

October 2018

**ERIC KNUTH**  
Professor

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University of Texas  
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**EDUCATION**

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**Ph.D. Instruction & Curriculum**

Specialization in Mathematics Education  
University of Colorado-Boulder

**Certificate in Cognitive Science**

Institute of Cognitive Science  
University of Colorado-Boulder

**M.A. Mathematics**

San Diego State University

**Secondary Mathematics & Physics Teaching Credential**

San Diego State University

**B.S. Electrical Engineering**

University of Illinois-Champaign/Urbana

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**PROFESSIONAL EXPERIENCE**

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**Professor**

University of Texas at Austin, Department of Curriculum & Instruction (August, 2017 - present)

**Director of the STEM Center**

University of Texas at Austin (October, 2018 - present)

**Professor**

University of Wisconsin-Madison, Departments of Curriculum & Instruction and Educational Psychology (August, 2009 - August, 2017)

**Associate Professor**

University of Wisconsin-Madison, Departments of Curriculum & Instruction and Educational Psychology (August, 2005 - August, 2009)

**Assistant Professor**

University of Wisconsin-Madison, Departments of Curriculum & Instruction and Educational Psychology (August, 1999 – August, 2005)

**Mathematics Teacher**

Granite Hills High School, El Cajon, CA (August, 1991 - June, 1995)

**Electrical Engineer**

Naval Ocean Systems Center, San Diego, CA (July, 1984 - August, 1990)

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**RESEARCH SUPPORT**

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**Principal Investigator**, *Fostering Productive Example Use in Proving-related Activities*, funded by the University of Texas at Austin College of Education Small Grants Program (\$5,906). Spring 2018-Summer 2018

**Principal Investigator**, *Identifying Effective Instructional Practices that Foster the Development of Algebraic Thinking in Elementary School*, funded by the National Science Foundation (\$1,378,542). 2017-2021

**Principal Investigator**, *Building a Grades K-2 Early Algebra Learning Progression Prototype for Diverse Populations*, funded by the National Science Foundation (\$1,628,813). 2017-2020

**Principal Investigator**, *Extending a Grades 3-5 Early Algebra Learning Progression into Grades K-2*, funded by the Institute of Education Sciences (\$1,399,920). 2017-2021

**Principal Investigator**, *The Impact of a Teacher-Led Early Algebra Intervention on Children's Algebra-Readiness for Middle School*, funded by the Institute of Education Sciences (\$3,500,000). 2014-2018

**Principal Investigator**, *Retention of Early Algebraic Understanding*, funded by the National Science Foundation (\$47,787). 2015-2016

**Co-Principal Investigator**, *Postdoctoral Fellowship Program in Mathematical Thinking, Learning and Instruction*, funded by the Institute of Education Sciences (\$705,000). 2013-2016

**Principal Investigator**, *The Role and Use of Examples in Learning to Prove*, funded by the National Science Foundation (\$995,997). 2012-2016

**Principal Investigator**, *The Impact of Early Algebra on Students' Algebra-Readiness*, funded by the National Science Foundation (\$939,935). 2012-2016

**Principal Investigator**, *Mathematics Courses for Middle School Teachers: Examining the Influence on Teachers' Knowledge and Practice*, funded by the University of Wisconsin Graduate School Research Committee (\$26,244). 2011-2012

**Principal Investigator**, *Developing Algebra-Ready Students for Middle School: Exploring the Impact of Early Algebra*, funded by the National Science Foundation (\$1,578,658). 2009-2012

**Co-Principal Investigator**, *Postdoctoral Fellowship Program in Mathematical Thinking, Learning and Instruction*, funded by the Institute of Education Sciences (\$655,000). 2010-2013

**Co-Principal Investigator**, *How do Instructional Gestures Support Students' Mathematics Learning?* funded by the National Science Foundation (\$1,000,000). 2009-2012

**Principal Investigator**, *Understanding and Cultivating the Connections between Students' Natural Ways of Reasoning and Mathematical Ways of Reasoning*, funded by the National Science Foundation (\$741,938). 2008-2012

