

**Karen F. Hollebrands**  
**502F Poe Hall, Campus Box 7801**  
**North Carolina State University**  
**Raleigh, NC 27695**  
**Karen\_Hollebrands@ncsu.edu**

**ACADEMIC BACKGROUND**

- August 2001      Ph.D., Curriculum & Instruction with emphasis in Mathematics Education  
The Pennsylvania State University, University Park, PA  
Dissertation: “High school students' understandings of geometric transformations in the context of a technological environment.”  
Major Professor M. Kathleen Heid
- May 1995          M.Ed., Mathematics Education  
North Carolina State University, Raleigh, NC
- May 1989          B.S., Secondary Education-Mathematics  
State University of New York College at Oswego, Oswego, NY

**UNIVERSITY EXPERIENCE**

- 2018 - present    Graduate Coordinator, Mathematics and Statistics Education
- 2014 – present    Professor and Alumni Distinguished Undergraduate Professor, Mathematics Education  
Department of Science, Technology, Engineering, and Mathematics Education  
North Carolina State University, Raleigh, NC
- 2007 – 2014      Associate Professor, Mathematics Education  
Department of Science, Technology, Engineering, and Mathematics Education  
North Carolina State University, Raleigh, NC
- 2001 - 2007      Assistant Professor, Mathematics Education  
Department of Mathematics, Science and Technology Education  
North Carolina State University, Raleigh, NC
- 1996 - 2001      Graduate Research Assistant/NSF Graduate Research Trainee Fellow  
The Pennsylvania State University, University Park, PA
- Fall 1999          Graduate Teaching Assistant  
Department of Curriculum & Instruction  
The Pennsylvania State University, University Park, PA

## K-12 TEACHING EXPERIENCE

- 1995-1996 Mathematics Teacher  
Cary High School, Cary, NC
- 1992-1995 Mathematics Department Chairperson  
Franklinton Junior/Senior High School, Franklinton, NC
- 1990-1995 Mathematics Teacher  
Franklinton High School, Franklinton, NC

## TEACHING LICENSES

- North Carolina 'D' license in Mathematics for grades 9-12  
North Carolina 'D' license in Mathematics for grades 6-9  
Pennsylvania Instructional I Certificate in Mathematics  
New York Initial Certificate in Mathematics for grades 7-12

## HONORS, AWARDS, AND RECOGNITIONS

- 2017 - 2022 Editor, *Mathematics Teacher Educator*
- 2016 Outstanding Reviewer, *Journal of Mathematical Behavior*
- 2016 - 2017 Board of Governors Outstanding Teacher Nominee for College of Education at NC State
- 2015-2020 University Faculty Scholar  
North Carolina State University, Raleigh, NC
- 2013-2014 Alumni Distinguished Undergraduate Professor  
North Carolina State University, Raleigh, NC
- 2008-2009 Outstanding Teaching Award; Member of the Academy of Outstanding Teachers at North Carolina State University,  
North Carolina State University, Raleigh, NC
- 1998, 1999, 2000 Donald B. and Mary Louise Elder Tait Scholarship in Mathematics Education, The Pennsylvania State University, University Park, PA
- 1996-2000 National Science Foundation Graduate Research Trainee, The Pennsylvania State University, University Park, PA
- 1994-1995 Teacher of the Year, Franklinton Junior/Senior High School, Franklinton, NC
- 1994-1995 Teacher of the Year, Franklin County, NC
- 1994 Tandy Technology Scholar Award

## GRANTS

### EXTERNAL

#### Active:

PI Karen Hollebrands, Co-PI Allison McCulloch, Co-PI Scott Steketee, Co-PI Daniel Scher. *Technology rich units for future secondary teachers: Forging mathematical connections through the geometry of functions*. (June 2016- June 2018) Awarded: \$300,000. The purpose of this grant is to develop five technologically rich units of instruction that will focus on school mathematics topics from an advanced perspective.

PI Karen Hollebrands. *Track 4 Noyce Research proposal* Florida State University Lead institution. \$75,000 subcontract. (May 2016- June 2019) The purpose of this grant is to conduct research on Noyce scholars who are currently teaching in high school mathematics classrooms. Tasks and samples of students' work on those tasks are collected from current Noyce scholars teaching in NC.

PI Karen Hollebrands, Co-PI Hollylynn Lee, Co-PI Molly Fenn and Co-PI Laura Bottomley. *Noyce Mathematics Education Teaching Scholars Phase II at NC State*. (September 2012 – August 2018). This grant was awarded by the National Science Foundation and is a continuation of the first grant awarded in 2007. The purpose of this project is to increase the number of highly qualified mathematics teachers teaching in high-needs school districts. Fourteen scholarships will be awarded and support for previous scholarship recipients who are teaching will be provided. Awarded: \$800,000.

#### Under Review:

PI Karen Hollebrands, Co-PI Molly Fenn. *Noyce Master Teaching Fellows at NC State* (Submitted August 28, 2018). This five-year project partners with the non-profit agency The Innovation Project (TIP) and four high-need school districts (Cabarrus County Schools, Mount Airy City Schools, Rockingham County Schools, Wayne County Schools) to prepare highly qualified master teachers of mathematics to become mentors and leaders in their schools and districts. Twenty scholarships will be awarded. Project budget: \$2,788,500 (\$929,250 cost sharing)

Collaborative Proposal: PIs Karen Hollebrands, Allison McCulloch, Daniel Scher, Scott Steketee. *Forging Mathematical and Pedagogical Connections: Creating a Community for Testing, Researching, and Refining Technology-Rich Preservice Units*. (Submitted December 11, 2018) this three year project will develop enhanced facilitator materials and prepare five mathematics teacher educators to implement the units at various universities across the US. We will study the effects of the materials on preservice teachers' understandings of transformations and functions and examine the ways in which teacher educators use facilitator guide supports and materials. Project budget: \$600,000.

#### Completed:

Senior Researcher Karen Hollebrands, PI: Glen Kleiman, Co-PI Hollylynn Lee. *Development of MOOC-Eds*. Funded by the Hewlett Foundation (December 2015- December 2017). This grant was funded to support the development, implementation,

and evaluation of MOOC-Eds focused on secondary mathematics topics. Awarded: \$500,000

PI Karen Hollebrands, Co-PI Andrew Cooper (College of Sciences), Co-PI Sonia Dupree (Wake County Public Schools). *MAP:TICCS. Mathematics and Pedagogy: Training for Implementation of High School Common Core Standards for Mathematics Continuation Grant*. (March 2016 – May 2017). This continuation grant was awarded to support the preparation of high school mathematics teachers in Wake County to implement the Common Core State Standards. Awarded: \$150,000

Co-PI Karen Hollebrands, PI Hollylynn Lee, Co-PI Allison McCulloch. *Preparing to Teach Mathematics with Technology: Expanding, Transforming, and Community Building* (September 2011 – August 2017). This is the third grant funded to support the development of curricula materials for preparing teachers to teach mathematics with technology. The goals of this project are to create and test an Algebra module and to develop a community of faculty who are preparing teachers to teach mathematics with technology using the materials developed by these projects. Awarded: \$350,000.

PI Karen Hollebrands, Co-PI Andrew Cooper (College of Sciences), Co-PI Sonia Dupree (Wake County Public Schools). *MAP:TICCS. Mathematics and Pedagogy: Training for Implementation of High School Common Core Standards for Mathematics*. (March 2015 – May 2016). This grant was awarded to support the preparation of high school mathematics teachers in Wake County to implement the Common Core State Standards. Awarded: \$300,000

Co-PI Karen Hollebrands, PI Sarah Stein (College of Humanities and Social Sciences), Co-PI Eric Wiebe, Co-PI Henry Schaffer (Office of Instructional Technology). *Scale-Up: Scaling up STEM Learning with the VCL* (September 2009 – August 2014). This project is funded by the ITEST division of the National Science Foundation. The virtual computing lab (VCL) is used as a mechanism for delivering mathematics software to teachers teaching in 1:1 laptop high schools. Teachers are involved in long-term, professional development that is focused on preparing them to learn how to use technology to teach mathematics and become familiar with STEM-related professions. The goal is to increase student interest in mathematics so they are able to pursue STEM-related majors and careers in the future. Awarded: \$1,800,000.

PI Karen Hollebrands, Co-PI Hollylynn Lee. *Preparing to Teach Mathematics with Technology: An Integrated Approach* (September 2008 – August 2012). The goal of this National Science Foundation supported project is to publish and disseminate a module focused on preparing teachers to teach Data Analysis and Probability topics with technology and to develop and test a second module focused on Geometry. Awarded: \$500,000.

Co-PI Karen Hollebrands, PI Hollylynn Lee, Co-PI Roger Woodard, Co-PI Irina Kogan. *Noyce Mathematics Education Teaching Scholars at NC State* (September 2007 – August 2013). This NSF-sponsored scholarship grant provides funding to 26 undergraduate and graduate students completing a major in mathematics or statistics and a degree in

mathematics education. Students commit to teaching in a high-needs school district and receive professional development related to the use of technology to teach mathematics. Awarded: \$994,000.

