

## ALISON CASTRO SUPERFINE

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Department of Mathematics, Statistics, & Computer Science (M/C 249)  
University of Illinois at Chicago  
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### EDUCATION

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2006	Ph.D.	University of Michigan, Ann Arbor. Major: Mathematics Education Dissertation: <i>Planning for mathematics instruction: A study of the teacher guide as a resource.</i>
2006	M.S.	University of Michigan, Ann Arbor. Major: Mathematics
2001	B.A.	University of California, Riverside. Major: Mathematics

### ACADEMIC APPOINTMENTS

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2018-	Professor, Department of Mathematics, Statistics & Computer Science, and Learning Sciences Graduate Program, University of Illinois at Chicago
2012-2019	Director, Office of Mathematics Education, Department of Mathematics, Statistics & Computer Science, University of Illinois at Chicago
2012-2018	Associate Professor, Department of Mathematics, Statistics & Computer Science, and Learning Sciences Graduate Program, University of Illinois at Chicago
2006-2012	Assistant Professor, Department of Mathematics, Statistics, & Computer Science, and Learning Sciences Graduate Program, University of Illinois at Chicago.

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## **AWARDS AND FELLOWSHIPS**

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2017-	International Society of Design and Development in Education Fellow
2015-2016	Master Teaching Scholar, University of Illinois at Chicago's Center for the Advancement of Teaching-Learning Communities
2011-2012	Teaching Recognition Program Award for outstanding performance in teaching activities, University of Illinois at Chicago's Council for Excellence in Teaching and Learning
2007-2008	Center for the Scholarship of School Mathematics Fellow - Education Development Center

## **EDITORIAL POSITIONS**

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2018 -	Associate Editor – Journal of Mathematics Teacher Education
2018 -	Associate Editor – EURASIA Journal of Mathematics, Science & Technology

## **RESEARCH FOCI**

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Study the knowledge mathematics teacher educators draw upon to support teachers' development of mathematical knowledge for teaching

Design learning environments for preservice mathematics teacher education to support the development of mathematical knowledge for teaching and professional noticing

Design, implement and study the impact of videocases focused on children's mathematical thinking on preservice teachers' understanding of the mathematics needed for teaching

Study the relationship between the design of curriculum materials and teachers' implementation

## **PUBLICATIONS: REFEREED JOURNAL ARTICLES**

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Castro Superfine, A., Pitvorec, K., & Li, W. (under review). Toward an empirical

- approach to conceptualizing mathematical knowledge for teaching teachers. *Journal of Mathematics Teacher Education*.
- Amador, J., Bragelman, J., & Castro Superfine, A. (under review). Prospective teachers' noticing: A literature review of methodological approaches to support and analyze noticing. *Journal of Mathematics Teacher Education*.
- Bragelman, J., Amador, J., & Castro Superfine, A. (accepted). Micro-noticing: A lens on prospective teachers' trajectories of learning to notice. *ZDM: Mathematics Education*.
- Castro Superfine, A., Amador, J., & Bragelman, J. (accepted). Facilitating video-based discussions to support prospective teacher noticing. *Journal of Mathematical Behavior*.
- Castro Superfine, A., Welder, R., Prasad, P., Olanoff, D., Eubanks, C., & Matyskar, R. (accepted). What is mathematical knowledge for teaching? *The Mathematics Enthusiast*.
- Castro Superfine, A. (2019). Reconceptualizing ways of studying teacher learning: Working with teachers rather than conducting research on teachers. *Journal of Mathematics Teacher Education*, 22(1), 1-4.
- Castro Superfine, A., & Bragelman, J. (2018). Analyzing the impact of video representation complexity on preservice teacher noticing of children's thinking. *EURASIA Journal of Mathematics, Science and Technology Education*, 14(11).
- Li, W., & Castro Superfine, A. (2016). Mathematics teacher educators' perspectives on the design of content courses for elementary preservice teachers. *Journal of Mathematics Teacher Education*, 21, 179-201.
- Martinez, M., Castro Superfine, A., Carlton, T., & Dasgupta, C. (2015). Examining the impact of a video case-based mathematics methods course on secondary preservice teachers' skills at analyzing students' strategies. *REDIMAT: Journal of Research in Mathematics Education*, 4(1), 52-79.
- Castro Superfine, A., Li, W., Bragelman, J., & Fisher, A. (2015). Examining the use of video to support preservice elementary teachers' noticing of children's thinking. *Journal of Technology and Teacher Education*, 23(2), 137-157.
- Castro Superfine, A., Marshall, A., & Kelso, C. (2015). Fidelity of implementation: Bringing written curriculum materials into the equation. *The Curriculum Journal*, 26(1), 164-191.
- Castro Superfine, A., & Li, W. (2014a). Exploring the mathematical knowledge needed for teaching teachers. *Journal of Teacher Education*, 65(4), 303-314.