**Co-Principal Investigator**, *Does Visual Scaffolding Facilitate Students' Mathematics Learning? Evidence from Early Algebra*, funded by the Institute of Education Sciences (\$683,753). 2006-2009

**Principal Investigator**, *Understanding and Cultivating the Connections between Students' Natural Ways of Reasoning and Mathematical Ways of Reasoning*, funded by the University of Wisconsin Graduate School Research Committee (\$15,000). 2006-2007

**Director**, *Mentoring Mathematics Teachers*, professional development program funded by the Calculus Consortium for Higher Education (\$5,340). 2005-2006

**Principal Investigator**, *Understanding and Cultivating the Development of Students' Competencies in Justifying and Proving*, funded by the National Science Foundation Career Program (\$701,649). 2001-2006

**Co-Principal Investigator**, *Understanding and Cultivating the Transition from Arithmetic to Algebraic Reasoning*, funded by an Interagency Educational Research Initiative (NSF, NICHD, DOE) (\$5,798,281). 2001-2006

**Director**, *Teaching Mathematics with Technology Project*, professional development program funded by the University of Wisconsin System (\$98,804). 2000-2003

**Principal Investigator**, *Roles and Relationships in the Mentoring of Beginning Teachers*, funded by the University of Wisconsin Graduate School Research Committee (\$13,000). 1999-2000

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## HONORS & AWARDS

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Mentoring Fellowship, University of Texas at Austin Graduate School, 2018 - 2019

Chair of the AERA Special Interest Group for Research in Mathematics Education, 2011 - 2013

Doris Schlesinger Award for Excellence in Mentoring finalist (UW-Madison), 2006 & 2009

National Council of Teachers of Mathematics Research Committee, 2008 - 2011

Executive Board member of the AERA Special Interest Group in Research in Mathematics Education, 2004 - 2006

National Science Foundation Early Career Award, 2001

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## PUBLICATIONS

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### Journal Articles

Ellis, A., Ozgur, Z., Vinsonhaler, R., Dogan, M., Carolan, T., Lockwood, E., Lynch, A., Sabouri, P., **Knuth, E.**, & Zaslavsky, O. (In press). Student thinking with examples: The criteria-affordances-purposes-strategies framework. *Journal of Mathematical Behavior*.

**Knuth, E.**, Zaslavsky, O., & Ellis, A. (In press). The role and use of examples in learning to prove. *Journal of Mathematical Behavior*.

Ozgur, Z., Ellis, A., Vinsonhaler, R., Dogan, M., & **Knuth, E.** (In press). From examples to proof: Purposes, strategies, and affordances of example use. *Journal of Mathematical Behavior*.

Alibali, M., & **Knuth, E.** (2018). Bridging psychology and mathematics education: Reflections on boundary crossing. *Journal of Numerical Cognition*, 4(1), 9-18.