Co-PI Karen Hollebrands, PI Hollylynne Lee. *Preparing to Teach Mathematics with Technology: An Integrated Approach* (June 2005 – December 2007). This proof-of-concept grant funded by the National Science Foundation supported the development and testing of the Data Analysis and Probability module for preparing teachers to teach mathematics with technology. Awarded: \$74,000.

Co-PI Karen Hollebrands, PI Laura Bottomley. *Engineers and Teachers Working for Mathematics Success* (February 2004 – June 2013). NSF-GK-12 project to encourage K-12 students to pursue mathematics and science by partnering mathematics education undergraduates and engineering graduate and undergraduate students with classroom teachers to assist in creating and implementing inquiry-based projects with K-12 students. Awarded: \$2,134,000.

Co-PI Karen Hollebrands, PI Laura Bottomley. *GE Foundation Recognizing Accelerated Mathematics Potential in Underrepresented People (RAMP-UP)* (February 2004 – June 2013) grant to increase the number of underrepresented students in nine Wake County schools in grades 3-9 taking Algebra in 8<sup>th</sup> grade and Calculus in 12<sup>th</sup> grade. Awarded: \$500,000.

Co-PI Karen Hollebrands, PI Jody Underwood, Co-PI Hollylynne Stohl, Co-PI Chris Hoadley, Co-PI Chris DiGiano. *Identifying Emergent Design Principles through Analysis of Learning Technology in Action*. (May 2002-May 2003). Grant sponsored by CILT (Center for Innovative Learning Technologies—an NSF funded Center) that identified design principles by examining mathematical java applets from the CILT design principles database (<http://www.design-principles.org>). Awarded: \$8,000.

### **INTERNALLY FUNDED GRANTS**

Completed:

*Integrating dynamic geometry software in college geometry*. Co-PI Karen Hollebrands. Grant submitted with Co-PI Irina Kogan from the Mathematics Department at NCSU awarded by the Faculty Center for Teaching and Learning Instructional Grants Program. (2007 – 2008). Awarded: \$3,000.

*Creating connected handheld computing environments*. PI: Karen Hollebrands, Co-PI: Stohl. Grant funded through College of Education Computer & Technology Committee, November 2002. Awarded: \$8,028

Investigating middle school students' understandings of geometric transformations. PI: Karen Hollebrands. Grant funded through the College of Education FR&PD program. Awarded \$4,000.

### **PEER-REVIEWED ARTICLES IN JOURNALS**

Hollebrands, K., Mojica, G., & Outlaw, B. (2019). Teachers' analysis of student thinking in a Teaching Mathematics with Technology Massive Open Online Course for Educators. *Journal of Technology and Teacher Education*.

McCulloch, A., Hollebrands, K., Lee, H., Harrison, T., & Mutlu, A. (2018). Factors that influence secondary mathematics teachers' uses of technology. *Computers and Education*.

Trocki, A. & Hollebrands, K. (2018). Examining relationships between task quality and student argumentation in a dynamic geometry environment. *Digital Experiences in Mathematics Education*.

Hollebrands, K. & Okumus, S. (2017). Secondary mathematics teachers' instrumental integration in technology-rich geometry classrooms. *Journal of Mathematical Behavior*, 10.1016/j.jmathb.2017.10.003

Amarel, R., & Hollebrands, K. (2017). An analysis of context-based similarity tasks in geometry textbooks from Brazil and the United States. *International Journal of Mathematical Education in Science and Technology*.

Okumus, S. & Hollebrands, K. (2017). Prospective mathematics teachers' problem solving processes to optimization problems using Cabri 3D. *Digital Experiences in Mathematics Education* doi:10.1007/s40751-017-0033-0

Hollebrands, K., & Lee, H.S. (2016). Characterizing questions and their focus when pre-service teachers implement dynamic geometry tasks. *Journal of Mathematical Behavior*, 43, 148-164.

Okumus, S., Patterson, L., Wiebe, E., & Hollebrands, K. (2016). Utility and usability as factors influencing teacher decisions about software integration. *Educational Technology Research & Development*, 1-23.

Hollebrands, K., (2015). Comments on elementary students' construction of geometric transformations reasoning in a dynamic animation environment. *Constructivist Foundations*, 10(3), 350-351.

Cayton, C., Hollebrands, K., Okumus, S. & Boehm, E. (2015). Types of questions posed during pivotal teaching moments in technology-intensive secondary geometry classrooms. *Journal of Mathematics Teacher Education*. 1-26.

Lee, J., Spires, H., Wiebe, E., Hollebrands, K., & Young, C. (2015). Portraits of one-to-one learning environments in a new learning ecology. *International Journal of Learning, Teaching, and Educational Research*, 10(3).

Lesh, R., Berry, R., Chval, K., Fish, M., Hollebrands, K., Konold, C., Stephan, M., Walker, E., & Wanko, J. (2014). The NCTM Research Pre-session: A brief history and

reflection. *Journal for Research in Mathematics Education* 45(2), 157-172.

Dove, A. & Hollebrands, K. (2013) Teachers' scaffolding of students' learning of geometry while using a dynamic geometry program. *International Journal of Mathematical Education in Science and Technology*, 45(5), 668-681.

Tarr, J., Walker, E., Hollebrands, K., Chval, K., Berry, R., Rasmussen, C., Konold, C., & King, K. (2013). New assessments for new standards: The potential transformation of mathematics education and its research implications. *Journal for Research in Mathematics Education*, 44(2), 340-352

Lee, J., Hollebrands, K., Spires, H., Wiebe, E., & Young, C. (2012). Toward a new learning ecology in a secondary one-to-one learning environment: A portrait of theory into practice. *Contemporary Issues in Technology and Teacher Education*, 12(2).

Heck, D. Tarr, J., Hollebrands, K., Walker, E., Berry, R., & Baltzely, P., Rasmussen, C., & King, K. (2012). Reporting research for practitioners: Proposed guidelines. *Journal for Research in Mathematics Education*, 43(2), 126-143.

Wilson, P.H., Lee, H., & Hollebrands, K. (2011). Understanding prospective mathematics teachers' processes for making sense of students' work with technology. *Journal for Research in Mathematics Education*, 42(1), 39-64.

Starling, T., & Hollebrands, K. (2010). Investigating star polygons. *Mathematics Teacher*, 103(7), 525-534.

Hollebrands, K., Conner, A., & Smith, R. (2010) College geometry students' uses of technology in the process of constructing arguments. *Journal for Research in Mathematics Education*, 41(4), 324-350.

Wilson, P.H., Lee, H., & Hollebrands, K. (2010). An alternative development of measures of center and spread using dynamic diagrams. *Centroid* 36(2), 6-11.

Lee, H., & Hollebrands, K. (2008). Preparing to teach mathematics with technology: An integrated approach to developing technological pedagogical content knowledge. *Contemporary Issues in Technology and Teacher Education*, 8(4).

Hollebrands, K. (2007). The role of a dynamic software program for geometry in the strategies high school mathematics students employ. *Journal for Research in Mathematics Education*, 38(2), 164-192.

Lee, H. S. & Hollebrands, K. (2006). Students' use of technological features while solving a mathematics problem. *Journal of Mathematical Behavior*, 25(3), 252-266.

Underwood, J., Hoadley, C., Stohl, H., Hollebrands, K., DiGiano, C., & Renninger, K. A. (2005). IDEA: Identifying Design Principles in Educational Applets. *Educational Technology Research and Development*, 53(2), 99-112.

Hollebrands, K. (2004). High school students' intuitive understandings of geometric transformations. *Mathematics Teacher*, 97(3), 207-214.

Hollebrands, K. (2003). High school students' understandings of geometric transformations in the context of a technological environment. *Journal of Mathematical Behavior*, 22 (1), 55-72.

Heid, M.K., Blume, G., Hollebrands, K.F., Piez, C. (2002). Implications from research on the use of CAS in the teaching and learning of mathematics. *Mathematics Teacher Focus Issue on the Use of CAS*, 95(8), 586-591.

Heid, M.K., Hollebrands, K., & Iseri, L. (2002). Reasoning, justification, and proof, with examples from technological environments. *Mathematics Teacher*, 95(3), 210-16.

Heid, M.K., Blume, G., Flanagan, K., Iseri, L. & Kerr, K. (1998). The role of CAS on non-routine problem solving with college mathematics students. *The International Journal for Computer Algebra Systems in Mathematics Education*, 5 (9), 217-250.

#### **NON-REFEREED ARTICLES IN JOURNALS**

Hollebrands, K. & Stohl, H. (2003). Tech Tips: Creating interactive spreadsheets for exploring functions. *Mathematics Teacher*, 96(6), 452-456.

Hollebrands, K. & Stohl, H. (2003). Tech Tips: The use of spreadsheets for creating a parameter exploration of a linear function. *Mathematics Teacher*, 96(7), 516-519.

Kerr, M. & Hollebrands, K. (2002). Technology Tip: Using a CAS for Comparing Two Algebraic Expressions. *Mathematics Teacher Focus Issue on the Use of CAS*, 95(8), 649- 651.

#### **BOOKS**

Niess, M., Driskell, S., & Hollebrands, K. (Eds.) (2016). *Handbook of Research on Transforming Mathematics Teacher Education in the Digital Age*. IGI Global.