- Castro Superfine, A., & Li, W. (2014b). Developing mathematical knowledge for teaching teachers: A model for the professional development of teacher educators. *Issues in Teacher Education* 23(1), 113-132.
- Castro Superfine, A., Li, W., & Martinez, M. (2013). Developing preservice teachers' mathematical knowledge for teaching: Making explicit design considerations for a content course. *Mathematics Teacher Educator*, 2(1), 42-54.
- Martinez, M., & Castro Superfine, A. (2012). Integrating algebra and proof in high school: Students' work with multiple variables and a single parameter when conjecturing and proving. *Mathematical Thinking and Learning*, 14(2), 120-148.
- Martinez, M., Brizuela, B., & Castro Superfine, A. (2011). Integrating algebra and proof in high school: An exploratory study. *Journal of Mathematical Behavior*, 30, 30-47.
- Castro Superfine, A., Kelso, C., & Beal, S. (2010). Examining the practice of developing a research-based mathematics curriculum and its policy implications. *Educational Policy*, 24, 908-934.
- Marshall, A. M., Castro Superfine, A., & Canty, R. (2010). The case of Ms. Beyer: One teacher's strategies for making connections among representations in a first-grade classroom. *Teaching Children Mathematics*, 7(1), 38-47.
- Castro Superfine, A., & Wagreich, P. (2010). Developing mathematics knowledge for teaching in a content course: A design experiment involving mathematics educators and mathematicians. In D. Mewborn (Ed.), *Scholarly practices and inquiry in the preparation of mathematics teachers* (pp. 15-27). San Diego, CA: Association of Mathematics Teacher Educators.
- Castro Superfine, A., Canty, R., & Marshall, A. (2009). Translating between representational systems: All-or-nothing or skill conglomerate. *Journal of Mathematical Behavior*, 28, 217-236.
- Castro Superfine, A. (2009). The "problem" of experience in mathematics teaching. *School Science and Mathematics*, 109(1), 7-19.
- Castro Superfine, A. (2008). Planning for mathematics instruction: A model of experienced teachers' planning processes in the context of a reform mathematics curriculum. *The Mathematics Educator*, 18(2), 11-22.
- Castro, A. (2007). Preparing elementary preservice teachers to use mathematics curriculum materials. *The Mathematics Educator*, 16(2), 14-24.

Silver, E. A., Mills, V., Castro, A., & Ghouseini, H. (2006). Blending elements of lesson study and case analysis and discussion: A promising professional development synergy. In K. Lynch-Davis & R. L. Ryder (Eds.), *The work of mathematics teacher educators: Continuing the conversation* (pp. 117-132). San Diego, CA: Association of Mathematics Teacher Educators.

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#### **BOOK CHAPTERS (REFEREED)**

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Castro Superfine, A., Pitvorec, K., & Stoelinga, T. (accepted). Learning trajectory-based formative assessment in mathematics: A collaborative inquiry among teachers and researchers. In D. Polly, (Ed.), *Handbook of Research on Formative Assessment in Pre-K through Elementary Classrooms*. Hershey, PA: IGI-Global.

Li, W. & Castro Superfine, A. (In Press). Understanding the work of mathematics teacher educators from a knowledge in practice perspective. In Stylianides, G. J., & Hino, K. (Eds.). *Research advances in the mathematical education of pre-service elementary teachers – An international perspective*. Springer International Publishing.

Castro Superfine, A., Fisher, A., Bragelman, J., & Amador, J. (2017). Shifting perspectives on preservice teachers' noticing of children's thinking. In E. Schack, M. Fisher, & J. Wilhem (Eds.), *Teacher Noticing: Bridging and Broadening Perspectives, Contexts and Frameworks* (pp. 409-426). Springer International Publishing.

