

EMMA ECCLES JONES
COLLEGE OF EDUCATION
AND HUMAN SERVICES

MATHEMATICS EDUCATION —AND— LEADERSHIP NEWSLETTER

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DOCTORAL STUDENT WINS PRESIDENTIAL TEACHING AWARD



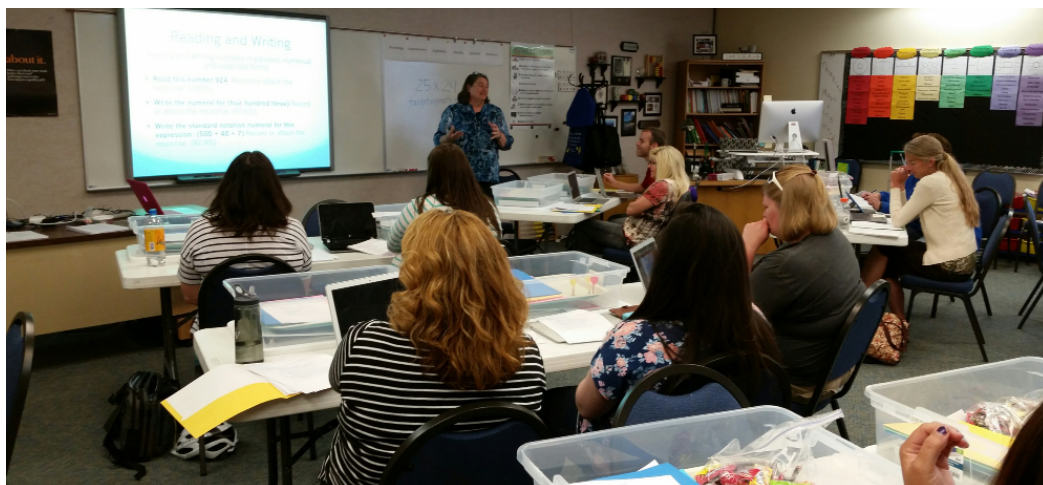
Vicki Lyons

Vicki Lyons, a mathematics teacher at Lone Peak High School, received one of the most prestigious awards a teacher can receive – the Presidential Award for Excellence in Mathematics and Science Teaching. Recipients of the award represent each of the 50 states and the District of Columbia. This award is the highest honor for a teacher of mathematics. Vicki was selected by a panel of distinguished scientists, mathematicians, and educators following an initial selection process at the state level for those teaching 7th through 12th grades. Winners of this Presidential honor receive a \$10,000 award from the National Science Foundation to be used at their discretion. In September 2016, Vicki was invited to Washington, DC, for an awards

ceremony, where she participated in educational and celebratory events, and the opportunity to meet US Secretary of Energy, Dr. Ernest Moniz, White House Officials, other leaders in science and technology, congressmen, and administrators at the National Science Foundation.

Vicki Lyons is in her 23rd year of teaching mathematics, 17 of which have been at Lone Peak High School where she currently teaches Honors III Mathematics, Advanced Placement (AP) Calculus BC, and AP Statistics. Her classroom experience ranges from Algebra I through college mathematics courses. By emphasizing socio-mathematical norms in her classroom, Vicki guides her students to become confident, knowledgeable, and authentic users of mathematics and statistics. Her focus is on helping students develop strong logical foundations through conceptual understanding, strategic reasoning, and practiced skill. Vicki is currently enrolled in her third year of coursework in her doctoral studies in the PhD program for Mathematics Education Leadership at Utah State University. Vicki writes: I am humbled and extremely grateful to represent this distinguished community of educators who daily strive to make a positive impact in the lives, dreams, and futures of our wonderful students.

LOGAN CITY SCHOOLS AND USU PARTNER FOR MATH INTERVENTION TRAINING GRANT



Dr. Arla Westenskow provides mathematics intervention training

The week of May 31 to June 3, 2016, 13 teachers participated in mathematics intervention training sponsored by a USOE grant in partnership between Logan City Schools and Utah State University's TIME Clinic. Teachers learned intervention strategies from Dr. Arla Westenskow, Director of the USU TIME Clinic and Barbara Child, Director of Elementary Mathematics for Logan City Schools. As part of the training, teachers used an iceberg model intervention assessment to identify students' strengths and difficulties. Using the assessment results, teachers selected from

the Targeted Mathematics Intervention web site remediation lessons and activities. Under the guidance of the workshop providers each teacher tutored three students for 10 sessions. Research conducted during the project showed that the training developed important skills and knowledge among the teachers about children with mathematical difficulties. Children who participated in the summer intervention sessions gained valuable mathematics skills and had improved dispositions about mathematics.