Hollebrands, K. & Lee, H. (2012). *Preparing to Teach Mathematics with Technology: An Integrated Approach to Geometry* (170 pages). Dubuque, IA: Kendall-Hunt Publishers. [Over 300 sold as of May 2013]

Dick, T., & Hollebrands, K. (Eds.) (2011). *Focus on High School Mathematics: Reasoning and Sense Making with Technology*. Reston, VA: National Council of Teachers of Mathematics.

Lee, H., Hollebrands, K., & Wilson, P.H. (2010). *Preparing to Teach Mathematics with Technology: An Integrated Approach to Data Analysis and Probability* (160 pages). Dubuque, IA: Kendall-Hunt Publishers.



### **PEER-REFEREED CHAPTERS IN BOOKS**

Hollebrands, K., McCulloch, A. & Lee, H.S. (2016). The design and implementation of a curriculum for preparing teachers to teach secondary mathematics using technology. In Niess, M., Driskell, S., & Hollebrands, K. (Eds.). *Handbook of Research on Transforming Mathematics Teacher Education in the Digital Age*. IGI Global.

Hollebrands, K. F. (2015). Using a dynamic software program for geometry: A look at strategies students employ. In E. Silver and P. Kenney (Eds.). *More Lessons Learned from Research, Volume 1*, (pp. 203-212). Reston, VA: National Council of Teachers of Mathematics. [Invited chapter]

Hollebrands, K. & Dove, A. (2011). Using Technology to Engage in Reasoning and Sense-Making Activities in Geometry. In Dick, T., & Hollebrands, K. (Eds.). *Focus on Reasoning and Sense Making; Technology*. (pp. 33-52). Reston, VA: National Council of Teachers of Mathematics. [Invited chapter]

Cohen, J., & Hollebrands, K. (2011). Teaching with Technology Tools. In Dick, T., & Hollebrands, K. (Eds.). *Focus on Reasoning and Sense Making; Technology*. (pp. 105-122). Reston, VA: National Council of Teachers of Mathematics. [Invited chapter]

Lee, H. & Hollebrands, K. (2011). Characterizing and developing teachers' knowledge for teaching statistics with technology. In C. Batanero, G. Burrill, C. Reading & A. Rossman (Eds.), *Teaching Statistics in School Mathematics - Challenges for Teaching and Teacher Education: A joint ICMI/IASE Study*. (pp. 359-370). New York: Springer. [Invited chapter]

Lee, H., Ives, S., Starling, T., & Hollebrands, K. (2010). Knowledge for teaching statistics with technology: Examining mathematics teacher educators' planning. In J. Lott & J. Luebeck (Eds.) *Association of Mathematics Teacher Educators Monograph VII: Mathematics Teaching: Putting Research into Practice at all Levels*. (pp. 7-24). Association of Mathematics Teacher Educators.

Hollebrands, K. & Smith, R. (2009). The impact of dynamic geometry software on secondary students' learning of geometry: Implications from research. In T. Craine & R. Rubenstein (Eds.). *NCTM 2009 Yearbook: Understanding Geometry for a Changing World*. (pp. 221-232). Reston, VA: National Council of Teachers of Mathematics.

Hollebrands, K., Laborde, C., & Straesser, R. (2008). The learning of geometry with technology at the secondary level. In M.K. Heid & G. Blume (Eds.) *Handbook of Research on Technology in the Learning and Teaching of Mathematics: Syntheses and Perspectives*. (pp. 155-206). Greenwich, CT: Information Age. [Invited chapter]

Zbiek, R., & Hollebrands, K. (2008). A research-informed view of the process of incorporating mathematics technology into classroom practice by inservice and prospective teachers. In M. K. Heid & G. Blume (Eds.) *Handbook of*

*Research on Technology in the Learning and Teaching of Mathematics: Syntheses and Perspectives* . (pp. 287-344). Greenwich, CT: Information Age. [Invited chapter]

Laborde, C., Kynigos, C., Hollebrands, K., & Straesser, R. (2006). Teaching and learning geometry with technology. In A. Guitierrez & P. Boero (Eds.) *Research Handbook of the International Group of the Psychology of Mathematics Education* (pp. 275-304). Rotterdam, The Netherlands: Sense Publishers

Hollebrands, K. & Zbiek, R. (2004). Teaching mathematics with technology: An evidence-based road map for the journey. In R. Rubenstein & G. Bright (Eds.), *Sixty-sixth Yearbook: Perspectives on the Teaching of Mathematics* (pp.259-270). Reston, VA: National Council of Teachers of Mathematics.

Flanagan (Hollebrands), K. & Kerr, K. (1998). Making connections: The isosceles triangle and the TI-92. In M.K. Heid & G. Blume (Eds.), *The Pennsylvania Council of Teachers 1997 Annual Yearbook*, (pp. 67-74). University Park, PA: Pennsylvania State University.

#### **BOOK REVIEWS**

Hollebrands, K & Okumus, S. (2017). Tools and Mathematics. Book Review. *Journal for Research in Mathematics Education*. [Invited]

Hollebrands, K. (2001). Math Stuff. Book Review. *Mathematics Teacher*, 94 (9), 794.

#### **REFEREED CONFERENCE PROCEEDINGS**

Cudd, M., Williams, D., & Hollebrands, K. (2018). Beginning mathematics teachers' uses of instructional strategies and organization of students for learning. *Proceedings for the Fortieth Annual Meeting of the North America Chapter of the International Group for the Psychology of Mathematics Education*.

Hollebrands, K., Mojica, G., & Outlaw, B. (2018). Teachers' analysis of students' thinking in a Teaching Mathematics with Technology Massive Open Online Course. *Proceedings for the Fortieth Annual Meeting of the North America Chapter of the International Group for the Psychology of Mathematics Education*.

Hollebrands, K. (2017). A framework to guide the development of a teaching mathematics with technology massive open online course for educators. *Proceedings for the Thirty-Ninth Annual Meeting of the North America Chapter of the International Group for the Psychology of Mathematics Education*.

Okumus, S. & Hollebrands, K. (2017). Middle school students' reasoning about three-dimensional objects using extrusion and spinning. *Proceedings of the Conference of the European Society for Research in Mathematics Education*.

Okumus, S. & Hollebrands, K. (2016) High school students' forming 3D objects using technological and non-technological tools. In (Eds.) *Proceedings for the Thirty-Eighth*

*Annual Meeting of the North America Chapter of the International Group for the Psychology of Mathematics Education.*

Amarel, R. & Hollebrands, K. (2016). Contextual-based similarity tasks in textbooks from Brazil and the United States. In (Eds.) *Proceedings for the Fortieth Annual Meeting of the International Group for the Psychology of Mathematics Education. Hungary.*

Hollebrands, K., McCulloch, A., & Chandler, K. (2015). Students' reasoning about technology-based geometric functions. In T. Bartell & K. Bieda (Eds.) *Proceedings for the Thirty-Seventh Annual Meeting of the North America Chapter of the International Group for the Psychology of Mathematics Education.*

Hollebrands, K. & Okumus, S. (2014). High school students' reasoning about properties of solids using DGS. In P. Liljedahl, C. Nicol, S. Osterle, D. Allan (Eds.) *Proceedings for the Thirty-Sixth Annual Meeting of the North America Chapter of the International Group for the Psychology of Mathematics Education.*

Okumus, S. & Hollebrands, K. (2013). Teachers' solutions to a 3D minimization task with Cabri 3D. In P. Liljedahl, C. Nicol, S. Osterle, D. Allan (Eds.) *Proceedings for the Thirty-Sixth Annual Meeting of the North America Chapter of the International Group for the Psychology of Mathematics Education.*

Hollebrands, K., Cayton, C., & Boehm, E. (2013). Types of questions posed during pivotal teaching moments in a technology-intensive secondary geometry classroom. *Proceedings for the Thirty-Fourth Annual Meeting of the North America Chapter of the International Group for the Psychology of Mathematics Education.*

Hollebrands, K., Cayton, C., & Boehm, E. (2013). Pivotal teaching moments in a technology-intensive secondary geometry classroom. *Proceedings for the Thirty-Seventh Annual Conference of the International Group for the Psychology of Mathematics Education.*

Hollebrands, K., Lee, H., Starling, T., Gonzalez, M. & Pulis, T. (2012). Prospective secondary mathematics teachers' design and implementation of dynamic geometry tasks. *Proceedings for the Thirty-Third Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education.*

Hollebrands, K., Cayton, C., & Patterson, L. (2011). Characterizing discourse in two technology-intensive high school geometry classrooms. In L Wiest & T. Lamburg (Eds.) *Proceedings for the Thirty-Third Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education.*

Albers, L., Linday, K., Tucker, J., Hemric, J., Bottomley, L., Hollebrands, K., Parry, E. (2010). The impact of active learning during out-of-school time (OST) energy clubs on elementary school students. *Proceedings of the American Society for Engineering Education.*

Hollebrands, K. & Smith, R. (2010). Attitudes towards and support provided for mathematics learning reported by parents of students involved in a GK-12 program. *Proceedings of the American Society for Engineering Education*.