- Fonger, N., Stephens, A., Blanton, M., Isler, I., **Knuth, E.**, & Gardiner, A. (2018). Developing an early algebra learning progression for curriculum, instruction, and student learning. *Cognition & Instruction, 30*(1), 30-55.
- Nardi, E., & **Knuth, E.** (2017). Changing classroom culture, curricula, and instruction for proof and proving: How amenable to scaling up, practicable for curricular integration, and capable of producing long-lasting effects are current interventions? *Educational Studies in Mathematics, 267-274*.
- Stephens, A., Fonger, N., Strachota, S., Isler, I., Blanton, M., **Knuth, E.**, & Gardiner, A. (2017). A learning progression for elementary students' functional thinking. *Mathematical Thinking and Learning, 19*(3), 143-166.
- Knuth, E.**, Stephens, A., Blanton, M., & Gardiner, A. (2016). Build an early foundation for algebra success. *Kappan, 97*(6), 65-68.
- Blanton, M., Stephens, A., **Knuth, E.**, Gardiner, A., Isler, I., & Kim, J.S. (2015). The development of children's algebraic thinking: The impact of a comprehensive early algebra intervention in third grade. *Journal for Research in Mathematics Education, 46*(1), 39-87.
- Stephens, A., Blanton, M., **Knuth, E.**, Isler, I., & Gardiner, A. (2015). Just say "YES" to early algebra. *Teaching Children Mathematics, 22*(2), 92-101.
- Alibali, M., Nathan, M., Wolfgram, M., Church, R. B., Jacobs, S., Martinez, C., & **Knuth, E.** (2014). How teachers link ideas in mathematics instruction using speech and gesture: A corpus analysis. *Cognition & Instruction, 32*(1), 65-100.
- Isler, I., Marum, T., Stephens, A., Blanton, M., **Knuth, E.**, & Gardiner, A. (2014). The string task: Not just for high school. *Teaching Children Mathematics, 21*(5), 282-292.
- Lockwood, E., & **Knuth, E.** (2014). Postdoctoral positions in mathematics education: Why so little interest? *Journal for Research in Mathematics Education, 45*(5), 542-549.
- Alibali, M., Nathan, M., Church, R. B., Wolfgram, M., Kim, S., & **Knuth, E.** (2013). Teachers' gestures and speech in mathematics lessons: Forging common ground by resolving trouble spots. *ZDM - International Reviews on Mathematical Education, 45*(3), 425-440.
- Alibali, M., Young, A., Crooks, N., Yeo, A., Wolfgram, M., Ledesma, M., Nathan, M., Church, R. B., & **Knuth, E.** (2013). Students learn more when their teacher has learned to gesture effectively. *Gesture, 13*(2), 210-233.
- Ko, Y. Y., & **Knuth, E.** (2013). Validating proofs and counterexamples across content domains: Practices of importance for mathematics majors. *Journal of Mathematical Behavior, 32*(1), 20-35.
- Stephens, A., **Knuth, E.**, Blanton, M., Isler, I., Murphy Gardiner, A., & Marum, T. (2013). Equation structure and the meaning of the equal sign: The impact of task selection in eliciting elementary students' understandings. *Journal of Mathematical Behavior, 32*(2), 173-182.
- Hattikudur, S., Prather, R., Asquith, P., Alibali, M., **Knuth, E.**, & Nathan, M. (2012). Constructing graphical representations: Middle schoolers' intuitions and developing knowledge about slope and y-intercept. *School Science and Mathematics, 112*(4), 230-240.