MATH EDUCATION WELCOMES NEW FACULTY MEMBER: DR. JESSICA SHUMWAY



Jessica Shumway

In Fall 2016, Dr. Jessica Shumway joined the Mathematics Education and Leadership faculty as an Assistant Professor in Elementary Mathematics Education in the School of Teacher Education and Leadership. Dr. Shumway earned her PhD from Utah State University, and her B.A. and M.Ed. from George Washington University. Her dissertation was titled: *A Counting Focused*

Instructional Treatment for Developing Number System Knowledge in Second Grade: A Mixed Methods Study on Children's Number Sense.

This study highlighted the importance of number sense developing over time with multiple, connected experiences. During her PhD program, Dr. Shumway won multiple awards including the Lawson Fellowship Award, Graduate Enhancement Award, and Graduate Research Assistant of the Year Award.

Dr. Shumway is quite well known in the mathematics education community among elementary teachers for her book: *Number Sense Routines: Building Numerical Literacy Every Day in Grades K-3*, and her teacher professional development video: *Go Figure! Number Sense Routines that Build Mathematical Understanding*, both published by Stenhouse Publishers. In addition to her Stenhouse publications, Dr. Shumway has written 14 refereed journal articles and 8 conference proceedings and papers. Prior to beginning her career in higher education, Dr. Shumway taught elementary school and was a preK – Grade 5 mathematics coach for teachers in Texas and Virginia in Title I public schools. She was trained in a variety of leadership strategies for mathematics instruction including *Developing Mathematical Ideas*, *Cognitively Guided Instruction*, and *Cognitive Coaching*. Dr. Shumway's research is centered on improving early childhood mathematics education. Specifically, she investigates effective and equitable instructional practices in preschool and primary grades mathematics classrooms that promote students' number sense development. Dr. Shumway enjoys chasing and wrestling her three young boys, reading newspapers, and exploring new restaurants with her husband.

USU ADMITS 4TH DOCTORAL COHORT IN MATHEMATICS EDUCATION

The Mathematics Education PhD concentration at Utah State University (USU) began in 2010. Since its inception, the program has had a 92% graduation rate and an 84% placement rate of its graduates obtaining university positions. In the fall 2016, the program accepted nine new students into its fourth cohort. Let's meet this exceptional group of new scholars. Jenny Nehring and Thomas Mgonja are both faculty at Utah Valley University. Jenny chose USU because of its strong faculty and she plans to conduct research on methods that encourage student success in mathematics. Thomas plans to pursue research interests on inclusive pedagogies for ethnic minorities and says that the USU program was highly recommended by his colleagues. Angie Frabasilio is a 7th-grade teacher in the Washington County School District. She wants students to discover patterns in mathematics and she chose USU because of the cohort program. Trent Fawcett is a Data Analyst and Programmer at FamilySearch. His goal is to teach statistics and data science at the college level. Jet Warr has a dual role as the Secondary Mathematics Specialist for the Iron County School District and an AP Statistics teacher at Parawan High School. Jet comes from a family of Aggies and earning her PhD at USU is a lifetime goal. Rachel Reeder is a first grade Dual Language Immersion (DLI) teacher in Logan City Schools. She hopes to contribute to the DLI field with mathematics content instruction delivered in a second language. Kristy Litster and Jill Ashby are fulltime Graduate Research Assistants (GRA) at USU where they teach university courses and conduct research with faculty. Kristy wants to help students have a deeper understanding of mathematics and chose USU because of its strong research-based program. Jill wants to gain new insights for teacher training. Michael Leitch is an online instructor and administrator for the Academy of Art University. He says that being able to live and work in Southern Utah and attend a high quality, well respected program is a dream come true. Welcome students!