Smith, R. Hollebrands, Bottomley, Parry, Albers and Smith (2009). The ways in which K-8 students' participation in a GK-12 program affects achievement in and beliefs about mathematics. *Proceedings of the American Society for Engineering Education*.

Smith, R., Hollebrands, K., Iwancio, K. & Kogan, I. (2007) College geometry students' uses of technology in the process of constructing arguments. In T. Lamberg (Ed.) *Proceedings of the Twenty-Ninth Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education*.

Hollebrands, K., Wilson, H., & Lee, H.S. (2007) Prospective teachers' use of a videocase to examine students' work. In T. Lamberg (Ed.) *Proceedings of the Twenty-Ninth Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education*.

Bottomley, L., Parry, L., Hollebrands, K. (2007). Community and family math nights as a vehicle for mathematics success. *Proceedings of the Association of the Society of Engineering Education*.

Smith, R. & Hollebrands, K., Iwancio, K., & Kogan, I. (2007). The affects of a dynamic program for geometry on college students' understandings of properties of quadrilaterals in the Poincare Disk model. In A. Rogerson, (Ed.) *Proceedings of the Ninth International Conference on Mathematics Education in a Global Community*.

Lee, H.S., Hollebrands, K., & Wilson, H. (2007) The use of research-based methods and materials for preparing to teach mathematics with technology. In A. Rogerson, (Ed.) *Proceedings of the Ninth International Conference on Mathematics Education in a Global Community*.

Bottomley, L., Hollebrands, K., & Parry, L. (2006). How does high school mathematics prepare engineers? *Proceedings of the Association of the Society of Engineering Education*.

Hollebrands, K. & Heid, M.K. (2005). Patterns of secondary mathematics students' representational acts and task engagement in a small-group technology-intensive context. In M. Wilson & G. Lloyd (Eds.) *Proceedings of the Twenty-Seventh Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education*.

Mitchell, T., Bottomley, L., Hollebrands, K., Daniel, A., & Leager, K. (2005). A comprehensive model for ensuring K-12 students are mathematically prepared and keenly acclimated to enter engineering disciplines. *The Fourth American Society for Engineering Education/ Australasian Association for Engineering Education Global Colloquium on Engineering Education*, Sydney, Australia.

Bottomley, L., Hollebrands, K., & Parry, L. (2005). Creating Effective Teacher Partnerships: Characteristics of Teachers who Choose to Participate in a K-16 Partnership. *Proceedings of the American Society for Engineering Education*.

Hollebrands, K. & Stohl, H. (2004). The interplay between technology design and students' control of problem solving. In D. McDougall & J. Ross (Eds.), *Proceedings of the Twenty-Sixth Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education* (pp.1481-1488). Columbus, OH: ERIC Clearinghouse for Science, Mathematics, and Environmental Science.

Hollebrands, K. (2003). Eighth grade students' understandings of geometric transformations in the context of a dynamic software environment. In N. Pateman, B. Dougherty & J. Zilliox (Eds.), *Proceedings of the Twenty-Seventh Annual Meeting of the International Group for the Psychology of Mathematics Education* (p. 230). Honolulu: Center for Research and Development Group, University of Hawaii.

Hollebrands, K. (2002). The role of a dynamic software program for geometry in high school students developing understandings of geometric transformations. In D. Mewborn (Ed.), *Proceedings of the Twenty-Fourth Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education* (pp. 695-706). Columbus, OH: ERIC Clearinghouse for Science, Mathematics, and Environmental Science.

Heid, M.K., Blume, G., Flanagan (Hollebrands), K., Iseri, L., Deckert, W., & Piez, C. (2000). College students' interpretation and use of dynamic computer-based representations of function. In G. Goodell (Ed.) *Proceedings of the Twelfth Annual International Conference on Technology in Collegiate Mathematics* (pp. 112-116). Reading, MA: Addison Wesley Longman.

Flanagan (Hollebrands), K. & Piez, C. (1999). Justification within a dynamic geometry environment. In G. Goodell (Ed.), *Proceedings of the Eleventh Annual International Conference on Technology in Collegiate Mathematics* (pp. 122-126). Reading, MA: Addison Wesley Longman.

Heid, M.K., Blume, G., Flanagan (Hollebrands), K., Iseri, L., Piez, C., & Deckert, W. (1999). Research on mathematics learning in CAS environments. In G. Goodell (Ed.), *Proceedings of the Tenth Annual International Conference on Technology in Collegiate Mathematics* (pp. 156-160). Reading, MA: Addison Wesley Longman.

Heid, M.K., Blume, G., Flanagan (Hollebrands), K., Iseri, L., Kerr, K., Deckert, W., & Piez, C. (1998). The roles of CAS technology in non-routine problem solving. In L. Lum (Ed.) *Proceedings of the Tenth Annual International Conference on Technology in Collegiate Mathematics*, (pp. 106-111). Reading, MA: Addison Wesley Longman.

Heid, M.K., Blume, G., Flanagan (Hollebrands), K., Kerr, K., Marshall, J & Iseri, L. (1997). Conjecturing and representational style in CAS-assisted mathematical problem

solving. In J. Dossey, J. Swafford, M. Parmantie, A. Dossey (Eds.), *Proceedings of the Nineteenth Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education* (pp. 585-592). Columbus, OH: ERIC Clearinghouse for Science, Mathematics, and Environmental Education.

Heid, M.K., Blume, G., Iseri, L., Flanagan (Hollebrands), K., Kerr, K. & Marshall, J. (1997). Roles of symbolic representation in CAS-assisted mathematical problem solving. In J. Dossey, J. Swafford, M. Parmantie, A. Dossey (Eds.), *Proceedings of the Nineteenth Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education*. (pp. 593-599). Columbus, OH: ERIC Clearinghouse for Science, Mathematics, and Environmental Education.

### **RESEARCH BRIEFS**

Hollebrands, K & Patterson, B. (under review). The use of digital tools to support the learning and teaching of mathematics. Research Brief and Clip for the National Council of Teachers of Mathematics. [Invited]

### **ONLINE CURRICULA MATERIALS**

Hollebrands, K., Lee, H., & Mojica, G. (2016). *Teaching Mathematics with Technology MOOC-Ed*. Available: [fi.ncsu.edu/theplace](http://fi.ncsu.edu/theplace)

McCulloch, A., Lee, H., & Hollebrands, K. (2015). *Preparing to Teach Mathematics with Technology: An Integrated Approach to Algebra*. Available: [goncsu.edu/ptmtportal](http://goncsu.edu/ptmtportal)

### **INVITED PRESENTATIONS**

Hollebrands, K. (2018, March). *Early career mathematics teachers' uses of technology to teach mathematics*. Colloquium presentation, RiSE (Research in STEM Education) Center, University of Maine, Orono, ME. [Invited Presentation]

Hollebrands, K. (2017, October). *A framework to guide the development of a Teaching Mathematics with Technology Massive Open Online Course*. North America Chapter of the International Group for the Psychology of Mathematics Education. [Invited plenary panel]

Hollebrands, K. (2015, June) *A scholarly approach to teaching: Examples and reflections*. Plenary talk at the 2015 STaR Summer Institute. Park City, UT.

Hollebrands, K. (2014, June) *A scholarly approach to teaching: Examples and reflections*. Plenary talk at the 2014 STaR Summer Institute. Park City, UT.

Dick, T., Hollebrands, K., Heid, M.K., Zbiek, R. M., Burrill, G., Lee, H., Dove, A., & Cohen, J. (2012, April). *Research to inform the use of technology to support reasoning and sense making in high school mathematics*. National Council of Teachers of Mathematics Research Pre-session. Philadelphia, PA. [Invited session]

Hollebrands, K. & Dick, T. (2012, April). *Focus on High School Mathematics: Using technology to promote reasoning and sense making*. Research Pre-session of the National Council of Teachers of Mathematics Annual Meeting. Philadelphia, PA. [Invited session]

Dick, T. & Hollebrands, K. (2012, April). *Using technology as a lever to promote reasoning and sense making*. National Council of Teachers of Mathematics Annual Meeting. Philadelphia, PA. [Invited session]

Dick, T., Hollebrands, K., Heid, M.K., Zbiek, R. M., Burrill, G., Lee, H., Dove, A., & Cohen, J. (2012, February). *Focus on high school mathematics: Reasoning and sense making with technology*. Association of Mathematics Teacher Educators Conference Pre-session. Fort Worth, TX. [Invited session]

Hollebrands, K. & Dick, T. (2011, October). *Using technology as a lever to promote reasoning and sense making*. National Council of Teachers of Mathematics Regional Meeting. St. Louis, MO. [Invited session]

Conner, A., Singletary, L., Gleason, B., Edenfield, K., Smith, R., & Hollebrands, K. (2011, April). *Using argumentation in analyzing geometry teaching and learning*. National Council of Teachers of Mathematics Research Pre-session. Indianapolis, IN. [Invited discussant]

Dean, C., Silverman, J., Driskell, S., Browning, C., Niess, M., Johnston, C., Harrington, R., Madden, S., & Hollebrands, K. (2011, April). *Technological Pedagogical Content Knowledge interactive paper session* at the National Council of Teachers of Mathematics Research Pre-session. Indianapolis, IN. [Invited discussant]

Dick, T., & Hollebrands, K. (2011, April). *Using technology as a lever for reasoning and sense making in mathematics*. National Council of Teachers of Mathematics Conference. Indianapolis, IN. [Invited session]

Tarr, J. & Baltzey, P. (organizers). (2011, April). *Mentoring session for graduate students and new faculty*. National Council of Teachers of Mathematics Research Pre-session. Indianapolis, IN. [Invited participant]

### **REFEREED NATIONAL/INTERNATIONAL PRESENTATIONS**

Dick, T., Burrill, G. and Hollebrands, K. (2019, February). *Developing robust concept images across middle school mathematics - the role of dynamic math technology*. Association of Mathematics Teacher Educators Conference. Orlando, FL.