- Rassmussen, C., Heck, D., Tarr, J., **Knuth, E.**, White, D., Lambdin, D., Baltzley, P., & Quander, J. (2011). Trends and issues in high school mathematics: Research insights and needs. *Journal for Research in Mathematics Education*, 42(3), 204-219.
- Boerst, T., Confrey, J., Heck, D., **Knuth, E.**, Lambdin, D., White, D., Baltzley, P., & Quander, J. (2010). Strengthening research by designing for coherence and connections to practice. *Journal for Research in Mathematics Education*, 41(3), 216-235.
- McNeil, N., Weinberg, A., Stephens, A., Hattikudur, S., Asquith, P., **Knuth, E.**, & Alibali, M. (2010). A is for apple: Mnemonic symbols hinder students' interpretation of algebraic expressions. *Journal of Educational Psychology*, 102(3), 625-634.
- Knuth, E.**, Choppin, J., & Bieda, K. (2009). Proof in middle school: Moving beyond examples. *Mathematics Teaching in the Middle School*, 15(4), 206-211.
- Ko, Y., & **Knuth, E.** (2009). Undergraduate mathematics majors' writing performance producing proofs and counterexamples in continuous functions. *Journal of Mathematical Behavior*, 28(1), 68-77.
- Battista, M., Boester, T., Confrey, J., **Knuth, E.**, Smith, M., Sutton, J., White, D., & Quander, J. (2009). Research in mathematics education: Multiple methods for multiple uses. *Journal for Research in Mathematics Education*, 40(3), 216-240.
- Knuth, E.**, Alibali, M., Hattikudur, S., McNeil, N., & Stephens, A. (2008). The equal sign: A topic of importance for middle school mathematics. *Mathematics Teaching in the Middle School*, 13(9), 514-519.
- Alibali, M., **Knuth, E.**, Hattikudur, S., McNeil, N., & Stephens, A. (2007). A longitudinal examination of middle school students' understandings of the equal sign and performance solving equivalent equations. *Mathematical Thinking and Learning*, 9(3), 221-247.
- Asquith, P., Stephens, A., **Knuth, E.**, & Alibali, M. (2007). Middle school teachers' understanding of core algebraic concepts: Equal sign and variable. *Mathematical Thinking and Learning*, 9(3), 249-272.
- Hyde, J., Else-Quest, N., Alibali, M., **Knuth, E.**, & Romberg, T. (2006). Mathematics in the home: Homework practices and mother-child interactions doing mathematics. *Journal of Mathematical Behavior*, 25(2), 136-152.
- Knuth, E.**, Stephens, A., McNeil, N., & Alibali, M. (2006). Does understanding the equal sign matter? Evidence from solving equations. *Journal for Research in Mathematics Education*, 37(4), 297-312.
- McNeil, N., Grandau, L., **Knuth, E.**, Alibali, M., Stephens, A., Hattikudur, S., & Krill, D. (2006). Middle-school students' understanding of the equal sign: The books they read can't help. *Cognition & Instruction*, 24(3), 367-385.
- Cai, J. & **Knuth, E.** (2005). The development of students' algebraic thinking in earlier grades: Multiple perspectives. *Zentralblatt für Didaktik der Mathematik* (International Reviews on Mathematical Education), 37(1), 1-4.
- Knuth, E.**, Alibali, M. W., Weinberg, A., McNeil, N., & Stephens, A. (2005). Middle school students' understanding of core algebraic concepts: Equality & variable. *Zentralblatt für Didaktik der Mathematik* (International Reviews on Mathematical Education), 37(1), 68-76.

- Peressini, D., Borko, H., Romagnano, L., **Knuth, E.**, & Willis-Yorker, C. (2004). A conceptual framework for learning to teach secondary mathematics: A situative perspective. *Educational Studies in Mathematics*, 56(1), 67-96.
- Knuth, E.** & Peterson, B. (2003). Fostering mathematical curiosity: Highlighting the mathematics. *Mathematics Teacher*, 96(8), 574-579.
- Nathan, M. & **Knuth, E.** (2003). A study of whole classroom mathematical discourse and teacher change. *Cognition & Instruction*, 21(2), 175-207.
- Knuth, E.** (2002). Secondary school mathematics teachers' conceptions of proof. *Journal for Research in Mathematics Education*, 33(5), 379-405.
- Knuth, E.** (2002). Teachers' conceptions of proof in the context of secondary school mathematics. *Journal of Mathematics Teacher Education*, 5(1), 61-88.
- Knuth, E.** (2002). Proof as a tool for learning mathematics. *Mathematics Teacher*, 95(7), 486-490.
- Knuth, E.** (2002). Fostering mathematical curiosity. *Mathematics Teacher*, 95(2), 126-130.
- Knuth, E.** & Peressini, D. (Summer/Fall, 2001). A theoretical framework for examining discourse in mathematics classrooms. *Focus on Learning Problems in Mathematics*, 23(2/3), 5-22.
- Knuth, E.** & Peressini, D. (2001). Unpacking the nature of discourse in mathematics classrooms. *Mathematics Teaching in the Middle School*, 6(5), 320-325.
- Borko, H., Peressini, D., Romagnano, L., **Knuth, E.**, Willis-Yorker, C., Wooley, C., Hovermill, J., & Masarik, K. (2000). Teacher education does matter: A situative view of learning to teach secondary mathematics. *Educational Psychologist*, 35(3), 193-206.
- Knuth, E.** (2000). Student understanding of the Cartesian Connection: An exploratory study. *Journal for Research in Mathematics Education*, 31(4), 500-508.
- Knuth, E.** (2000). Student understanding of connections between equations and graphs. *Mathematics Teacher*, 93(1), 48-53.
- Knuth, E.** (May/June, 2000). The rebirth of proof in school mathematics in the United States? *International Newsletter on the Teaching and Learning of Mathematical Proof* [On-line]. Available: <http://www-cabri.imag.fr/Preuve/>.
- Peressini, D. & **Knuth, E.** (2000). The role of tasks in developing communities of mathematical inquiry. *Teaching Children Mathematics*, 6(6), 391-397.
- Knuth, E.** & Elliott, R. (1998). Characterizing the nature of students' understandings of mathematical proof. *Mathematics Teacher*, 91(8), 714-717.
- Peressini, D. & **Knuth, E.** (1998). Why are you talking when you could be listening? The role of discourse in the professional development of mathematics teachers. *Teaching and Teacher Education*, 14(1), 107-125.