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#### **PUBLISHED CONFERENCE PROCEEDINGS (REFEREED)**

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Tyminski, A., Castro Superfine, A., & Brittain, M. (2018). Prospective elementary teachers' knowledge: Introducing a trajectory of children's multiplicative thinking in a content course. In *Proceedings of the 40<sup>th</sup> annual meeting of the North American Chapter of the Psychology of Mathematics Education*

Olanoff, D., Welder, R., Prasad, P., & Castro Superfine, A. (2018). Fractalization as a metaphor for mathematical knowledge for teaching teachers: Synthesizing research and exploring consequences. In *Proceedings of the 39<sup>th</sup> annual meeting of the North American Chapter of the Psychology of Mathematics Education*

Castro Superfine, A., & Bragelman, J. (2018). Videocase complexity and preservice teacher noticing: Examining the effects of cognitive load. In Kay, J., & Luckin, R., (Eds.), *Proceedings of the 13<sup>th</sup> International Conference of the Learning Sciences* (p. 1567). London, UK: University College London.

Martinez, M., & Castro Superfine, A. (2017). A curriculum-based hypothetical

- learning trajectory for middle school algebra. In Galindo, E., & Newton, J., (Eds.), *Proceedings of the 39<sup>th</sup> annual meeting of the North American Chapter of the Psychology of Mathematics Education* (pp. 144-147). Indianapolis, IN: Hoosier Association of Mathematics Teacher Educators.
- Bragelman, J., Stoelinga, T., & Castro Superfine, A. (2017). Iterative (re)visioning: An improvement science approach to online professional development design and implementation. In Galindo, E., & Newton, J., (Eds.), *Proceedings of the 39<sup>th</sup> annual meeting of the North American Chapter of the Psychology of Mathematics Education* (p. 1379). Indianapolis, IN: Hoosier Association of Mathematics Teacher Educators.
- Castro Superfine, A., & Li, W. (2017). Characterizing teachers' informal conceptions of learning trajectories in mathematics. In Galindo, E., & Newton, J., (Eds.), *Proceedings of the 39<sup>th</sup> annual meeting of the North American Chapter of the Psychology of Mathematics Education* (p. 1259). Indianapolis, IN: Hoosier Association of Mathematics Teacher Educators.
- Stoelinga, T., Brint, K., & Castro Superfine, A. (2017). Algebra task dimensions: A tool for interpreting a curriculum-based HLT. In Galindo, E., & Newton, J., (Eds.), *Proceedings of the 39<sup>th</sup> annual meeting of the North American Chapter of the Psychology of Mathematics Education* (p. 323). Indianapolis, IN: Hoosier Association of Mathematics Teacher Educators.
- Prasad, P., Welder, R., Castro Superfine, A., & Olanoff, D. (2017). Developing a framework for mathematical knowledge for teaching teachers. In Galindo, E., & Newton, J., (Eds.), *Proceedings of the 39<sup>th</sup> annual meeting of the North American Chapter of the Psychology of Mathematics Education* (p. 637). Indianapolis, IN: Hoosier Association of Mathematics Teacher Educators.
- Li, W., & Castro Superfine, A. (2016). *Understanding the work of mathematics teacher educators: A knowledge in practice perspective*. Proceedings of the 13th International Congress of Mathematics Education. Hamburg, Germany.
- Fisher, A., & Castro Superfine, A. (2013). Analyzing teacher instructional moves around high-level tasks: Implications for curriculum design. In Martinez, M., & Castro Superfine, A. (Eds.), *Proceedings of the 35<sup>th</sup> annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education* (pp. 82-85). Chicago, IL: University of Illinois at Chicago.
- Castro Superfine, A., & Li, W. (2013). Connecting to teaching practice in mathematics content courses for elementary preservice teachers. In Martinez, M., & Castro Superfine, A. (Eds.), *Proceedings of the 35<sup>th</sup> annual meeting of the North American Chapter of the International Group for the Psychology of*