Hollebrands, K., Mojica, G., & Kott, B. (2018, November). *Teachers' analysis of student thinking in teaching mathematics with technology massive open online course*. Fortieth Annual Meeting of the North America Chapter of the International Group for the Psychology of Mathematics Education. Greenville, SC.

- Hollebrands, K., Mojica, G., & Kott, B. (2018, April). *Teaching mathematics with technology*. NCTM, Washington, DC.
- McCulloch, A., Hollebrands, K., Harrison, T., & Mutlu, A., (2018, April). *Teachers' uses of technology to teach mathematics*. NCTM Research Conference, Washington, DC.
- Hollebrands, K., McCulloch, A., Harrison, T., & Mutlu, A. (2018, February). Early career mathematics teachers' uses of technology to teach mathematics. Association of Mathematics Teacher Educators Conference. Houston, TX.
- Okumus, S. & Hollebrands, K. (2017, February) *Middle school students' reasoning about three-dimensional objects using extrusion and spinning*. Conference of the European Society for Research in Mathematics Education. Dublin, Ireland.
- Okumus, S., & Hollebrands, K. (2016, November). *High school students' forming 3D objects using technological and non-technological tools*. Thirty-Eighth Annual Meeting of the North America Chapter of the International Group for the Psychology of Mathematics Education. Tucson, AZ.
- Amarel, R. & Hollebrands, K. (2016, July). *Contextual-based similarity tasks in textbooks from Brazil and the United States*. Fortieth Annual Meeting of the International Group for the Psychology of Mathematics Education. Szeged, Hungary.
- Hollebrands, K. & McCulloch, A. (2016, January) *Connecting transformations and functions with technology*. Association of Mathematics Teacher Educators Conference. Irvine, CA.
- McCulloch, A., Lee, H., Hollebrands, K., Chandler, K., & Nickel, J. (2016, January). *Preparing teachers to plan and implement technology-based algebra tasks using open access tools*. Association of Mathematics Teacher Educators Conference. Irvine, CA.
- Hollebrands, K., McCulloch, A., & Chandler, K. (2015, November). *Students' reasoning about technology-based geometric functions*. Thirty-Seventh Annual Meeting of the North America Chapter of the International Group for the Psychology of Mathematics Education. East Lansing, MI.
- Okumus, S., Cayton, C., & Hollebrands, K. (February, 2015). *Teacher and Student Interactions in a Technology-Intensive High School Algebra Classroom*. Association of Mathematics Teacher Educators Conference. Orlando, FL.
- Hollebrands, K. & Okumus, S. (July, 2014). *High school students' reasoning about properties of solids using DGS*. Thirty-Eighth International Meeting/Thirty-Sixth Annual Meeting of the North America Chapter of the International Group for the Psychology of Mathematics Education, Vancouver, CA.



Patterson, L., Wiebe, E., Okumus, S., Cayton, C., & Hollebrands, K. (April, 2014). *An Investigation of Teacher Pedagogical Strategies and Student Engagement in 1:1 Laptop Mathematics Classrooms*. AERA Annual Meeting, Philadelphia, PA.

Hollebrands, K., Cayton, C., Stockero, S., & Leatham, K. (2014, April). *Analyzing Critical Moments in High School Mathematics Classrooms*. National Council of Teachers of Mathematics Research Conference, New Orleans, LA.

Campbell, P., Hatfield, L., Shaughnessy, M., Sowder, L., Steffe, L., *NCTM Research Committee and SIG/RME Board of Directors*. (2014, April). National Council of Teachers of Mathematics Research Conference, New Orleans, LA.

Hollebrands, K., Lee, H., Perry, A., & Thrasher, E. (2014, February). *Supporting and retaining beginning mathematics teachers*. Association of Mathematics Teacher Educators Conference. Irvine, CA.

Okumus, S. & Hollebrands, K. (2013, November). *Teachers' solutions to a 3D minimization task with Cabri 3D*. Thirty-Fourth Annual Meeting of the North America Chapter of the International Group for the Psychology of Mathematics Education, Chicago, IL.

Hollebrands, K. Cayton, C., & Boehm, E. (2013, November). *Types of questions posed during pivotal teaching moments in a technology-intensive secondary geometry classroom*. Thirty-Fourth Annual Meeting of the North America Chapter of the International Group for the Psychology of Mathematics Education, Chicago, IL.

Hollebrands, K., Cayton, C., & Boehm, E. (2013, July). *Pivotal teaching moments in a technology-intensive secondary geometry classroom*. Thirty-Seventh Annual Meeting of the International Group for the Psychology of Mathematics Education. Kiel, Germany.

Hollebrands, K., Steketee, S., Lee, H., McCulloch, A., & Whitley, K. (2013, April). *Students' understandings of geometric functions*. National Council of Teachers of Mathematics Research Pre-session. Denver, CO.

Hollebrands, K., Lee, H., Starling, T., Gonzalez, M. & Pulis, T. (2012, November). *Prospective secondary mathematics teachers' design and implementation of dynamic geometry tasks*. Thirty-Third Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education. Kalamazoo, MI.

Hollebrands, K., Lee, H., Starling, T., Gonzalez, M. & Pulis, T. (2012, April). *Prospective secondary mathematics teachers' design and implementation of dynamic geometry tasks*. National Council of Teachers of Mathematics Research Pre-session. Philadelphia, PA.

Cayton, C., Hollebrands, K. & Patterson, L. (2012, April). *Characterizing discourse in technology-intensive high school geometry classrooms*. National Council of Teachers of Mathematics Research Pre-session. Philadelphia, PA.

Hollebrands, K. & Walker, E. (organizers). (2012, April). *Mentoring session for graduate students and new faculty*. National Council of Teachers of Mathematics Research Pre-session. Philadelphia, PA.

Wiebe, E., Hollebrands, K., Patterson, L., & Cayton, C., (2012, April). *Ubiquitous computing environments and mathematics discourse: Differential approaches by teachers*. Paper presented at the Annual Meeting of the American Educational Research Association. Vancouver, Canada.

Hollebrands, K., Lee, H., Starling, T., Gonzalez, M. & Pulis, T. (2012, February). *Prospective high school mathematics teachers' design and implementation of dynamic geometry tasks*. Association of Mathematics Teacher Educators Conference. Fort Worth, TX.

Hollebrands, K., Cayton, C., & Patterson, L. (2011, October). *Characterizing discourse in two technology-intensive high school geometry classrooms*. Thirty-Third Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education. Reno, NV.

Lee, H., Hollebrands, K., Starling, T., & Gonzalez, M. (2011, January) *Preparing to teach mathematics with technology: Data Analysis and Probability and Geometry*. Association of Mathematics Teacher Educators Preconference session. Irvine, CA.

Lee, J., Hollebrands, K., Spires, H., Young, C. & Wiebe, E. (2010, April/May). *Toward a new learning ecology in 1:1 learning environments*. Paper presented at American Educational Research Association. Denver, CO.

Hollebrands, K.F., Smith, R.C., Herbst, P., Bush, W.S., Lee, C., Jakubowski, E., & Ronau, R. (2010, January). *Methods and purposes for assessing high school teachers' knowledge of geometry*. Association of Mathematics Teacher Educators Conference. Irvine, CA.

Lee, H.S., Hollebrands, K.F., Gonzalez, M.D., & Smith, R.C. (2010, January). *Preparing to teach mathematics with technology [PTMT]: Engaging practices and materials for technology-using mathematics teachers educators*. Association of Mathematics Teacher Educators Conference Preconference. Irvine, CA.

Smith, Hollebrands, Bottomley Parry, Albers, Smith (2009, June). *The ways in which K-8 students' participation in a GK-12 program affects achievement in and beliefs about mathematics*. Association of the American Society for Engineering Education.

Lee, H., Hollebrands, K., Smith, R., Ives, S., Niess, M., Bowers, J., Zbiek, R., (2009, April). *Technological Pedagogical Content Knowledge for Mathematics Teachers*. National Council of Teachers of Mathematics Research Pre-session. Washington, DC.

Hollebrands, K., Smith, R., Conner, A., Laborde, C., Moore-Russo, D., Rhodes, G. (2009, April). *The use of tools in the learning and teaching of geometry*. National Council of Teachers of Mathematics Research Pre-session. Washington, DC.

Smith, R., Hollebrands, K., & Conner, A. (2009, February). *The structure of college students' arguments in the presence of technology*. Research on Undergraduate Mathematics Education Conference. Raleigh, NC.

