural within a middle school mathematics professional development and research project in Nebraska. *Appalachian Collaborative Center for Learning, Assessment, and Instruction in Mathematics, Working Paper No. 40*. <http://www.acclaim-math.org/docs/WP40.pdf>

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