

## CAROLYN A. MAHER

Rutgers, The State University of New Jersey  
[carolyn.maher@gse.rutgers.edu](mailto:carolyn.maher@gse.rutgers.edu)

Carolyn A. Maher's research agenda has focused on longitudinal and cross-sectional studies on students' mathematical reasoning and argumentation. She collected and digitized over 4500 hours of video, mostly funded by NSF research grants. Videos and video narratives from these studies are available, worldwide as open source, on [www.videomosaic.org](http://www.videomosaic.org). She co-edited the following books: *Combinatorics and reasoning: Representing, justifying and building isomorphisms* (2010), *Children's Reasoning While Building Fraction Ideas* (2017); *Language, literacy, and learning in the STEM disciplines: How language counts for English learners* (2018); *Schools, mathematics, and the world of reality* (1993}; and the JRME monograph, *Constructivist views on the teaching and learning of mathematic* (1993). She has authored *Can teachers help children make convincing arguments? A glimpse into the process* (1998) and was coordinating author for the McGraw-Hill textbook series (revised in 1989) *Math 1: Building concepts and skills for grades 7-12* (1989) and *Math 2: Applications and problem solving for grades 9-12*. She co-authored Volumes 1 and 2: *Statistics for the Beginning Researcher* (1978) and *Applied Statistics* (1973). She has published over 100 refereed journal articles (51) and book chapters (49) and given 50 invited lectures and plenary addresses in several countries (Australia, Brazil, China, Denmark, England, Finland, Israel, Japan, Norway, South Africa, Spain, Taiwan, Turkey, and throughout the USA). Supported by USAID and ABEL, she led an invited lecture tour in South Africa giving talks and workshops in Cape Town, Port Elizabeth, Dower, Grahamstown, East London, Johannesburg and Soweto. She gave an invited graduate course in mathematics-education research in Rio de Janeiro, Brazil and in Beira, Mozambique. Her service and leadership in professional organizations include serving as President for North American Group of the Psychology of Mathematics Education (PME-NA); Elected USA representative to the Executive Board of the International Committee for the Psychology of Mathematics Education (PME); chair for the AERA Research in Mathematics Education Group; and elected member to the Board of Education, Holmdel Public Schools, NJ. Among the honors and awards received are for Excellence in Teaching, Service and Research. Her editorial work includes 20 years as Editor of the Journal of Mathematical Behavior and service on Editorial Boards for Sense Publishers (Rotterdam and US), The British Journal of Educational Studies (UK), The International Journal of Applied Engineering Education (Oxford, UK) and the Journal for Research in Mathematics Education (NCTM). She has done extensive work on Advisory Boards to include, more recently, the National Assessment of Educational Progress (NAEP), DRK-12 Advisory Board (Science and Math); and Winsight Math (ETS). She has taught mathematics, grades 7-12 in public schools (Matawan Regional and Scotch-Plains/Fanwood, NJ; Richmond Academy, Georgia) and college mathematics as Associate Professor at Middlesex County College, NJ where she also served as Assistant Dean for the Science Division. Her work at Rutgers involves research and has received over 16 million dollars in funding. She teaches on-line and hybrid graduate courses in mathematics education and research methods for MEd, EdD, and PhD students. To date, she has been dissertation chair for 76 doctoral graduates and is currently chairing doctoral dissertations for 6 students. She currently serves as advisor six doctoral students.

***Academic Degrees***

Ed.D. Rutgers University (Mathematics Education)

Ed M. Rutgers University (Education)

B. A. *Douglass College*, Rutgers University (Mathematics major; science minor)

***Employment History***

***Distinguished Professor of Mathematics Education***, Rutgers University Graduate School of Education, 2007-present.

***Director***, Robert B. Davis Institute for Learning (formerly Mathematics Education Institute), Rutgers University Graduate School of Education, 1996-present.

***Editor***, Journal of Mathematical Behavior, 1998-present.

***Chair***, Department of Learning and Teaching, Rutgers University Graduate School of Education, 1999-2000.

***Professor of Mathematics Education***, Rutgers University Graduate School of Education, 1992-2007.

***Associate Editor***, Journal of Mathematical Behavior, 1990-1998.

***Associate Professor of Mathematics Education***, Rutgers University, 1981-1992.

***Visiting Professor***, Department of Developmental and Educational Psychology, Teachers College, Columbia University, spring 1987, Faculty Academic Scholarship Program.

***Acting Director***, Rutgers University Center for Mathematics, Science, and Computer Education 1984-1985.

***Chairperson***, Department of Science and Humanities Education, Rutgers University Graduate School of Education, 1983-1985.

***Visiting Scholar***, School of Education, Stanford University, 1986 (Spring).

***Assistant Professor of Mathematics Education***, Graduate School of Education, 1976-1981.

***Associate Professor of Mathematics***, Middlesex County College, Edison, NJ, 1968-1976.

***Visiting Lecturer***, Mathematics Education, Rutgers University Graduate School of Education, (on leave from Middlesex County College, Department of Mathematics), 1974-1976.