Hollebrands, K., Smith, R., & Conner, A. (2009, April). *The structure of college geometry students' arguments when solving problems in the presence of technology*. National Council of Teachers of Mathematics Research Pre-session. Washington, DC.

Lee, H., Hollebrands, K., Ives, S., & Smith, R., (2009, April). *Developing secondary teachers' Statistical Pedagogical Technological Knowledge*. National Council of Teachers of Mathematics Research Pre-session. Washington, DC.

Hollebrands, K., Berry, R., Wilkerson, T., & Peterson, B. (2009, April). *Publishing articles in the school journals*. National Council of Teachers of Mathematics Research Pre-session. Washington, DC. [Invited session]

Smith, R. & Hollebrands, K. (2008, July). *The affects of a dynamic program for geometry on college students' understandings of properties of quadrilaterals in the Poincare Disk model*. International Congress on Mathematics Education. Monterrey, Mexico.

Hollebrands, K., Berry, R., Wilkerson, T., & Peterson, B. (2008, April). *Writing for the journals*. National Council of Teachers of Mathematics Research Pre-session. Salt Lake City, UT. [Invited session]

Hollebrands, K., Berry, R., Wilkerson, T., & Peterson, B. (2008, April). *Tips for publishing ideas in NCTM journals*. National Council of Teachers of Mathematics. Salt Lake City, UT. [Invited session]

Steketee, S., Wray, J., & Hollebrands, K. (2008, April). *Using ON-Math in the mathematics classroom*. National Council of Teachers of Mathematics. Salt Lake City, UT.

Hollebrands, K. & Smith, R., (2007, October). *College geometry students' uses of technology in the process of constructing arguments*. Twenty-Ninth Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education. Lake Tahoe, NV.

Hollebrands, K., Lee, H. S., & Wilson, H., (2007, October). *Prospective teachers use of a videocase to examine students' work when solving mathematical tasks using technology*. Twenty-Ninth Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education. Lake Tahoe, NV.

Smith, R. & Hollebrands, K. (2007, September). *The affects of a dynamic program for geometry on college students' understandings of properties of quadrilaterals in the Poincare Disk model*. Ninth International Conference on Mathematics Education in a Global Community. Charlotte, NC.

Lee, H.S., Hollebrands, K., & Wilson, H. (2007, September) *The use of research-based methods and materials for preparing to teach mathematics with technology*. Ninth International Conference on Mathematics Education in a Global Community. Charlotte, NC.

Lanius, C., & Hollebrands, K. (2007, March) *Teaching with Technology: ON-Math Investigations*. National Council of Teachers of Mathematics Conference. Atlanta, GA.

Lee, H.S., Hollebrands, K. & Wilson, H. (2007, March). *Learning to teach probability with a simulation approach: A focus on teachers*. National Council of Teachers of Mathematics Research Pre-session. Atlanta, GA.

Wilson, H., Lee, H.S., & Hollebrands, K. (2007, March). *Preparing to teach mathematics with technology: Research-based materials*. National Council of Teachers of Mathematics Research Pre-session. Atlanta, GA.

Lee, H.S. & Hollebrands, K (2007, March). *Preparing to teach mathematics with technology: Research-based materials*. National Council of Teachers of Mathematics Annual Conference, Atlanta, GA.

Wilson, H., Hollebrands, K., & Lee, H. (2007, January) *Preparing to teach mathematics with technology: Prospective teachers' analysis of students' mathematical thinking*. Association of Mathematics Teacher Educators Conference. Irvine, CA.

Bottomley, L., Hollebrands, K., & Parry, L. (2006, June). *How does high school mathematics prepare engineers?* Association of American Society for Engineering Education. Chicago, IL.

Wilson, H. & Hollebrands, K. (2006, January). *Preparing to teach mathematics with technology*. Association of Mathematics Teacher Educators Conference. Tampa, FL.

Hollebrands, K. (2006, January). *Using ON-Math for preparing prospective teachers*. Association of Mathematics Teacher Educators Conference. Tampa, FL.

Hollebrands, K. & Heid, M.K. (2005, October). *Patterns of secondary mathematics students' representational acts and task engagement in a small-group technology-intensive context*. Twenty-Seventh Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education. Blacksburg, VA.

Bottomley, L., Hollebrands, K., & Parry, L. (2005, June). *Creating effective teacher partnerships: Characteristics of teachers who choose to participate in a K-16 partnership*. Association of American Society for Engineering Education. Portland, OR.

Mitchell, T., Bottomley, L., Hollebrands, K., Daniel, A., Leager, K. (2005, June). *A comprehensive model for ensuring K-12 students are mathematically prepared and keenly acclimated to enter engineering disciplines*. 4th Association of American Society for Engineering Education/ Australasian Association for Engineering Education Global Colloquium on Engineering Education (GCEE 2005). Sydney, Australia.

Hollebrands, K. & Stohl, H. (2004, October). *The interplay between technology design and students' control of problem solving*. Twenty-Sixth Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education. Toronto, Ontario.

Hollebrands, K. (2003, July). *Eighth grade students' understandings of geometric transformations in the context of a dynamic software environment*. Twenty-Seventh Annual Meeting of the International Group for the Psychology of Mathematics Education. Honolulu, HI.

Underwood, J., Hoadley, C., DiGiano, C., Stohl, H., & Hollebrands, K. (2003, April). *Design Principles of the ESCOT math environments*. American Educational Research Association Annual Meeting. Chicago, IL.

Hollebrands, K. (2002, October). *The role of a dynamic software program for geometry in high school students' developing understandings of geometric transformations*. Twenty-Fourth Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education, Athens, GA.

Heid, M. K., Blume, G., Zbiek, R., Foletta, G., Hollebrands, K., Piez, C., Glass, B., Finken, T., Dugdale, S. (2002, April). *Perspectives on classroom-based research on the teaching and learning of mathematics in the context of technology*. National Council of Teachers of Mathematics Research Pre-session. Las Vegas, NV.

Heid, M.K., Blume, G., Hollebrands, K., & Piez, C. (2002, April). *Patterns in students' engagement with tasks in a technology-intensive secondary school mathematics curriculum*. National Council of Teachers of Mathematics Research Pre-session. Las Vegas, NV.

Heid, M.K., Blume, G., Hollebrands, K. & Piez, C. (2002, April). *The development of a mathematics task-coding instrument (MaTCI)*. Council of Teachers of Mathematics Research Pre-session. Las Vegas, NV.

Hollebrands, K. (2002, April). *High school students' understandings of geometric transformations in the context of a technological environment*. American Educational Research Association. New Orleans, LA.

Flanagan (Hollebrands), K. (2001, April). *Research on the learning of geometry at the secondary level*. National Council of Teachers of Mathematics Research Pre-session. Orlando, FL.

Heid, M.K., Blume, G., Flanagan (Hollebrands), K., Iseri, L., Deckert, W., & Piez, C. (1999, November). *Students' interpretations of dynamic geometry representations of function*. Twelfth International Conference on Technology in Collegiate Mathematics. Burlingame, CA.

Flanagan (Hollebrands), K. & Glass, B. (1999, January) *Compositions of transformations using the TI-92*. International Teachers Teaching with Technology Conference. Chicago, IL.

Heid, M.K., Blume, G., Deckert, W., Flanagan (Hollebrands), K., Iseri, L., & Piez, C. (1998, November). *Research on student learning with a CAS environment*. Eleventh International Conference for Technology in Collegiate Mathematics. New Orleans, LA.

Flanagan (Hollebrands), K. & Piez, C. (1998, November). *Justification within a dynamic geometry environment*. Eleventh International Conference for Technology in Collegiate Mathematics. New Orleans, LA.

Heid, M. K., Blume, G., Flanagan (Hollebrands), K., Iseri, L. & Kerr, K. (1997, November) *The role of CAS in non-routine problem-solving*. Tenth International Conference for Technology in Collegiate Mathematics. Chicago, IL.

Heid, M.K., Blume, G., Flanagan (Hollebrands), K., Iseri, L., Kerr, K. & Marshall, J. (1997, October). *CAS-Learning Study: Conjecturing and representational style*. Nineteenth Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education. Bloomington-Normal, IL.

Heid, M.K., Blume, G., Iseri, L., Flanagan (Hollebrands), K., Kerr, K. & Marshall, J. (1997, October). *Roles of symbolic representation in CAS-assisted mathematical problem solving*. Nineteenth Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education. Bloomington-Normal, IL.

Heid, M.K., Blume, G., Iseri, L., Flanagan (Hollebrands), K., Kerr, K. & Marshall, J. (1997, April). *The impact of use of a CAS-calculator on prospective mathematics teachers' symbolic representations*. National Council of Teachers of Mathematics Research Pre-session. Minneapolis, MN.

Heid, M.K., Blume, G., Iseri, L., Flanagan (Hollebrands), K., Kerr, K. & Marshall, J. (1997, March). *A CAS learning study: The impact of access to a computer algebra calculator on the use of multiple representations in non-routine problem solving*. American Educational Research Association. Chicago, IL.