- Mathematics Education* (pp. 156-159). Chicago, IL: University of Illinois at Chicago.
- Castro Superfine, A., & Li, W. (2011). Preservice elementary teachers' learning from videocases: Results from the VPEM project. In Weist, L., & Lamberg, T. (Eds.), *Proceedings of the 33<sup>rd</sup> annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education* (pp. 523-531). Reno, NV: University of Nevada, Reno.
- Castro Superfine, A., & Li, W. (2010). Informing instructional design: Examining elementary preservice teachers' strategies in a partitive quotient problem. In Brosnan, P., Erchick, D., & Flevares, L. (Eds.), *Proceedings of the 32<sup>nd</sup> annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education* (pp. 995-1003). Columbus, OH: The Ohio State University.
- Canty, R. S., Castro Superfine, A., & Marshall, A. M. (2008). Representing part-whole relations in diagrams. In V. Sloutsky, B. Love, & K. McCrae (Eds.), *Proceedings of the 30<sup>th</sup> Annual Conference of the Cognitive Science Society* (p. 1377). Washington, DC: Cognitive Science Society.
- Castro, A., Brown, S., Pitvorec, K., & Ditto, C. (2007). Fidelity of implementation: Teachers' instructional moves in the context of a standards-based curriculum. In Lamberg, T., & Wiest, L. R. (Eds.), *Proceedings of the 29<sup>th</sup> annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education* (Vol. 2, pp. 513-520). Stateline (Lake Tahoe), NV: University of Nevada, Reno.
- Castro, A. (2006). Understanding teachers' use of the teacher guide as a resource for mathematics instruction. In S. Alatorre, J. Cortina, M. Saiz, & A. Mendez (Eds.), *Proceedings of the 28<sup>th</sup> Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education Group* (Vol. 2, pp. 657-659). Merida, Mexico: Universidad Pedagógica Nacional.
- Castro, A. (2006). Learning how to use mathematics curriculum materials in content and methods courses. In S. Alatorre, J. Cortina, M. Saiz, & A. Mendez (Eds.), *Proceedings of the 28<sup>th</sup> Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education Group* (Vol. 2, pp. 750-752). Merida, Mexico: Universidad Pedagógica Nacional.

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#### **REFEREED CONFERENCE PAPERS, POSTERS AND PRESENTATIONS**

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- Castro Superfine, A., & Bragelman, J. (2018, April). *Analyzing the impact of video*

- representation complexity on preservice teacher noticing: Considering the cognitive load of videos.* Paper presented at the annual meeting of the National Council of Teachers of Mathematics, Washington, DC.
- Castro Superfine, A., Shaughnessy, M., Goffney Masters, I., & Tyminski, A. (2018, February). *Considering the AMTE Standards for Preparing Teachers of Mathematics: Implications for the Work of MTEs.* Invited presentation for the annual meeting of the Association of Mathematics Teacher Educators, Houston, TX.
- Stoelinga, T., Lynn, J., & Castro Superfine, A. (2017, April). *Challenges of an RCT in the Context of an Algebra Curriculum Implementation.* Paper presented at the annual meeting of the National Council of Teachers of Mathematics, San Antonio, TX.
- Fisher, A., Amador, J., Castro Superfine, A., & Bragelman, J. (2016, February). *Analyzing noticing across levels of expertise: The need for analytic frameworks to transcend ability and contexts.* Invited presentation for the annual meeting of the Association of Mathematics Teacher Educators, Irvine, CA.
- Superfine, B. M. & Castro Superfine, A. (2014, November). *The law and governance of teacher preparation programs.* Paper presented at the annual meeting of the Education Law Association, San Diego, CA.
- Castro Superfine, A., Fisher, A., & Bragelman, J. (2014, February). *Supporting preservice teachers' ability to notice: An online platform for understanding children's mathematical thinking.* Invited presentation for the annual meeting of the Association of Mathematics Teacher Educators, Irvine, CA.
- Castro Superfine, A., Lynn, J., Stoelinga, T., Martinez, M., Schneider, C., & Briars, D. (2013, April). *Supporting underprepared algebra students: Results from a design-based research program.* Invited presentation for the annual meeting of the National Council of Teachers of Mathematics Research Pre-session, Denver, CO.
- Castro Superfine, A., & Li, W. (2013, January). *Understanding the work of mathematics teacher educators.* Invited presentation for the annual meeting of the Association of Mathematics Teacher Educators, Orlando, FL.
- Castro Superfine, A., Fisher, & A., Crowther, A. (2012, April). *Understanding the nature of teachers' implementation of Intensified Algebra I.* In A. Castro Superfine (Chair), "Intensified Algebra: A Design-Based Research and Development Project for Double-Period High School Algebra." Invited symposium for the annual meeting of the American Educational Research Association, Vancouver, Canada.
- Castro Superfine, A. & Groza, G. (2012, February). *Preservice elementary teachers'*