***Academic Planner***, Office of the Vice President for Program Development, Rutgers University 1973-1974.

***Assistant Dean***, Middlesex County College Science Division, Edison, NJ, 1972-1973.

***Secondary Mathematics Teacher***, Scotch Plains-Fanwood High School, Scotch Plains, NJ, 1967-1968.

***Secondary Mathematics Teacher***, Richmond Academy, Augusta, GA, 1965-1967.

***Secondary Mathematics Teacher***, Matawan Regional High School, Matawan, NJ, 1962-1965.

***Seventh Grade Teacher***, Cliffwood Beach Elementary School, Matawan Regional School District, January 1962 – June 1962.

### ***Honors and Awards***

*Surprises in Mind*, River Run Media, MA (2001). PBS one-hour video documentary, featuring C. Maher's 12-year study on the development of mathematical ideas in students.

*Problems and Possibilities. Private Universe Project in Mathematics*, Science Media Group, Harvard Astrophysics Observatory, MA, (2001). Six one-hour videotapes highlighting the combinatorics, probability and pre-calculus strands of C. Maher's longitudinal study (in its twelfth year).

*Distinguished Faculty Award*, Graduate School of Education Alumni Association, Rutgers University (2010).

*Who's Who in Organizational Leadership, Assessment, and Improvement*, Center for Organizational Development and Leadership, Rutgers University (2006).

*Faculty Achievement Award for Service*, Alumni Association, Graduate School of Education, Rutgers University (2005, 1990).

*Faculty Achievement Award for Research*, Alumni Association, Graduate School of Education, Rutgers University (2003, 1994).

*Outstanding Service*, American Society of Engineering Education (1993).

*Excellence in Teaching*, Warren I. Susman Award, Rutgers University (1992).

*Certificate of Recognition*, for publication of NCTM 1990 monograph: Constructivist Views On The Teaching and Learning of Mathematics, 69th Annual Meeting of the National Council of Teachers of Mathematics (1992).

*Douglass Society Member*, honored by the Associate Alumnae of Douglass College as a distinguished mathematics educator (1991).

*C. Osward George Prize*, best article in Teaching Statistics for 1990, awarded by the Institute of Statisticians, Lancashire, England (1991).

*Exemplary Partnership Award*, for Rutgers-New Brunswick Schools Math Project by the Presidents' Forum on Exemplary Partnerships for Minority Achievement, Second National Conference in School/College Collaboration, American Association for Higher Education (1991).

*Pioneer in Education Award*, for Innovative and Successful Mathematics Teacher Development in New Jersey, American Association for Higher Education and the College Board (1990).

*Community Service Award*, Holmdel Board of Education, (1987).

*Exemplary Project Award*, Partnerships with Schools, New Jersey Department of Higher Education (1986).

### ***Leadership Positions***

*Editor, Journal of Mathematical Behavior*

*Chair*, Special Interest Group: *Research in Mathematics Education*, American Education Research Association,

*Chair*, Special Interest Group: *Research in Mathematics Education*, American Education Research Association and National Council of Teachers of Mathematics

*International Executive Committee Member*, Elected USA representative to the *International Group for the Psychology of Mathematics Education (PME)*

*President*, *North American Group for the Psychology of Mathematics Education (PME-NA)*

*Executive Board*, *North American Chapter of the International Group for the Psychology of Mathematics Education (PME-NA)*

*Chair*, Mathematics Division, *American Society for Engineering Education*, 1989-1990.

*Member*, Elected to the Board of Education, *Holmdel Public Schools*, Holmdel, NJ,

### ***Publications***

#### ***Journal Articles/Research Monograph - Refereed***

Van Ness, C. and Maher, C. A. (2018). Analysis of the argumentation of nine-year-olds engaged in discourse about comparing fraction models. *Journal of Mathematical Behavior*, Elsevier, London.

Maher, C. A., Sigley, R., Sullivan, P., Wilkinson, L. (2018). An International Perspective on Knowledge in Teaching Mathematics. *Journal of Mathematical Behavior*, Elsevier, London.

Mueller, M., Yankelewitz, D., Maher, C. A. (2014). Teachers promoting student mathematical reasoning, *Investigations in Mathematics Learning*, 7(2), 1-20.

Maher, C. A., Palius, M. F., Maher, J. A., Hmelo-Silver, C. E., & Sigley, R. (2014). Teachers can learn to attend to students' reasoning using videos as a tool. STEM education theme issue: *Issues in Teacher Education* 23 (1), 31-47.

Palius, M. F. & Maher, C. A. (2013). Teachers learning about student reasoning through video study. *Mediterranean Journal of Research in Mathematics Education*, 12(1-2), 39-55.

Mueller, M., Yankelewitz, D. & Maher, C. (2011). A framework for analyzing the collaborative construction of arguments and its interplay with agency. *Educational Studies in Mathematics*, 80(3), 369-387.