Blume, G., Heid, M.K., Iseri, L, Flanagan (Hollebrands), K., Kerr, K. & Marshall, J., (1996, October). *A Computer Algebra System (CAS) Learning Study: The impact of access to a CAS calculator on the nature of mathematical exploration by prospective mathematics teachers*. Eighteenth Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education. Panama City, FL.

Heid, M.K., Blume, G., Iseri, L, Flanagan (Hollebrands), K., Kerr, K. & Marshall, J., (1996, October). *A CAS Learning Study: The impact of access to computer algebra calculator on the use of multiple representations by prospective mathematics teachers*. Eighteenth Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education. Panama City, FL.

### **STATE/REGIONAL/LOCAL PRESENTATIONS**

Hollebrands, K. (2016, November). Preparing for promotion to full-professor. The Associate Professors Round Table. North Carolina State University.

Williams, D., Hollebrands, K., Azmy, C. (2015, October). Mathematical Modeling Tasks for High School Students. Annual Meeting of the North Carolina Council of Teachers of Mathematics. Greensboro, NC.

Thrasher, E., Cetner, M., & Hollebrands. K. (2014, October). *Engaging Mathematical Tasks*. Annual Meeting of the North Carolina Council of Teachers of Mathematics. Greensboro, NC.

Hollebrands, K., & Lee, H. (2014, March). *Teacher Professional Development in Relation to Digital Media and Tools*. Convening on K-12 Mathematics Education, Digital Learning, and State Policy. The William and Ida Friday Institute for Educational Innovation.

Hollebrands, K., & Thrasher, E. (2013, November). Functions and Statistics in the Real World. Annual Meeting of the North Carolina Council of Teachers of Mathematics. Greensboro, NC.

Lee, H., McCulloch, A., Hollebrands, K., Gonzalez, M., Pulis, T., Whitley, B., Chandler, K. (2013, April). *Preparing to teach mathematics with technology: Results from eight years of teacher education curriculum development, dissemination, and research*. William & Ida Friday Institute for Educational Innovation Brown Bag Seminar. Raleigh, NC.

Thrasher, E., Perry (Franklin), A., Lee, H., Hollebrands, K., Hall, W., Early, M., Swandby, A. (2012, October). *Using iPads to enhance the mathematics classroom*. Annual Meeting of the North Carolina Council of Teachers of Mathematics. Greensboro, NC.

Stein, S., Schaeffer, H. Wiebe, K. & Hollebrands, K. (2012, March). *Scaling up STEM learning with the VCL*. Presented at the Brown Bag Seminar at the Friday Institute for Educational Innovation, Raleigh, NC.

Hollebrands, K. & Wredberg, C. (2011, October) *Focus on High School Mathematics: Using technology to promote reasoning and sense making*. Annual Meeting of the North Carolina Council of Teachers of Mathematics. Greensboro, NC.

Hollebrands, K., Lee, H., Brucki, T., Casstevens, K., Mann, L., Oppelaar, R., O'Neill, A., Rice, J., & Washington, H. (2010, October). *Activities that promote reasoning and sense-making in the high school classroom*. Annual Meeting of the North Carolina Council of Teachers of Mathematics, Greensboro, NC.

Hollebrands, K.F., Gonzalez, M.D., & Wredberg, C. (2010, October). *Exploring properties of quadrialterals using dynamic geometry software*. Session presented at the Annual Meeting of the North Carolina Council of Teachers of Mathematics, Greensboro, NC.

Spires, H., Wiebe, E., Young, C., Hollebrands, K., & Lee, J. (2009, December). *Toward a new learning ecology: Teaching and learning in 1:1 environments*. Presented at the Brown Bag Seminar at the Friday Institute for Educational Innovation, Raleigh, NC.

Hollebrands, K. & Lee, H. (2009, November). *Preparing teachers of 21st century learners: Infusing technology in mathematics instruction*. Presented at the Brown Bag Seminar at the Friday Institute for Educational Innovation, Raleigh, NC.

Hollebrands, K. (2009, July). *Incorporate technology in the teaching of mathematics in 1:1 classrooms*. William & Ida Friday Institute for Educational Innovation, Raleigh, NC.

Hollebrands, K. (2006, October). *Activities for family math nights*. Annual Meeting of the North Carolina Council of Teachers of Mathematics. Greensboro, NC.

Lee, H., Hollebrands, K., & Wilson, H. (2006, October). *PTMT: An integrated approach*. Annual Meeting of the North Carolina Council of Teachers of Mathematics. Greensboro, NC.

Wilson, H., Hollebrands, K., & Lee, H. (2006, October). *From univariate to bivariate analysis with Fathom*. Annual Meeting of the North Carolina Council of Teachers of Mathematics. Greensboro, NC.

Hollebrands, K. (2004, October). *Teaching geometric transformations using technology*. Annual Meeting of the North Carolina Council of Teachers of Mathematics. Greensboro, NC.

Stohl, H. D., & Hollebrands, K.F. (2001, October). *Technology as a vehicle for promoting mathematical reasoning*. Annual Meeting of the North Carolina Council of Teachers of Mathematics Fall Meeting. Greensboro, NC.



Straesser, R. & Hollebrands, K. (2001, September). *The learning of geometry with technology at the secondary level*. The Learning and Teaching of Mathematics with Technology Conference. The Pennsylvania State University, University Park, PA.

Zbiek, R. & Hollebrands, K. (2001, September). *A research-informed view of the process of incorporating mathematics technology into classroom practice by inservice and prospective teachers*. The Learning and Teaching of Mathematics with Technology. The Pennsylvania State University, University Park, PA.

Piez, C. & Flanagan (Hollebrands), K. (1999, March) *Trigonometric applications with the TI-92*. Annual Pennsylvania Council of Teachers of Mathematics. Lake Harmony, PA.

Glass, B. & Flanagan (Hollebrands), K. (1998, April) *Teaching Transformations with the TI-92*. Teachers Teaching with Technology Regional Conference. Pittsburgh, PA.

Flanagan (Hollebrands), K. & Piez, C. (1998, March). *Making Connections with the TI-92*. Annual Pennsylvania Council of Teachers of Mathematics Regional Conference. Harrisburg, PA.

Flanagan (Hollebrands), K. & Kerr, K. (1997, March). *Using the TI-92 in the geometry classroom*. Workshop presented at the Pennsylvania Council of Teachers of Mathematics Regional Conference, Valley Forge, PA.

Flanagan (Hollebrands), K. & Watson, L. (1995, March). *Activities for Teaching Technical Mathematics*. Workshop presented at the North Carolina Council of Teachers of Mathematics Regional Conference, Kinston, NC.

## **WORKSHOPS**

### ***University Faculty Professional Development***

McCulloch, A., Lee, H. & Hollebrands, K. (2013, June). *Preparing to Teach Mathematics with Technology: Faculty Professional Development in Algebra*. William & Ida Friday Institute for Educational Innovation Raleigh, NC.

Lee, H., Hollebrands, K., & McCulloch, A. (2012, May). *Preparing to Teach Mathematics with Technology: Faculty Professional Development in Geometry, Data Analysis, and Probability*. William & Ida Friday Institute for Educational Innovation Raleigh, NC.

Hollebrands, K., & Lee, H. (2011, June). *Preparing to Teach Mathematics with Technology: Faculty Professional Development in Geometry, Data Analysis, and Probability*. William & Ida Friday Institute for Educational Innovation Raleigh, NC.

Lee, H., & Hollebrands, K. (2010, July). *Preparing to Teach Mathematics with Technology: Faculty Professional Development in Data Analysis, Probability and Geometry*. William & Ida Friday Institute for Educational Innovation Raleigh, NC.

Lee, H., & Hollebrands, K. (2009, June). *Preparing to Teaching Mathematics with Technology: Faculty Professional Development in Data Analysis and Probability*. William & Ida Friday Institute for Educational Innovation Raleigh, NC.

### ***K-12 Teacher Professional Development***

Hollebrands, K. & Keene (2016, August). Creating and critiquing rich mathematical tasks. William & Ida Friday Institute for Educational Innovation Raleigh, NC.

Hollebrands, K. & Lee, H.L. (2016, July). Noyce summer institute. William & Ida Friday Institute for Educational Innovation Raleigh, NC.

Hollebrands, K. & Lee, H.L. (2013, July). Noyce summer institute. William & Ida Friday Institute for Educational Innovation Raleigh, NC.

Hollebrands, K. (2012, May). *Common Core State Standards for Mathematics: Geometry and Technology*. Two sessions presented to Wake County teachers. Raleigh, NC.

Hollebrands, K., Cayton, C., & Boehm, E. (2012, June). *Teaching Algebra with Fathom*. William & Ida Friday Institute for Educational Innovation Raleigh, NC.

Hollebrands, K. (2011, August). *Using The Geometer's Sketchpad to teach mathematics*. Chatham County.

Hollebrands, K. & Cayton, C. (2011, July). *Teaching Algebra with The Geometer's Sketchpad*. William & Ida Friday Institute for Educational Innovation. Raleigh, NC.

Hollebrands, K. & Cayton, C. (2011, July). *Teaching Geometry with The Geometer's Sketchpad – Part II*. William & Ida Friday Institute for Educational Innovation. Raleigh, NC.