- noticing of children's mathematical thinking*. Invited presentation for the annual meeting of the Association of Mathematics Teacher Educators, Fort Worth, TX.
- Li, W. & Castro Superfine, A. (2012, February). *Becoming experts: Preservice teachers' learning to analyze children's thinking in a mathematics content course*. Invited presentation for the annual meeting of the Association of Mathematics Teacher Educators, Fort Worth, TX.
- Li, W., & Castro Superfine, A. (2011, October). *Gathering evidence as a support for noticing*. Poster presented at the 33<sup>rd</sup> annual meeting of the North American Chapter of the Psychology of Mathematics Education, Reno, Nevada.
- Marshall, A., Castro Superfine, A., & Canty, R. (2009, April). *From one representation to another: Improving students' representational competence*. Invited presentation for the annual meeting of the National Council of Teachers of Mathematics, Washington, DC.
- Rivette, K., & Castro, A. (2008, January). *Questioning in elementary mathematics classrooms*. Invited presentation for the annual meeting of the Metropolitan Mathematics Club of Chicago, Des Plaines, IL.
- Teitlebaum, J., Castro, A., & Teitlebaum, M. (2007, June). *Making connections*. Invited presentation for the Institute for Mathematics Education, University of Arizona, Tucson, AZ.
- Castro, A. (2007, April). *Understanding teachers' use of the teacher guide as a resource for mathematics instruction*. Paper presented at the annual meeting of the American Educational Research Association, Chicago, IL.
- Castro, A., & Brown, S. (2007, February). *Why do teachers need a rich understanding of number: Lessons learned from teachers' use of Standards-based whole number lessons*. Invited presentation for the annual meeting of Research in Undergraduate Mathematics Education, San Diego, CA.
- Castro, A. (2006, September). *Thinking about practice in the mathematics classroom: How do teachers' moves and decisions impact students' mathematical understanding?* Invited address, University of Illinois at Chicago Math Forum, Chicago, IL, September 27, 2006.
- Silver, E., Mills, V., Castro, A., & Ghouseini, H. (2006, April). *Conceptualizing the integration of two practice-based approaches to teacher professional development*. Paper presented at the annual meeting of American Educational Research Association, San Francisco, CA.
- Silver, E., Mills, V., Gosen, D., Clark, L., Castro, A., Ghouseini, H., & Strawhun, B.

- (2006, March). *Moving beyond implementation: Teachers working collaboratively to refine their practice*. Invited presentation for the annual meeting of the National Council of Supervisors of Mathematics, St. Louis, MO.
- Roberts, S., Williams, N., Castro, A., & Kulik, N. (2006, January). *Supporting culturally responsive practice through a community service-learning field experience*. Invited presentation for the annual meeting of the American Association of Colleges of Teacher Education, San Diego, CA.
- Castro, A. (2006, January). *Preparing elementary preservice teachers to use mathematics curriculum materials*. Invited presentation for the annual meeting of the American Association of Colleges of Teacher Education, San Diego, CA.
- Castro, A. (2006, January). *Preparing elementary preservice teachers to use mathematics curriculum materials*. Invited presentation for the annual meeting of the Association of Mathematics Teacher Educators, Tampa, FL.
- Silver, E., Mills, V., Castro, A., Charalambous, C., & Strawhun, B. (2006, January). *An iterative and adaptive approach to professional development*. Invited presentation for the annual meeting of the Association of Mathematics Teacher Educators, Tampa, FL.
- Ball, D., Bass, H., Sztajn, P., McMahon, T., Coffey, D., Sleep, L., Castro, A., & Allen B. (2005, January). *The professional development of professional developers: Continuing to learn as mathematics teacher educators*. Invited presentation for the annual meeting of the Association of Mathematics Teacher Educators, Dallas, TX.
- Silver, E., Ghouseini, H., & Castro, A. (2005, January). *Blending elements of lesson study with narrative case analysis and discussion: A promising professional development synergy*. Invited presentation for the annual meeting of the Association of Mathematics Teacher Educators, Dallas, TX.
- Castro, A., & Allen, B. (2005, January). *A novel practice-based approach to the professional development of teacher educators*. Invited presentation for the annual meeting of the Association of Mathematics Teacher Educators, Dallas, TX.
- McMahon, T., & Castro, A. (2005, March). *The professional development of professional developers: Continuing to learn as mathematics teacher educators*. Invited presentation for the annual meeting of Conversations with Colleagues, Lansing, MI.
- Castro, A. (2005, April). *Examining mathematics teachers' use of the teacher guide during planning*. Invited presentation for the annual meeting of the American Educational Research Association, Montreal, Canada.