### **Books, Book Chapters, and Monographs**

- Blanton, M., Brizuela, B., Stephens, A., **Knuth, E.**, Isler, I., Gardiner, A., & Demers, L., Fonger, N., & Stylianou, D. (2018). Implementing a framework for early algebra. In C. Kieran (Ed.),

*Teaching and learning algebraic thinking with 5- to 12-year-olds* (pp. 27-49). ICME-13 Monographs. Heidelberg, Germany: Springer.

Strachota, S., **Knuth, E.**, & Blanton, M. (2018). Cycles of generalizing activities in the classroom. In C. Kieran (Ed.), *Teaching and learning algebraic thinking with 5- to 12-year-olds* (pp. 351-378). ICME-13 Monographs. Heidelberg, Germany: Springer.

Stephens, A., & **Knuth, E.** (2017). Algebraic reasoning in grades 6-8. In M. Battista (Ed.), *Reasoning and sense making in the elementary grades* (pp. 57-81). Reston, VA: National Council of Teachers of Mathematics.

Bolt, D., Kim, J., Blanton, M., & **Knuth, E.** (2016). Applications of item response theory in mathematics education research. In A. Izsak, J. Remillard, & J. Templin (Eds.), *Psychometric methods in mathematics education: Opportunities, challenges, and interdisciplinary collaborations* (pp. 31-52). *Journal for Research in Mathematics Education Monograph*.

**Knuth, E.**, & Stephens, A. (2016). Understanding the equal sign really does matter! In E. Silver & P. Kenney (Eds.), *More lessons learned from research, Volume 2* (pp. 135-139). Reston, VA: National Council of Teachers of Mathematics.

**Knuth, E.** (2015). Teachers and proof in school mathematics. In E. Silver & P. Kenney (Eds.), *More lessons learned from research, Volume 1* (pp. 39-48). Reston, VA: National Council of Teachers of Mathematics.

Ellis, A.B., Bieda, K., & **Knuth, E.** (2012). *Essential understandings project: Reasoning and Proving in High School Mathematics (Gr. 9-12)*. Reston, VA: National Council of Teachers of Mathematics.

**Knuth, E.**, Kalish, C., Ellis, A., Williams, C., & Felton, M. (2011). Adolescent reasoning in mathematical and non-mathematical domains: Exploring the paradox. In V. Reyna, S. Chapman, M. Dougherty, & J. Confrey (Eds.), *The adolescent brain: Learning, reasoning, and decision making* (pp. 183-209). Washington, DC: American Psychological Association.

Cai, J., & **Knuth, E.** (2011). *Early algebraization: A global dialogue from multiple perspectives*. Heidelberg, Germany: Springer.

**Knuth, E.**, Alibali, M., Weinberg, A., McNeil, N., & Stephens, A. (2011). Middle school students' understanding of core algebraic concepts: Equality & variable. In J. Cai and E. Knuth (Eds.), *Early algebraization: A global dialogue from multiple perspectives* (pp. 259-276). Heidelberg, Germany: Springer.

**Knuth, E.**, Choppin, J., & Bieda, K. (2009). Middle school students' production of mathematical justifications. In D. Stylianou, M. Blanton, & E. Knuth (Eds.), *Teaching and learning proof across the grades: A K-16 perspective* (pp. 153-170). New York, NY: Routledge.