- Mueller, M., Yankewitz, D. & Maher, C. (2011). Sense making as motivation in doing mathematics: Results from two studies. *The Mathematics Educator* 20(2), 33-43.
- Francisco, J. M. & Maher, C. A. (2011). Teachers attending to students' mathematical reasoning: Lessons from an after-school research program. *Journal of Mathematics Teacher Education* 14 (1), 49-66.
- Mueller, M., Yankewitz, D. & Maher, C. (2010). Promoting student reasoning through careful task design: A comparison of three studies. *International Journal for Studies in Mathematics Education*, 3(1), 135-156.
- Maher, C. A., Landis, J. H. & Palus, M. F. (2010). Teachers attending to students' reasoning: Using videos as tools. *Journal of Mathematics Education* 3(2), 1-24.
- Yankewitz, D., Mueller, M. & Maher, C. (2010). A task that elicits reasoning: A dual analysis. *Journal of Mathematical Behavior* 29(2), 76-85.
- Mueller, M., Yankewitz, D. & Maher, C. (2010). Rules without reason: Overcoming students' obstacles in learning. *The Montana Mathematics Enthusiast*, 17(2/3), 307-320.
- Maher, C. A., Mueller, M. & Palus, M. F. (2010). Using an informal learning environment to promote mathematical reasoning among middle-school students. *Mathematics Bulletin*, 49, 64-72.
- Maher, C. A. & Weber, K. (2010). Representation Systems and Constructing Conceptual Understanding. Special Issue of the *Mediterranean Journal for Research in Mathematics Education* 9(1), 91-106.
- Mueller, M. & Maher, C. (2010). Promoting equity through reasoning. *Teaching Children Mathematics* 16(9), 540-547.
- Mueller, M. & Maher, C. A. (2010). Learning to reason in an informal math after-school program. *Mathematics Education Research Journal* 21(3), 7-35.
- Mueller, M. & Maher, C. (2009). Convincing and justifying through reasoning. *Mathematics Teaching in the Middle School* 15 (2), 109-116.
- Maher, C. & Weber, K. (2009). Precision in the teaching, learning, and communication of elementary school mathematics: A reply to Wilson's "Elementary School Mathematics Priorities." *AASA Journal of Scholarship and Practice*, 6(1), 50-53.
- Weber, K., Maher, C. A., Powell, A. B. & Lee, H. S. (2008). Learning opportunities from group discussions: Warrants become the objects of debate. *Educational Studies in Mathematics*, 68, 247-261.
- Anthony, L. J., Palus, M. F., Maher, C. A., & Moghe, P. V. (2007). Using discourse analysis to study a cross-disciplinary learning community: Insights from an IGERT training program. *Journal of Engineering Education*, 96(2), 141-156.
- Maher, C. A. (2005). How students structure their investigations and learn mathematics: Insights from a long-term study. *Journal of Mathematical Behavior*, 24(1) 1-14.
- Francisco, J. M. & Maher, C. A. (2005). Conditions for promoting reasoning in problem solving: Insights from a longitudinal study. Special Issue: Mathematical problem

- solving: What we know and where we are going (Guest Editors: Cai, J, Mamona-Downs, J. & Weber, K.) *Journal of Mathematical Behavior*, 24(3-4), 361-372.
- Powell, A. B., & Francisco, J. M., & Maher, C. A. (2004). Uma abordagem à análise de dados de vídeo para investigar o desenvolvimento das idéias matemáticas e do raciocínio de estudantes [An analytical model for studying the development of mathematical ideas and reasoning using videotape data]. *BOLEMA: O Boletim de Educação Matemática* [BOLEMA: *The Bulletin of Mathematics Education*], 21, 81-140.
- Powell, A. B. & Maher, C. A. (2002). Inquiry into the interlocution of students engaged with mathematics: appreciating links between research and practice. *Advanced Mathematical Thinking*, 317-329.
- Speiser, R., Walter, C., & Maher, C. A. (2003). Representing motion: An experiment in learning. *Journal of Mathematical Behavior*, 22 (1), 1-35.
- Steencken, E. P. & Maher, C. A. (2003). Tracing fourth graders' learning of fractions: Episodes from a yearlong teaching experiment. *Journal of Mathematical Behavior*, 22 (2), 113-132.
- Powell, A. B., Francisco, J. M., & Maher, C. A. (2003). An analytical model for studying the development of learners' mathematical ideas and reasoning using videotape data. *Journal of Mathematical Behavior*, 22(4), 405-435.
- Maher, C. A. & Martino, A. M. (2000). From patterns to theories: Conditions for conceptual change. *Journal of Mathematical Behavior*, 19 (2), 247-271.
- Martino, A.M. & Maher, C.A. (1999). Teacher questioning to promote justification and generalization in mathematics: What research practice has taught us. *Journal of Mathematical Behavior*, 18(1), 53-78.
- Maher, C. A. (1999). Mathematical thinking and learning: a perspective on the work of Robert B. Davis. *Mathematical Thinking and Learning*, 1 (1), 85-91.
- Maher, C. A. & Speiser, R. (1997). How far can you go with block towers? Stephanie's Intellectual Development. *Journal of Mathematical Behavior*, 16(2), 125-132.
- Maher, C. A. & Martino, A. M. (1996). The development of the idea of mathematical proof: A 5-year case study. In F. Lester (Ed.), *Journal for Research in Mathematics Education*, 27 (2), 194-214.
- Davis, R. B., Maher, C. A. & Martino A. M. (1992). Using videotapes to study the construction of mathematical knowledge by individual children working in groups. *Journal of Science, Education and Technology*, 1(3), 177-189.
- Maher, C. A. & Davis, R. B. & Alston, A. (1992). Teachers paying attention to students' thinking. *Arithmetic Teacher*, 39(9), 34-37.
- Maher, C. A. & Martino, A. M. (1992). Teachers building on students' thinking. *Arithmetic Teacher*, 39(7), 32-37.
- Maher, C. A., Davis, R. B. & Alston, A. (1991). Implementing a "thinking curriculum" in mathematics. *Journal of Mathematical Behavior*, 10(3), 219-224.