- Silver, E., Mills, V., Ghouseini, H., Castro, A., & Stylianides, G. (2005, May). *Complementary approaches to mathematics teacher development: Integrating case analysis and lesson study in the BI:FOCAL Project*. Paper presented at the 15th annual meeting of the International Committee on Mathematics Instruction, Brazil.
- Castro, A. (2005, Summer). Using video to support preservice teacher learning in mathematics methods and content courses. In *Association of Mathematics Teacher Educators Connections Newsletter*, 14(3), 8 - 9.
- Gilbert, M., Castro, A., Gosen, D., & Silver, E. (2004, October). *Beyond implementation: Improving teachers' use of an innovative middle school mathematics curriculum*. Poster presented at the annual meeting of the North American Chapter of the Psychology of Mathematics Education, Toronto, Canada.
- Silver, E., & Castro, A. (2002, October). *Mathematics learning and teaching in rural communities: Some research issues*. Paper presented at the annual meeting of the Appalachian Collaborative Center for Learning, Assessment, & Instruction in Mathematics, OH.

#### **EDITED VOLUMES**

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- Martinez, M., & Castro Superfine, A. (2013). *Proceedings of the 35<sup>th</sup> annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education*. Chicago, IL: University of Illinois at Chicago. ISBN: 978-0-615-86464-8.

#### **REPORTS AND TECHNICAL REPORTS**

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- Superfine, B. M. & Castro Superfine, A. (2013). *Improving mathematics teacher preparation policy in Illinois*. Chicago, IL: Research on Urban Education Policy Initiative, University of Illinois at Chicago.

#### **SERVICE: NATIONAL AND INTERNATIONAL**

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| 2015 | Reviewer – U.S. Department of Health and Human Services – Office of Programs, Research and Evaluation (OPRE) |
| 2014 | Reviewer – NSF DRK-12 program  |
| 2013 | Reviewer – Issues in Teacher Education   |

- 2012 Reviewer – Journal of the Learning Sciences
- 2013-2016 Member – AMTE Research on Mathematics Teacher Education Advisory Committee
- 2012- Reviewer – Mathematics Teacher Educator
- 2012-2013 Conference Co-chair and Coordinating Committee member – Psychology of Mathematics Education - North American Chapter annual conference 2013
- 2011 Reviewer – Curriculum Inquiry
- 2010 Conference Coordinating Committee member, International Conference of the Learning Sciences (ICLS) 2010
- 2009- Reviewer – Educational Policy
- 2009- Reviewer – NSF
- 2008- Reviewer – Journal of Teacher Education
- 2007- Reviewer – Cognition and Instruction
- 2007- Reviewer – School Science and Mathematics
- 2005 - Reviewer – The Mathematics Educator
- 2005 - Reviewer – American Educational Research Association
- 2005 - Reviewer – Psychology of Mathematics Education North American Chapter
- 2005- Reviewer – Association of Mathematics Teacher Educators

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**SERVICE: LOCAL EDUCATIONAL INSTITUTIONS**

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- 2006-2010 External Evaluator – Chicago Bilingual Mathematics Laboratory Project, Illinois Board of Higher Education (IBHE): Developed data collection and evaluation instruments; conducted program evaluation and wrote final report to IBHE.
- 2010-2014 Member of Mathematics Working Group, Chicago Teacher Partnership Program, University of Illinois at Chicago – lead institution: Participate in

cross-institutional course sequencing and planning, development of common assessment instrument for mathematics content courses.