Stylianou, D., Blanton, M., & **Knuth, E.** (2009). *Teaching and learning proof across the grades: A K-16 perspective*. New York, NY: Routledge.

**Knuth, E.**, & Elliott, R. (2008). Characterizing students' understanding of mathematical proof. In P. Elliott & C. Garnett (Eds.), *Getting into the mathematical conversation* (pp. 78-84). Reston, VA: NCTM.

**Knuth, E.** & Hartmann, C. (2005). Using technology to foster students' mathematical understandings and intuitions. In W. Masalski (Ed.), *2005 Yearbook, Technology-Supported Mathematics Learning Environments* (pp. 151-164). Reston, VA: National Council of Teachers of Mathematics.

Peressini, D. & **Knuth, E.** (2005). The role of technology in representing mathematical problem situations and concepts. In W. Masalski (Ed.), *2005 Yearbook, Technology-Supported Mathematics Learning Environments* (pp. 277-290). Reston, VA: National Council of Teachers of Mathematics.

Peressini, D. & **Knuth, E.** (1998). The importance of algorithms in performance based assessments. In M. Kenney (Ed.), *1998 Yearbook, Teaching and Learning Algorithms in School Mathematics* (pp. 56-68). Reston, VA: National Council of Teachers of Mathematics.

### **Reports**

Arbaugh, F., Herbel-Eisenmann, B., Ramirez, N., **Knuth, E.**, Kranendonk, H., & Quander, J. (2010). Linking research and practice: The NCTM Research Agenda Report. Reston, VA: NCTM.

### **Conference Proceedings**

**Knuth, E.**, Ellis, A., & Zaslavsky, O. (July, 2016). The role of examples in proving-related activities. *Proceedings of the Thirteenth International Congress on Mathematical Education*.

Lockwood, E., Ellis, A., & **Knuth, E.** (February, 2013). Mathematicians' example-related activity when proving conjectures. In S. Brown, G. Karakok, K. Hah Roh, & M. Oehrtman (Eds.), *Proceedings of the Sixteenth Annual Conference on Research in Undergraduate Mathematics Education*, 16-30. [Received Honorable Mention Award for Best Conference Paper.]

Ellis, A., Lockwood, E., Williams, C., Dogan, M., & **Knuth, E.** (November, 2012). Middle school students' example use in conjecture exploration and justification. In L. Van Zoest, J.J. Lo, & J. Kratky (Eds.), *Proceedings of the Thirty-fourth Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education*, 135-142.

Lockwood, E., Ellis, A., Dogan, M., Williams, C., & **Knuth, E.** (November, 2012). A framework for mathematicians' example-related activity when exploring and proving mathematical conjectures. In L. Van Zoest, J.J. Lo, & J. Kratky (Eds.), *Proceedings of the Thirty-fourth Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education*, 151-158.

Williams, C., Akinsiku, O., Walkington, C., Cooper, J., Ellis, A., Kalish, C., & **Knuth, E.** (October, 2011). Understanding students' similarity and typicality judgments in and out of mathematics. *Proceedings of the Thirty-third Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education*, pp. 1180–1189.

Cooper, J., Walkington, C., Williams, C., Akinsiku, O., Kalish, C., Ellis, A., & **Knuth, E.** (July, 2011). Adolescent reasoning in mathematics: Exploring middle school students' strategic approaches in empirical justifications. In L. Carlson, C. Hölscher, & T. Shipley (Eds.), *Proceedings of the Thirty-third Annual Conference of the Cognitive Science Society*, 2188–2193.