- Maher, C. A. (1991). Is dealing with mathematics as a thoughtful subject compatible with maintaining satisfactory test scores? A nine-year study. *The Journal of Mathematical Behavior*, 10(3), 225-248.
- Maher, C. A., Davis, R. B. & Alston, A. (1991). Brian's representation and development of mathematical knowledge: A four-year study. *Journal of Mathematical Behavior*, 10(2) 163-210.
- Davis, R. B., Maher, C. A. & Noddings, N. (1990). Constructivist views on the teaching and learning of mathematics. In R. B. Davis, C. A. Maher, & N. Noddings (Eds.), *Constructivist Views on the Teaching and Learning of Mathematics, Journal for Research in Mathematics Education Monograph No. 4*, 1-3. Reston, VA: National Council of Teachers of Mathematics.
- Davis, R. B. & Maher, C. A. (1990). What do we do when we do mathematics? In R. B. Davis, C. A. Maher, & N. Noddings (Eds.), *Constructivist Views on the Teaching and Learning of Mathematics, Journal for Research in Mathematics Education Monograph No. 4*, 65-78. Reston, VA: National Council of Teachers of Mathematics.
- Maher, C. A. & Davis, R. B. (1990). Building representations of children's meanings. In R. B. Davis, C. A. Maher, & N. Noddings (Eds.), *Constructivist Views on the Teaching and Learning of Mathematics: Journal for Research in Mathematics Education Monograph No. 4*, 79-90. Reston, VA: National Council of Teachers of Mathematics.
- Maher, C. A. & Alston, A. (1990). Teacher development in mathematics in a constructivist framework. In R. B. Davis, C. A. Maher, & N. Noddings (Eds.), *Constructivist Views on the Teaching and Learning of Mathematics. Journal for Research in Mathematics Education Monograph No. 4*, 147-165. Reston, VA: National Council of Teachers of Mathematics.
- Davis, R. B., Maher, C. A. & Noddings, N. (1990). Suggestions for the improvement of mathematics education. In R. B. Davis, C. A. Maher, & N. Noddings (Eds.), *Constructivist Views on the Teaching and Learning of Mathematics, Journal for Research in Mathematics Education Monograph No. 4*, 187-191. Reston, VA: National Council of Teachers of Mathematics.
- Maher, C. A. (1990). Statistical analysis tools for learning in engineering laboratories. *European Journal of Engineering Education*. 15(3), 223-231.
- Maher, C. A. & Pancari, J. (1990). Statistics in high school science. *Teaching Statistics*. 12(2), 34-37.
- Landis, Judith H. & Maher, C. A. (1989). Observations of Carrie, a fourth grade student, doing mathematics. *Journal of Mathematical Behavior*, 8(1), 3-12.
- Maher, C. A. & Alston, A. (1989). Is meaning connected to symbols? An interview with Ling Chen. *Journal of Mathematical Behavior*, 8(3), 241-248.

- Maher, C. A. (1988). The teacher as designer, implementer, and evaluator of children's mathematical learning environments. *Journal of Mathematical Behavior*, 6, 295-303.
- Maher, C. A. (1988). A perspective on applications of distance learning. *The International Journal of Applied Engineering Education*, 4(1). Oxford: Pergamon Press, 3-10.
- Maher, C. & Pace, J. (1985). Success with statistics through planned experiments. *Mathematics and Computer Education*, 19, 93-98.
- Maher, C. A. (1976). SSMCIS – A look at some evaluations. *The New Jersey Mathematics Teacher*, 34(1), 7-10.
- Maher, C. A. (1976). Unified mathematics in New Jersey. *The New Jersey Mathematics Teacher*, 34(1), 18-25.