**SERVICE: UNIVERSITY OF ILLINOIS AT CHICAGO**

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- 2014- Honors College Fellow: advise honors college students; supervise independent research projects.
- 2013 Member of UIC Langenberg Scholarship Committee: Review applicant information and applications; make recommendations to committee chair.
- 2013-2016 Member of UIC Senate: Exercise legislative functions in matters of educational policy, and propose amendments to University of Illinois Statutes.
- 2013-2016 Member of Literature, Arts & Sciences (LAS) Educational Policy Committee
- 2012- Director of the Office of Mathematics Education in the Department of Mathematics, Statistics and Computer Science: Oversee all aspects of mathematics education faculty and instructor teaching and course development and research activities.
- 2011-2013 Member of Learning Sciences Research Institute Advisory Board: Oversee institute management including budget, marketing, and personnel development.
- 2011- Member of Graduate Studies Committee, Department of Mathematics, Statistics and Computer Science: Coordinate course scope and sequence planning and syllabus development for the program's core courses; participate in all aspects of doctoral student recruitment, review of applicants, student evaluation, and development of program handbook and evaluation guides.
- 2006- Member of Graduate Studies Committee, Learning Sciences Graduate Program: Coordinate course scope and sequence planning and syllabus development for the program's core courses; participate in all aspects of doctoral student recruitment, review of applicants, student evaluation, and development of program handbook and evaluation guides.
- 2006- Member of Mathematics Education Committee, Department of Mathematics, Statistics and Computer Science: Participate in aspects of program planning, student recruitment, and course and student evaluation.

- 2006- Member of Doctor of Arts Committee, Department of Mathematics, Statistics and Computer Science: Coordinate course scope and sequence planning; participate in all aspects of doctoral student recruitment, review of applicants, student evaluation.
- 2006- Mathematics Education Study Group (MESG): Lead facilitator and active participant in bi-weekly seminar focused on reading and presenting scholarship in mathematics education; attended by graduate students and faculty from numerous UIC departments and several Chicago City Colleges.

#### **CURRENT AND RECENT FUNDING**

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The Illinois Elementary Mathematics Specialist Project. CME Foundation, 2019-2021, \$200,000, (Principal investigator).

How Teachers Learn: Orchestrating Disciplinary Discourse in Science, Literature and Mathematics Classrooms. John S. McDonnell Foundation, 2018-2023, \$2.5 million. (Co-Principal investigator w/Susan Goldman, Carol Lee, & Jim Pellegrino).

Efficacy of the Connected Chemistry Curriculum. Institute of Education Sciences, Goal 3, 2017-2021, \$3 million, (Co-Principal investigator with Mike Stieff & Yue Yin).

#### **PAST FUNDING**

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The Illinois Elementary Mathematics Specialist Project. CME Foundation, 2017-2019, \$200,000, (Principal investigator).

The Illinois Elementary Mathematics Specialist Project. The Chicago Community Trust, 2015-2017, \$246,000, (Co-Principal investigator with Marty Gartzman, Mary Jo Tavormina, and Lynn Narasimhan).

Intensified Algebra Efficacy Study. National Science Foundation, DRK-12 Program, 2014-2018, \$3 million. (Sub-contract with American Institutes of Research, Co-Principal Investigator w/Jim Pellegrino, Susan Goldman & Jim Lynn).

Improving Formative Assessment Practices: Using Learning Trajectories to Develop Resources that Support Teacher Instructional Practice and Student Learning in CMP2. National Science Foundation, DRK-12 Program, 2013-2017, \$3 million, (Principal investigator w/Jim Pellegrino, Susan Goldman & Mara Martinez).

Using Videocases to Develop Preservice Elementary Teachers' Ability to Notice Children's Mathematical Thinking. 2012-2013 UIC LAS Award for Faculty in the Natural Sciences, \$35,000, (Principal investigator).

Teaching Teachers: Developing Faculty Expertise in Supporting Preservice Elementary Teachers' Development of Mathematics Knowledge for Teaching. National Science Foundation, Transforming Undergraduate Education (TUES) Program: Type 1, 2011-2013, \$150,000, (Principal investigator with Philip Wagreich).

National Center for Cognition and Mathematics Instruction. Institute of Education Sciences. 2010-2015, \$1.3 million, (Senior researcher with Jim Pellegrino, Principal investigator).