- Ko, Y., **Knuth, E.**, & Shy, H. (July, 2008). Taiwanese undergraduates' performance constructing proofs and generating counterexamples in differentiation. *Proceedings of the Eleventh International Congress on Mathematics Education*.
- Ko, Y., **Knuth, E.**, & Shy, H. (February, 2008). Taiwanese undergraduates' proof performance in the domain of continuous functions. *Proceedings of the Conference on Research in Undergraduate Mathematics Education*.
- Bieda, K., Holden, C., & **Knuth, E.** (October, 2006). Does proof prove? Students' emerging beliefs about generality and proof in middle school. *Proceedings of the Twenty-eighth Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education*, 395-402.
- Knuth, E.** & Sutherland, J. (October, 2004). Student understanding of generality. *Proceedings of the Twenty-sixth Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education*, 561-567.
- McNeil, N., Grandau, L., Stephens, A., Krill, D., Alibali, M. W., & **Knuth, E.** (October, 2004). Middle-school students' experience with the equal sign: *Saxon Math* does not equal *Connected Mathematics*. *Proceedings of the Twenty-sixth Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education*, 271-275.
- Brendefur, J. & **Knuth, E.** (July, 2004). Elementary students' use of conjectures to deepen understanding. *Proceedings of the Twenty-eighth Annual Meeting of the International Group for the Psychology of Mathematics Education*, 292.
- Knuth, E.**, Choppin, J., Slaughter, M., & Sutherland, J. (October, 2002). Mapping the conceptual terrain of middle school students' competencies in justifying and proving. *Proceedings of the Twenty-fourth Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education*, 1693-1700.
- Knuth, E.** & Peressini, D. (July, 2001). A theoretical framework for examining discourse in mathematics classrooms. *Proceedings of the Twenty-fifth Annual Meeting of the International Group for the Psychology of Mathematics Education*, 327.
- Peressini, D. & **Knuth, E.** (November, 1998). The dualistic nature of school mathematics discourse. *Proceedings of the Twentieth Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education*, 227-233.
- Elliott, R. & **Knuth, E.** (October, 1997). Teacher change: Developing an understanding of meaningful mathematics discourse. *Proceedings of the Nineteenth Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education*, 285-290.
- Knuth, E.** & Elliott, R. (October, 1997). Preservice secondary mathematics teachers' interpretations of mathematical proof. *Proceedings of the Nineteenth Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education*, 545-552.
- Peressini, D. & **Knuth, E.** (October, 1997). Those who talk, those who listen, ever the twain shall meet: Further examining the role of discourse in the professional development of mathematics teachers. *Proceedings of the Nineteenth Annual Meeting of the North*

*American Chapter of the International Group for the Psychology of Mathematics Education*, 306.

**Knuth, E.** (October, 1996). Discourse and development of conceptual understanding in the elementary mathematics classroom. *Proceedings of the Eighteenth Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education*, 157.

**Knuth, E.** (October, 1995). Student understanding of the equivalence between algebraic and graphical representations of a function. *Proceedings of the Seventeenth Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education*, 304.

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## SCHOLARLY PRESENTATIONS (last 5 years)

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### Invited/Plenary Talks:

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| August, 2018   | Gyeongnam International Conference on Mathematics Education<br>Changwon, South Korea<br><i>Developing Students' Mathematical Curiosity, Reasoning, and Sense-making</i>   |
| February, 2017 | Tennessee STEM Education Research Conference<br><i>The Impact of Early Algebra of Students' Algebra-Readiness</i>   |
| July, 2016     | International Congress on Mathematical Education<br>Hamburg, Germany<br><i>The Role of Examples in Proving-Related Activities</i>   |
| April, 2015    | Brigham Young University<br><i>Project LEAP: Learning through an Early Algebra Progression</i>  |
| April, 2015    | Utah Association of Mathematics Teacher Educators Conference<br>Provo, UT<br><i>Laying a Foundation for Proving: Fostering Mathematical Curiosity, Sense Making, and Reasoning</i>                                    |
| February, 2014 | Leadership Seminar on Mathematics Professional Development<br>Teacher Development Group Annual Conference, Portland, OR<br><i>Paving the Road to Proof: Mathematical Explorations, Conjecturing, &amp; Justifying</i> |
| October, 2013  | Frontier Lecture Series<br>Texas A&M University<br><i>The Impact of Early Algebra on Students' Algebra Readiness</i>  |
| October, 2013  | Northwest Mathematics Conference<br>Seattle, WA<br><i>Laying a Foundation for Proving: Fostering Mathematical Curiosity, Sense Making, and Reasoning.</i>   |
| February, 2013 | Leadership Seminar on Mathematics Professional Development<br>Teacher Development Group Annual Conference, Portland, OR   |

