A NEW ERA IN MATH EDUCATION

The Center for Teaching and Learning Mathematics (CTLM) is committed to improving education and seeks to assist teachers, students and families in making sense of mathematics at all levels, pre-kindergarten through college and beyond.

While many UNI students are unaware of the CTLM, the impact the center is having on education across the state is definitely being felt. With support from Math Science Partnership (MSP) Title II grants and the university, the CTLM exists to support teachers in the classroom, specifically striving to deepen teachers’ understanding of mathematical content and increase their ability to implement research-based best practices.

“When I grew up, mathematics was taught quite differently,” explained Julie Creeden, Writing Coordinator for the CTLM. “I was taught to memorize a procedure to solve a problem, and that was the only way to do it. I never really understood the math behind the procedure. The courses we have developed help teachers in the field who had math experiences similar to mine, really make sense of mathematics. Research shows that an increase in the pedagogical content knowledge of teachers has a positive effect on their students’ achievement.”

The CTLM created the Making Sense of Mathematics and Teaching (MSMT) professional development course series as a way to provide current Iowa elementary school educators with the training they need to become more effective teachers of mathematics. The Making Sense courses were developed by a team of UNI faculty members and math experts from across Iowa. The CTLM Director, Dr. Vicki Oleson, brought these professionals together to create high quality, research-based professional development courses that enhance math instruction. The center’s Assistant Director, Karis Townsend, aids Oleson in these efforts. Kaylee Tritle and Anna Backstrom are two student assistants who also work at the center.

“Currently, six, three-hour graduate level courses have been developed and are available for Iowa educators, and we are in the process of developing two more courses,” stated Creeden. “Our newest course, Making Sense of Programming, is currently being piloted by Dr. Ben Schafer, associate professor of computer science at UNI. Megan Balong, UNI math faculty member, is currently working to create Making Sense of Data and Statistics as our first fully online course. Our goal is to offer a math endorsement to teachers who take the that make up the MSMT series are:

- Making Sense of Numbers
- Making Sense of Operations
- Making Sense of Geometry
- Making Sense of Measurement
- Making Sense of Algebraic Thinking
- Making Sense of Rational Numbers
- Making Sense of Programming
- Making Sense of Data and Statistics

To assist in the training of new facilitators for these iBook Facilitator Guides, Creeden writes the content for these guides based on videotaped sessions facilitated by Connie Terry, math consultant at Great Prairie AEA. In an attempt to model best practice for new facilitator training, Creeden chooses video clips from these sessions, which are embedded in the iBooks by Jon Chamberlain, Multi-media Producer at the center. Dana Lechtenberg, CTLM Art Director, takes this content and creates very appealing, CTLM-branded iBook Facilitator Guides, with the assistance of Amy Frohardt-Schafer, CTLM Editor. To date, over twenty school districts throughout the state have felt the positive impact of the center’s professional development courses.
Last year marked an exciting expansion of the CTLM courses. Thanks to an additional MSP Grant for Special Education Math Professional Development (SPED math PD), the achievement gap between students with an Individualized Education Plan (IEP) and students without an IEP is being addressed. Beginning this past January, twenty special education teachers and consultants from the Waterloo Community School District (WCSD) began professional development to boost the effective use of math intervention time. Teachers are receiving support in their use of specially-designed instruction, as well as learning how to use diagnostic assessments to guide their instruction. The four courses that make up the Teaching Math to Struggling Learners (TMSL) series are:

- TMSL: Building Your Confidence
- TMSL: Addition, Subtraction and Place Value
- TMSL: Multiplication and Division
- TMSL: Fractions

This SPED math PD was developed by a team of UNI faculty members: Christina Curran, Kim Miller, Oleson, and Jean Hitchman; Green Hills AEA consultant, Connie Terry; WCSD Instructional Strategists, Odette Bulmer and Deb Colflesh; WCSD Special Needs Instructional Coach, Kelly Westley; and WCSD preK-12 Math Curriculum Specialist, Sarah Stephan.

Moving forward, the CTLM remains committed to high-quality professional development. As a result, elementary teachers are empowering students for lifelong learning by helping them make sense of, and develop an appreciation for, mathematics. Deb Marchesani, 1st grade teacher in Cedar Falls, states, “I am a more confident math teacher because of these courses.” Dennis Rokusek, WCSD math coach, adds, “The Making Sense courses do as the title suggests. These hands-on courses have increased my content understanding and allowed me to be more effective as a coach for the Waterloo School District.” Deb Colflesh sums it up, “The Teaching Math for Struggling Learners courses have opened my mind to the complexities of teaching math beyond programmed materials.” The Center for Teaching and Learning Mathematics is very proud to continue this rich tradition of making powerful learning a reality for each person it serves.

Local educators use wooden blocks to better understand geometry during one of the Making Sense courses.