### ***Books/Monograph***

- Bailey, A., Maher, C., & Wilkinson, L. C. (Eds.). (2018). *Language, literacy, and learning in the STEM disciplines: How language counts for English learners*. NY, NY: Routledge Taylor Francis.
- Maher, C. A. & Yankelewitz, D. (2017). *Children's Reasoning While Building Fraction Ideas*. Sense Publishers.
- Maher, C. A., Powell, A. B. & Uptegrove, E. (Eds.), (2010). *Combinatorics and reasoning: Representing, justifying and building isomorphisms*. New York: Springer Publishers.
- Maher, C. A. (1998). *Can teachers help children make convincing arguments? A glimpse into the process*. Rio de Janeiro, Brazil: Universidade Santa Ursula (in Portuguese and English).
- Davis, R. B., & Maher, C.A. (Eds.). (1993). *Schools, mathematics, and the world of reality*, Needham, MA: Allyn & Bacon.
- Davis, R. B., Maher, C. A. & Noddings, N. (Eds.). (1990). *Constructivist views on the teaching and learning of mathematics: Journal for Research in Mathematics Education*, Monograph No. 4. Reston, VA: National Council of Teachers of Mathematics.
- Maher, C. A., Coordinating author (1983; revised, 1989). *Math 2: Applications and problem solving for grades 9-12*. New York: McGraw-Hill Book Company. Distributed by Phoenix Learning Resources, Inc., Texas.
- Maher, C. A., coordinating author (1982; revised, 1989). *Math 1: Building concepts and skills for grades 7-12*. New York: McGraw-Hill Book Company. Distributed by Phoenix Learning Resources, Inc., Texas.
- Maher, C. A. & Maher, J. A. (1978). *Statistics for the beginning researcher*, (Volumes 1 and 2). Middlesex County College, Edison, NJ.
- Maher, C. A. & Maher, J. A. (1973). *Applied statistics*. Middlesex County College, Edison, NJ.



***Chapters in Books (Refereed)***

- Bailey, A., Maher, C. A., Wilkinson, L. C (2018). Chapter 1: Language, literacy, and learning in the STEM disciplines. In Bailey, A., Maher, C. A. & Wilkinson, L. C. (Eds.), *Language, Literacy, and Learning in the STEM Disciplines: How Language Counts for English Learners* (pp. 1-10), New York & Oxford: Routledge Taylor Francis. (ISBN 978-1138284296).
- Bailey, A., Maher, C. A., Wilkinson, L. C (2018). Afterward to Language, literacy, and learning in the STEM disciplines. In Bailey, A., Maher, C. A. & Wilkinson, L. C. (Eds.), *Language, Literacy, and Learning in the STEM Disciplines: How Language Counts for English Learners* (pp. 261-265), New York & Oxford: Routledge Taylor Francis. (ISBN 978-1138284296).
- Koschmann, T., Sigley, R., Zemel, A., & Maher, C. (2018). How the “machinery” of sense production changes over time. In S. Pekarek Doehler, J. Wagner, & E. González-Martinez (Eds.), *Longitudinal studies on the organization of social interaction* (pp. 173–192). New York, NY: Palgrave Macmillan.
- Maher, C. A., Palius, M. F., & Sigley, R. (in press). A history of studies of children’s mathematical learning at Rutgers. In P. Wang-Iverson, J. Hammett & M. Nuspi (Eds.), *Centennial Monograph of the Association of Mathematics Teachers of New Jersey*.
- Maher, C. A. (2017) Introduction to Children’s reasoning while building fraction ideas. In Maher, C. A. & Yankelewitz, D. (Eds.). *Children’s reasoning while building fraction ideas* (pp. xiii-xvi). Rotterdam & Boston, MA: Sense Publishers.
- Maher, C. A. & Yankelewitz, D. (2017). The experiment. In Maher, C. A. & Yankelewitz, D. (Eds.). *Children’s reasoning while building fraction ideas* (pp. 1-11). Rotterdam & Boston, MA: Sense Publishers.
- Maher, C. A., Alston, A. S., & Yankelewitz, D. (2017). Epilogue. In Maher, C. A. & Yankelewitz, D. (Eds.). *Children’s reasoning while building fraction ideas* (pp. 201-206). Rotterdam & Boston, MA: Sense Publishers.
- Maher, C. A. & Ahluwalia, A. (2014). Counting as a foundation for learning to reason about probability. In E. J. Chernoff & B. Sriraman (Eds.), *Probabilistic Thinking: Presenting Plural Perspectives* (pp. 559-580). Springer: New York, NY.
- Maher, C. A. (2010). The longitudinal study. In C. A. Maher, A. B. Powell, & E. B. Uptegrove (Eds.), *Combinatorics and Reasoning: Representing, Justifying, and Building Isomorphisms* (pp. 3-8). Springer: New York, NY.
- Maher, C. & Uptegrove, E. (2010). Methodology. In C. A. Maher, A. B. Powell, & E. B. Uptegrove (Eds.), *Combinatorics and Reasoning: Representing, Justifying, and Building Isomorphisms* (pp. 9-16). Springer: New York, NY.
- Maher, C. A. & Yankelewitz, D. (2010). Representations as Tools for Building Arguments. In C. A. Maher, A. B. Powell, & E. B. Uptegrove (Eds.),