L to R: Jenny Nehring, Thomas Mgonja, Angie Frabasilio, Trent Fawcett, Jet Warr, Rachel Reeder



L to R: Kristy Litster, Jill Ashby, Michael Leitch

MOYER-PACKENHAM PUBLISHES INTERNATIONAL VIRTUAL MANIPULATIVES BOOK



L to R: Ming-Jang Chen, Taiwan, Republic of China; Kevin Larkin, Australia; Silke Ladel, Germany; Stephen Tucker, United States; Agida Manizade, Canada; Patricia Moyer-Packenham, United States; Ulrich Kortenkamp, Germany

In July 2016, the International Congress on Mathematics Education (ICME) conference in Hamburg, Germany, was the setting for the release of the book: *International Perspectives on Teaching and Learning Mathematics with Virtual Manipulatives* published by Springer. Patricia Moyer-Packenham served as editor of the book and brought together renowned scholars from around the world to contribute to the publication. The book explores terminology, frameworks, and research being conducted worldwide on virtual manipulatives. International authors share their perspectives on virtual manipulatives in research and teaching. By defining terminology, explaining conceptual and theoretical frameworks, and reporting research, the authors provide a comprehensive foundation on the study and use of virtual manipulatives for mathematics teaching and



L to R: Silke Ladel, Germany; Ulrich Kortenkamp, Germany; Patricia Moyer-Packenham, United States; and Immaculate Namukasa, Canada

learning. This foundation provides a common way for researchers to communicate about virtual manipulatives and build on the major works that have been conducted on this topic. The book looks toward future research on virtual manipulatives as these dynamic tools move from computer platforms to hand-held, touch-screen, and augmented platforms. The book features a forward by Doug McDougall of the University of Toronto, and chapters by researchers from Australia, Belgium, Brazil, Canada, Germany, Sweden, Taiwan, Turkey, and the United States. Springer Publishers held a reception for book authors at the ICME conference where many of the contributing authors had the opportunity to meet and share in the accomplishment of this collaborative project.

WATTS TEACHES GIRLS ABOUT COMPUTER PROGRAMMING IN APP CAMPS

Who says that girls don't like math and computer science? Certainly not PhD student Christina Watts! Watts has Bachelors and Master's degrees in mathematics, is currently a PhD student in the Mathematics Education program, and has expertise in computer languages and computer programming. This summer she served as an instructor and mentor for over 100 young girls participating in app camps. Watts participated in four different app camps from June 27 to August 24, 2016, including App Camp Mentor Training, all-girls App Camp, Utah State University STARS! GEAR UP App Camp Mentor Training and GEAR UP App Camp. App Camp included 100 campers and 30 student mentors, while the GEAR UP App Camp included 20 campers and 10 student mentors. These app camps were funded by the U.S. Dept. of Education USU STARS! GEAR UP program, the STEM Action Center, and Aspire IT.

Prior to the beginning of the camp, Watts helped in the development of curriculum, creating a complete online course with documentation for all of the activities the mentors and campers would complete. During the camps, Watts, along with Drs. Vicki Allan and Jody Clarke-Midura, were instructors for coding and mentoring skills and taught the girls to develop applications using MIT's App Inventor 2, a drag-and-drop block programming interface which instantly displays their apps on their Android device. During each camp, Watts taught lessons about programming, organized activities for mentor training, and updated the online course. She also assisted in conducting the research associated with the camps through data coding and initial

data analysis. The purpose of the mentor training was to prepare high-performing high school females to code and to learn to mentor their younger peers. Mentors and campers learned to program apps using MIT's App Inventor 2 and were able to program 13 applications during the camps. Mentors learned about teaching, mentoring, coding, and computer science careers. Campers learned to code and learned about various careers in computer science.



On the right, Doctoral Student Christina Watts, assists a camper during app camp



**2605 Old Main Hill
Logan, UT 84322-2605**



ABOUT US

The Mathematics Education and Leadership Programs in the School of Teacher Education and Leadership in the Emma Eccles Jones College of Education and Human Services provide students with a variety of advanced study options in mathematics education at the graduate level. Students can select the Mathematics Education and Leadership Emphasis in the PhD program, the Elementary Mathematics Endorsement emphasis in the Master of Education Degree in Elementary Education, professional development credit in the online Elementary Mathematics Teachers Academy, or the Secondary Mathematics Emphasis in the Master of Education Degree in Secondary Education. The Mathematics Education and Leadership Programs at Utah State University provide students with opportunities to focus on enhancing their mathematics education expertise and develop leadership skills for positions at all levels of mathematics teaching, learning, supervision, and research. Contact the director today to begin your graduate work in Mathematics Education and Leadership at Utah State University!

PATRICIA MOYER-PACKENHAM, PHD
MATHEMATICS EDUCATION AND LEADERSHIP PROGRAM DIRECTOR
PATRICIA.MOYER-PACKENHAM@USU.EDU (435) 797-2597