*Developing Teachers' Proving Eyes and Ears***Research Presentations:**

- April, 2018            AERA Annual Meeting, New York, NY  
                               *Shifts in the Field of Research in Mathematics Education*
- April, 2013            AERA Annual Meeting, San Francisco, CA  
                               *Choosing and Using Examples: A Promising Road to Proof?*

**COURSES TAUGHT**UT-Austin**Teacher Certification Program (Undergraduate):**

- *Teaching Elementary School Mathematics* (EDC 370E)

**STEM Education (Graduate):**

- *Characterizing Learning: Research on Learning Trajectories and Learning Progressions* (STM 390T)

UW-Madison**Teacher Certification Program:**

- *Methods in Secondary Mathematics Education* (C&I 393)
- *Uses of Technologies in Secondary School Mathematics* (C&I 395)
- *Epistemology of Mathematics for Teachers* (C&I 635)

**Teacher Education / Professional Development (Graduate):**

- *Action Research in School* (C&I 626)
- *Teaching Mathematics with Technology* (C&I 675)

**Mathematics Education (Graduate):**

- *The Study of Teaching* (C&I / EdPsych 708)
- *Goals, Content, and Programs in Mathematics Education* (C&I 810)
- *The Instruction of Mathematics* (C&I 811)
- *Curricular Issues in Mathematics Education* (C&I 812)
- *Seminar in Research on Mathematics Education* (C&I 942)

**PROFESSIONAL SERVICE (last 5 years)****Activities:**

Chair of the AERA Special Interest Group: Research in Mathematics Education (2011-2013)

National Council of Teachers of Mathematics Research Committee (2008-2011)

Editorial Board, *NCTM Compendium of Research in Mathematics Education*

Editorial Board, *Advances in Mathematics Teaching and Learning* book series

Research Project Advisory Board member (last 5 years):

- *Evaluation of the Authentic Intellectual Work Initiative* (IES)
- *The Role of Feedback in Digital Games* (NSF)
- *Learning Algebra and Methods of Proof* (NSF)

- *Pre-service Middle School Teachers' Knowledge of Mathematical Argumentation and Proving* (NSF)
- *Learning by Teaching a Synthetic Peer: Investigating the Effect of Tutor Scaffolding for Tutor Learning* (NSF)
- *Predictors and Consequences of Early Understanding of Mathematical Equivalence* (NSF)
- *Using Routines as an Instructional Tool for Developing Students' Conceptions of Proof* (NSF)
- *Geometry Assessments for Secondary Teachers* (NSF)
- *Cases of Reasoning and Proving in Secondary Mathematics* (NSF)
- *Understanding and Teaching the Processes Used to Comprehend Mathematical Arguments and Proofs* (NSF)
- *Fostering conceptual understanding and skill with an intelligent tutoring system for equation solving* (NSF)

**Research Proposal Reviewer:**

National Science Foundation

Institute of Education Sciences

Social Sciences and Humanities Research Council of Canada

Israeli Research Foundation

**Manuscript & Conference Proposal Reviewer:**

*Journal for Research in Mathematics Education*

*Mathematics Teacher*

*Journal of Mathematical Behavior*

*Cognition and Instruction*

*Mathematical Thinking and Learning*

Psychology of Mathematics Education annual meetings

American Educational Research Association annual meetings

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Dr. Michael Fish, Director of Research and Teacher Education, National Council of Teachers of Mathematics

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Professor Isil Isler, Middle East Technical University, Ankara, Turkey

Professor Yi-Yin (Winnie) Ko, Indiana State University

Professor Joan Kwako, University of Minnesota

Professor Diler Oner, Bogazici University, Istanbul, Turkey

Professor Lindsay Reiten, Northern Colorado University

Dr. Rachaya Srisurichan, Ministry of Education, Thailand

Dr. Ana Stephens, Research Scientist, Wisconsin Center for Education Research, UW-Madison

Dr. Suzanne Strachota, Researcher, Wisconsin Center for Education Research, UW-Madison