- Combinatorics and Reasoning: Representing, Justifying, and Building Isomorphisms* (pp. 17-26). Springer: New York, NY.
- Maher, C. A., Sran, M. & Yankelewitz, D. (2010). Towers: Schemes, Strategies, and Arguments. In C. A. Maher, A. B. Powell, & E. B. Uptegrove (Eds.), *Combinatorics and Reasoning: Representing, Justifying, and Building Isomorphisms* (pp. 27-44). Springer: New York, NY.
- Maher, C. A., Sran, M. & Yankelewitz, D. (2010). Building an Inductive Argument. In C. A. Maher, A. B. Powell, & E. B. Uptegrove (Eds.), *Combinatorics and Reasoning: Representing, Justifying, and Building Isomorphisms* (pp. 45-56). Springer: New York, NY.
- Maher, C. A., Sran, M. & Yankelewitz, D. (2010). Making Pizzas; Reasoning by Cases and by Recursion. In C. A. Maher, A. B. Powell, & E. B. Uptegrove (Eds.), *Combinatorics and Reasoning: Representing, Justifying, and Building Isomorphisms* (pp. 57-72). Springer: New York, NY.
- Maher, C. A. & Muter, E. (2010). Responding to Ankur's Challenge: Co-construction of Argument Leading to Proof. In C. A. Maher, A. B. Powell, & E. B. Uptegrove (Eds.), *Combinatorics and Reasoning: Representing, Justifying, and Building Isomorphisms* (pp. 89-96). Springer: New York, NY.
- Maher, C. A. (2009). Children's reasoning: Discovering the idea of mathematical proof. In M. Blanton, D. Stylianou and E. Knuth (Eds.), *Teaching and learning proof across the K-16 curriculum* (pp. 120-132). New Jersey: Taylor Francis - Routledge.
- Maher, C. A. (2008). Video recordings as pedagogical tools in mathematics teacher education. In D. Tirosh and T. Wood (Eds.), *International Handbook of Mathematics Teacher Education: Vol. 2: Tools and Processes in Mathematics Teacher Education* (pp. 65-83). Rotterdam, The Netherlands: Sense Publishers.
- Maher, C. A., Muter, E. M. & Kiczek, R. D. (2007). The development of proof making by students. In P. Boero (Ed.), *Theorems and proof in schools: from history, epistemology and cognition to classroom practice* (pp. 197-208). Rotterdam: Sense Publishers (PB ISBN 90-77874-21-6; HB ISBN 90-77874-22-4).
- Steencken, E. P. & Maher C. A. (2002). Young children's growing understanding of fraction ideas. In B. H. Littwiller & G. Bright (Eds.), *2002 NCTM Yearbook: Making sense of fractions, ratios, and proportions* (pp. 49-60). Reston, VA: National Council of Teachers of Mathematics.
- Kiczek, R. D., Maher, C. A., Speiser, R. (2001). Tracing the origins and extensions of Michael's representations. *NCTM Yearbook 2001: The role of representations* (pp. 201-214). Reston, VA: NCTM Publications.
- Aichele, D. B., Boaler, J., Maher, C. A., Rock, D., Spikell, M. (2001). Reorganizing and revamping doctoral programs – challenges and results. In R. E. Reys & J. Kilpatrick (Eds.), *One field, many paths: U. S. doctoral programs in mathematics education* (pp. 101-106). Providence, RI: American Mathematical Society.

- Maher, C. A. (1998). Kommunikation och konstruktivistisk undervisning [Communication and constructivist teaching]. In Arne Engström (Ed.), *Matematik och reflektion* (pp.1-25). Lund, Sweden: Studenlitteratur.
- Maher, C.A. (1998). Constructivism and constructivist teaching - can they co-exist? In Ole Bjorkqvist (Ed.), *Mathematics teaching from a constructivist point of view* (pp.29-42). Finland: Abo Akademi, Pedagogiska fakulteten.
- Maher, C. A. (1998). Investigations leading to proof. In C. A. Maher, *Can teachers help children make convincing arguments? A glimpse into the process* (pp. 15-20). Rio de Janeiro, Brazil: Universidade Santa Ursula (in Portuguese and English).
- Maher, C. A. (1998). The nature of learning. In C. A. Maher, *Can teachers help children make convincing arguments? A glimpse into the process* (pp. 21-34). Rio de Janeiro, Brazil: Universidade Santa Ursula (in Portuguese and English).
- Maher, C. A. (1998). Exploring mathematical ideas. In C. A. Maher, *Can teachers help children make convincing arguments? A glimpse into the process* (pp. 35-58). Rio de Janeiro, Brazil: Universidade Santa Ursula (in Portuguese and English).
- Maher, C. A. (1998). Research on children's proof. In C. A. Maher, *Can teachers help children make convincing arguments? A glimpse into the process* (pp. 73-76). Rio de Janeiro, Brazil: Universidade Santa Ursula (in Portuguese and English).
- Maher, C. A. & Martino, A. (1998). Brandon's proof and isomorphism. In C. A. Maher, *Can teachers help children make convincing arguments? A glimpse into the process* (pp. 77-101). Rio de Janeiro, Brazil: Universidade Santa Ursula (in Portuguese and English).
- Maher, C. A. (1998). Teaching for proof making. In C. A. Maher, *Can teachers help children make convincing arguments? A glimpse into the process* (pp. 102-106). Rio de Janeiro, Brazil: Universidade Santa Ursula (in Portuguese and English).
- Davis, R. B. & Maher, C. A. (1997). How students think: The role of representations. In L. English (Ed.), *Mathematical Reasoning: Analogies, Metaphors, and Images* (pp.93-115). Hillsdale, NJ: Lawrence E. Erlbaum Associates.
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- Maher, C. A. & Martino, A. (1991). The construction of mathematical knowledge by individual children working in groups. In P. Boero (Ed.), *Proceedings of the 15th Conference of the International Group for the Psychology of Mathematics Education, (2)*, 365-372. Assisi, Italy.
- Alston, A. & Maher, C. A. (1990). Children's connections among representations of mathematical ideas. In G. Booker, P. Cobb, and T. N. de Mendicuti (Eds.), *Proceedings of the 14th Conference of the International Group for the Psychology of Mathematics Education, Mexico, (2)*, 3-10. Mexico: PME Program Committee.
- Beattys, C. B. & Maher, C. A. (1989). Exploring children's perceptions of multiplication through pictorial representations. In G. Vergnaud, M. Artigue, and J. Rogalski (Eds.), *Proceedings of the Thirteenth Annual Conference of the International Group for the Psychology of Mathematics Education*, 109-116. Paris, France.
- Alston, A. & Maher, C. A. (1988). Effectiveness of small group problem solving within classroom settings. In M. Behr, C. B. Lacampagne, and M. M. Wheeler (Eds.), *Proceedings of the Tenth Annual Meeting of the North American Chapter of the International Group for the Psychology of Math Education*, 206-213. DeKalb, IL.
- Landis, J. H. & Maher, C. A. (1988). A Study of the Mathematical Behavior of Carrie, A Fourth Grade Student Introduced to Multiplication. In M. Behr, C. B. Lacampagne, and M. M. Wheeler (Eds.), *Proceedings of the Tenth Annual Meeting of the North American Chapter of the International Group for the Psychology of Math Education*, 51-57. DeKalb, IL.