Hollebrands, K., Dove, A., & Cayton, C. (2010, June). *Teaching Geometry with The Geometer's Sketchpad – Part I*. William & Ida Friday Institute for Educational Innovation. Raleigh, NC.

Hollebrands, K., Smith, R., & Dove, A. (2008, October). *Using technology to teach mathematics*. Institute on Leading Innovation: Implementing Effective 1:1 Programs. William & Ida Friday Institute for Educational Innovation. Raleigh, NC.

Tombes, S. & Hollebrands, K. (2008, July). *Classroom resources to transform teaching and learning*. Institute on Leading Innovation: Implementing Effective 1:1 Programs. William & Ida Friday Institute for Educational Innovation. Raleigh, NC.

Hollebrands, K. (2008, July). *Going deeper in mathematics*. Institute on Leading Innovation: Implementing Effective 1:1 Programs. William & Ida Friday Institute for Educational Innovation. Raleigh, NC.

Hollebrands, K. (2007, November). *Using the Geometer's Sketchpad in a 1-1 laptop mathematics classroom*. William & Ida Friday Institute for Educational Innovation. Raleigh, NC.

Hollebrands, K. (2002, November). *Success in Algebra*. Department of Defense School in the Asia division, Tokyo, Japan.

Stohl, H. & Hollebrands, K. (2002, Spring). *Teaching Mathematics with Technology*. Cary High School, Cary, NC.

Flanagan (Hollebrands), K. (1999, August) *An introduction to the Geometer's Sketchpad*. Bellefonte Area High School, Bellefonte, PA.

Flanagan (Hollebrands), K. (1999, August) *The Geometer's Sketchpad in the secondary classroom*. Workshop presented at the Pennsylvania Governor's Institute for Mathematics Educators, University Park, PA.

Flanagan (Hollebrands), K. (1999, August) *The Geometer's Sketchpad in the elementary mathematics classroom*. Pennsylvania Governor's Institute for Mathematics Educators, University Park, PA.

Flanagan (Hollebrands), K. & Piez, C. (1998, October). *SOH-CAH-TOA in a technological environment*. The University of Pittsburgh at Johnstown, SOS/MOS program, Johnstown, PA.

Flanagan (Hollebrands), K. (1998, August). *Conjecturing, inductive and deductive reasoning within a technological environment*. Pennsylvania Governor's Institute for Mathematics Educators, University Park, PA.

Bookman, J., Collins, K., Ebert, J., Flanagan (Hollebrands), K., Thomas, J., & Vosskamp, M. (1997, November) *Making Connections: Using the TI-92 and Geometry throughout the curriculum*. Workshop presented at Duke University, Durham, NC. Sponsored by the Park City/ Institute for Advanced Study - Mathematics Institute and the National Science Foundation.

Flanagan (Hollebrands), K. & Kerr, K. (1997, April) *Using the TI-92 in the mathematics classroom*. Stroudsburg High School, Stroudsburg, PA.

Collins K., Ebert, J., Flanagan (Hollebrands), K., King, J., Naeser, S. & Vosskamp M. (1996, November) *Teaching Geometry with the TI-92*. Workshop presented at Duke University, Durham, NC. Sponsored by the Park City/ Institute for Advanced Study - Mathematics Institute and the National Science Foundation.

Bookman, J., Brummett, B., Collins K., Ebert, J., Flanagan (Hollebrands), K., Naeser, S., Thomas, J. & Vosskamp M. (1995, November) *Drawing on Geometry*. Workshop presented at Duke University, Durham, NC and sponsored by the Park City/ Institute for Advanced Study - Mathematics Institute and the National Science Foundation.

Flanagan (Hollebrands), K. & Watson, L. (1995, March). *Activities for Teaching Technical Mathematics*. Workshop presented at the North Carolina Council of Teachers of Mathematics Regional Conference, Kinston, NC.

**SERVICE TO PROFESSIONAL SOCIETIES**

- 2017 – present      Editor, *Mathematics Teacher Education* journal
  
- 2016 – 2017        Co-Vice President of Professional Learning, Association of Mathematics Teacher Educators
  
- 2014 – 2017        Elected Steering Committee member of the North America Chapter of the Psychology of Mathematics Education International Group. Chair, 2015-2016.
  
- 2013 – 2017        STaR mentoring program for early career faculty in mathematics education. Sponsored by the Association of Mathematics Teacher Educators. Staff member 2013-2015; Co-Director 2015-2016; Director 2016-2017
  
- 2011 – 2014        Member, Research Committee for the National Council of Teachers of Mathematics (Chair, 2013-2014)
  
- 2011 – present     External Reviewer for Mathematics Education Faculty seeking Promotion and Tenure
  
- 2011 – present     Reviewer, Research Pre-session Conference, National Council of Teachers of Mathematics
  
- 2009 – present     Reviewer, *For the Learning of Mathematics*
  
- 2007 – present     Review Panel Member, National Science Foundation
  
- 2005 – present     Reviewer, *Journal for Research in Mathematics Education*
  
- 2001 – present     Reviewer, *Journal of Mathematical Behavior* (Outstanding Reviewer Award 2016)
  
- 1999 – present     Reviewer, North American Chapter of the Psychology of Mathematics Education Conference
  
- 2011 – 2014        Strand Leader, Mathematical Processes, North American Chapter of the Psychology of Mathematics Education

- 2010 – 2013 Member, Technology Committee for the Association of Mathematics Teacher Educators
- 2011 Reviewer, Developing Essential Understandings of Geometry in grades 9-12, NCTM publication
- 2011 Invited reviewer, *Focus on Learning Mathematics*
- 2010 – 2011 Invited Co-Editor. *Focus on High School Mathematics: Technology to Support Reasoning and Sense Making*
- 2005 – 2009 Editorial Board Member (Chair 2007 – 2009), *ON-Math*. National Council of Teachers of Mathematics.
- 2008 Invited Topic Study Group Team Organizer for Research on the Teaching and Learning of Geometry for the International Congress in Mathematics Education (ICME) Conference. Monterrey, Mexico.
- 2008 Invited Participant in the Knowles Teaching Scholar Conference, Washington, DC.
- 2008 Invited Participant in the Research Agenda Conference for the National Council of Teachers of Mathematics
- 2005 – 2007 Member of Board of Directors, Electronic Communication Secretary, AERA Special Interest Group/Research in Mathematics Education
- 2003 – 2004 Editor, Technology Tips column. *Mathematics Teacher*. National Council of Teachers of Mathematics.
- 2002 – 2003 Co-Editor, Technology Tips column. *Mathematics Teacher*. National Council of Teachers of Mathematics.
- 1999 – 2003 Reviewer, *Journal of Computers in Mathematics and Science Teaching*
- 1997 – 2004 Reviewer, *Mathematics Teacher*. National Council of Teachers of Mathematics.

**SERVICE TO THE DEPARTMENT, COLLEGE, AND UNIVERSITY**

- 2018 – present Graduate Coordinator, Mathematics and Statistics Education program

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|----------------|---|
| 2018 – present | Chair, Assistant/Associate Professor of Mathematics Education Search Committee                |
| 2017 – present | Chair, College of Education Graduate Studies Committee  |
| 2017 – present | Elected Representative, Administrative Board of the Graduate School                           |
| 2017 – present | University Reappointment, Promotion, and Tenure committee (Chair, 2018-2019)                  |
| 2016 – present | College of Education Reappointment, Promotion, and Tenure review committee (Chair, 2017-2018) |
| 2006 – present | Member, STEM Education Department Scholarship Committee                                       |
| 2017 – 2018    | Chair, Assistant Professor Mathematics Education Search Committee                             |
| 2016 – 2017    | Chair, Fixed-Term Teaching Assistant Professor in Mathematics Education Search Committee      |
| 2016 – 2017    | State Employees Combined Campaign, STEM Ed Department Representative                          |
| 2015 – 2018    | O. Max Gardner Award Selection Committee (Chair 2016-2017)                                    |
| 2015 – 2018    | University Calendar Committee   |
| 2014 – 2017    | Professional Education Committee, College of Education at NC State (Chair 2015-2016).         |
| 2012 – 2017    | Department Voting Faculty for Elementary Department (Chair 2012-2013).                        |
| 2015-2016      | Provost's Special Committee on Interdisciplinary Studies                                      |
| 2015 – 2016    | Search Committee, Technology Education Assistant Professor                                    |
| 2007 – 2014    | College of Education Program Coordinators Committee   |
| 2007 – 2014    | Undergraduate Program Coordinator, High School Mathematics Program                            |
| 2007 – 2014    | Undergraduate Program Coordinator, Middle School Mathematics Program                          |

- 2012 – 2013            Member, STEM Education Department Head Review Committee  
at NCSU
- 2010 – 2013            Member, University Courses and Curricula Committee
- 2010 – 2013            Member, College of Education Courses and Curricula Committee
- 2001 – 2009            College of Education Research Committee Member (Chair 2002-  
2003; 2008- 2009)
- 2003 – 2005            Elected Member, University Grievance Committee

**PROFESSIONAL MEMBERSHIPS**

Association of Mathematics Teacher Educators  
National Council of Teachers of Mathematics  
North Carolina Council of Teachers of Mathematics  
Psychology of Mathematics Education - North America Chapter