A Library of High School Mathematics Teaching and Learning Videocases. National Science Foundation, Course, Curriculum, and Laboratory Improvement (CCLI) Program: Phase 1, 2010-2012, \$150,000, (Co-Principal investigator with Mara Martinez).

The Cognitive, Psychometric, and Instructional Validity of Curriculum-Embedded Assessments: In-depth Analyses of the Resources Available to Teachers Within Everyday Mathematics. Institute of Education Sciences, Goal 5, Topic 2, 2009-2012, \$1.9 million, (Co-Principal investigator with Jim Pellegrino, Susan Goldman, Lou DiBello, & William Stout).

An Architecture of Intensification: Building a Comprehensive Program for Struggling Students in Double-Period Algebra Classes. National Science Foundation, Discovery Research K-12 Program, 2009-2013, \$3.9 million, (Co-Principal investigator with Jim Lynn, Susan Goldman, Jim Pellegrino, Linda Chaput, Uri Treisman, & Susan Hull).

Learning Mathematics from Practice: Developing Professional Teaching Cases for Preservice Content Courses. National Science Foundation, Course, Curriculum, and Laboratory Improvement (CCLI) Program: Phase 1, 2009-2011, \$150,000, (Principal investigator with Philip Wagreich).

Learning Mathematics Needed for Teaching. University of Illinois Curriculum and Instruction Grant, 2009-2010, \$4000, (Principal investigator).

Research and Revision of the TIMS/Math Trailblazers Elementary Mathematics Curriculum. National Science Foundation, Supplemental request, 2008-2010, \$320,000, (Co-Principal investigator with Cathy Kelso).

Research and Revision of the TIMS/Math Trailblazers Elementary Mathematics Curriculum. National Science Foundation, Instructional Materials Development, \$3.2 million, 2003-2008 (Co-Principal investigator with Cathy Kelso).

## **TEACHING EXPERIENCE**

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Geometry for Elementary Teachers (MATH 141, UIC). Undergraduate mathematics content course for preservice elementary teachers focused on geometry, measurement, probability and statistics topics.

Concepts and Methods in Elementary and Middle School Mathematics (MTHT 450, UIC). Undergraduate methods course for preservice elementary and middle school teachers focused on the methods of teaching mathematics in the context of functions, number theory, and proportional reasoning.

Principles of Probability and Statistics (MTHT 575, UIC). Graduate level course designed for practicing teachers; course focuses on reasoning about chance and data in ways specific to middle grades students.

Practicum in Teaching Elementary School Mathematics (MTHT 589, UIC). Graduate level course designed for practicing teachers; course focuses on understanding mathematics in ways needed for teaching.

Teaching Algebra for Understanding (MTHT 465, MTHT 591, UIC). Graduate-level courses designed for practicing teachers as part of the Chicago Public Schools Algebra Initiative; course is first course in three-course sequence focusing on elementary algebraic concepts.

Seminar on Mathematics Curricula (MATH 591, UIC). Doctoral course focused on examining research on mathematics curricula from historical, contemporary and international perspectives.

Arithmetic and Algebraic Structures (MATH 140, UIC). Undergraduate mathematics content course for preservice elementary teachers focused on whole and rational numbers and operations, proportional reasoning and algebra topics.

Journal Club Seminar (LRSC 540, UIC). Doctoral course focused on critical review, analysis and discussion of new and recent journal publications in the Learning Sciences or related fields.

Introduction to the Learning Sciences (LRSC 500, UIC). Doctoral course providing in-depth study of current theoretical and empirical work on how people learn, particularly from the perspective of implications for instruction and the design of learning environments.

Change in Individuals and Organizations (LRSC 513, UIC). Doctoral course examining the relationship between processes of individual learning and change, and processes of organizational learning and change.

Foundations of Scientific Inquiry (LRSC 503, UIC). Doctoral course focused on understanding the philosophical foundations of scientific inquiry and how such inquiry relates to teaching and learning processes.

Mathematics for Elementary and Middle School Teachers (MATH 485, U of Michigan). Graduate level course for preservice teachers focused on whole and rational numbers and operations, proportional reasoning and algebra topics.

Teaching Children Mathematics (ED 411, U of Michigan). Undergraduate mathematics methods course for preservice elementary teachers aimed at development students' ability to use mathematics in teaching and promoting equity in mathematics learning.