- Purdy, T. & Maher, C. A. (1988). A case study of a sixth grade teacher's implementation and evaluation of lessons for children in the learning of decimals. In M. Behr, C. B. Lacampagne, and M. M. Wheeler (Eds.), *Proceedings of the Tenth Annual Meeting of the North American Chapter of the International Group for the Psychology of Math Education*, 297-304. DeKalb, IL.
- Alston, A. & Maher, C. A. (1988). The construction of arithmetic structures by a group of three children across three tasks. In A. Borbás (Ed.), *Proceedings of the Twelfth Annual Conference of the International Group for the Psychology of Mathematics Education*, 117-124. Veszprém, Hungary.
- Gnepp, A. & Maher, C. A. (1988). Teaching experiment examining the relationship between operational level and generalizing ability in the context of mathematical problem solving. In A. Borbás (Ed.), *Proceedings of the Twelfth Annual Conference of the International Group for the Psychology of Mathematics Education*, 221-228. Veszprém, Hungary.
- Maher, C. A. & Pancari, J. (1988). The integration of statistics in laboratory experiments. *Proceedings of the 1988 Annual Conference of the American Society of Engineering Education*.
- Maher, C. A. & Alston, A. (1987). Analyzing the problem solving behavior of teachers as learners. In J. C. Bergeron, N. Herscovics, and C. Kieran (Eds.), *Proceedings of the Eleventh Annual Conference of the International Group for the Psychology of Mathematics Education*, (2), 107-113. Montreal, Canada.
- Maher, C. A. & Beattys, C. B. (1986). Examining the construction of area and its measurement by ten to fourteen year-old children. In G. Lappan and R. Even (Eds.), *Proceedings of the Eighth Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education*, 163-168. East Lansing, MI.
- Maher, C. A., Landis, J. H., & Alston, A. (1986). An analysis of changes in teaching styles of participants in a teacher development project. In G. Lappan and R. Even (Eds.), *Proceedings of the Eighth Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education*, 218-224. East Lansing, MI.
- Maher, C. A., Alston, S., & O'Brien, J. J. (1986). Examining the heuristic processes of nine to twelve year-old children in small group problem-solving sessions. In L. Burton and C. Hoyles (Eds.), *Proceedings of the Tenth Annual Conference of the International Group for the Psychology of Mathematics Education*, 369-374. London, England: University of London Institute of Education.
- Beattys, C. B. & Maher, C. A. (1985). Approaches to learning area measurement and its relation to spatial skill. In S. Damarin and M. Shelton (Eds.), *Proceedings of the Seventh Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education*, pp. 2-7. Columbus, OH.
- Maher, C. A. (1985). Teacher-clinicians' experience in mathematical problem-solving sessions with individual children: Implications for the development of teachers. In

S. Damarin and M. Shelton (Eds.), *Proceedings of the Seventh Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education*, 182-187. Columbus, OH.

Maher, C. A. & Alston, A. (1985). Children's heuristic processes in mathematical problem solving during small group sessions. In S. Damarin and M. Shelton (Eds.), *Proceedings of the Seventh Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education*, 188-193. Columbus, OH.

Maher, C. A. (1984). Creating classroom environments effective for learning mathematics. In J. Moser (Ed.), *Proceedings of the Sixth Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education*, 213-219. Madison, WI.

### **Videotapes, CD-ROM (Samples)**

*(A digital library with a collection of 4500+ hours of digitized video available through the Robert B. Davis Institute for Learning, Rutgers Graduate School of Education)*

*The Gang of Eight: Seventh Graders Reasoning About Sample Size* (2006). Videotape and CD showing minority, urban students discussing ideas about data collected from a simulation activity.

*How Students Structure Their Own Investigations And Educate Us: What We've Learned From A Fourteen Year Study* (2002). Videotape and CD highlighting students' perspectives on their own learning.

*Implementing a Thinking Curriculum: The Development of Mathematical Thinking in Children from Three NJ Districts* (1998). Video and CD illustrating the development of reasoning in children from working class, urban, and suburban schools. Annenberg/CPB Math and Science Project.

*Children's Reasoning: Combinatorics and Proof, Grades K-10* (1998). Interactive CD-ROM tracing the development of a group of children's ideas about proof over several years.

*Children's Explorations Leading to Proof* (1996). Interactive CD tracing Stephanie's proof making by cases, contradiction, and induction in grades 4 and 5.

*Investigating Ideas About Fractions* (1995). Interactive CD showing children's development of rational number ideas and density of the rationals.

*Bits and Pieces* (1995). Videotape and CD showing students from a fourth-grade class building and supporting arguments (available also in Portuguese).

*Alan's Exploration of Rational Numbers* (1994). Videotape and CD showing fourth grader, Alan, exploring the idea of density of the rationals.

*Meredith's Equivalent Fractions* (1994). Videotape and CD showing fourth grader, Meredith, inventing equivalent fractions and justifying her reasoning.

*The Development of Fourth-Graders Ideas About Mathematical Proof* (1994). Videotape of a group of fourth graders inventing the idea of proof.

*Angel Explores the Meaning of Multiplication* (1991). Videotape and CD of an interview with urban fourth grader, Angel, inventing the distributive property of multiplication over addition (also available in Portuguese)

*Brandon Invents Isomorphism* (1990). Videotape and CD of fourth grader, Brandon, inventing a notation and building an isomorphism.

### ***Unpublished Contributions to Symposia and Conferences***

Maher, C. A. (2018, April). Discussant to Symposium: Teaching and learning mathematics: How language and literacy counts for English learner students. *American Education Research Association*. New York.

Maher, C. A. (2018, January). Language, literacy, and learning in the STEM disciplines: How language counts for English learners. *Hawaii International Conference on Education*. Honolulu, January 4-7, 2018. (with L. Wilkinson, & A. Bailey)

Maher, C. A. (2018, January). Video narratives as a tool to study children's argumentation. *Hawaii International Conference on Education*. Honolulu, January 4-7, 2018. (with L. Wilkinson, & C. Van Ness).

Sigley, R and Maher, C. A. (2016, June). The RUanalytic tool and its use in teacher education classes. Paper presented at the 2016 ASEE Annual Conference and Exposition, New Orleans, LA.

Sigley, R. & Maher, C. A. (2016, July). Teacher learning about mathematical reasoning: An instructional model. Invited paper for the 13th International Congress on Mathematical Education (ICME-13) Topic Study Group 45: Knowledge in/for teaching mathematics at primary level. Hamburg, Germany.

Maher, C. A. (2016, January). *General and Special Teacher Learning from Video* (with J. A. Maher). Presentation within the panel session, *Research on Mathematics Learning: A Shared Multidisciplinary Approach Using New Resources and Tool* (with C. E. Hmelo-Silver, M. F. Palius and L. C. Wilkinson), *Hawaii International Conference on Education*, Honolulu.

Maher, C. A. (2016, April). Language and mathematics learning/teaching: A discussion. Research symposium presented at NCTM, San Francisco, CA.

Sigley, R. & Maher, C. A. (2015, November). *Building fractional knowledge through a video-based intervention*. Poster session at the 37th annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education, East Lansing, MI.

Sigley, R., Maher, J. A., & Maher, C. A. (2014, July). *Learning to recognize student reasoning: An intervention for pre-service secondary teachers*. Short oral presented at the 38th Conference of the International Group for the Psychology of Mathematics Education and the 36th Conference of the North American Chapter of the Psychology of Mathematics Education, Vancouver, Canada: University of British Columbia.



- Maher, C. A., Maher, J. A., Palius, M. F., Sigley, R., & Hmelo-Silver, C. E. (2014, July). *Learning to recognize student reasoning: An intervention for pre-service secondary teachers*. Poster session presented at the 38th Conference of the International Group for the Psychology of Mathematics Education and the 36th Conference of the North American Chapter of the Psychology of Mathematics Education, Vancouver, Canada: University of British Columbia.
- Hmelo-Silver, C. E., Maher, C. A., Palius, M. F., Sigley, R., Alston, A. (2014, June). *Using the Video Mosaic Repository for Creating Multimedia Artifacts with the VMCAlytic*. Poster session presented at the 2014 Cyberlearning Research Summit, Madison, Wisconsin: University of Wisconsin at Madison.
- Mueller, M. F., Yankewitz, D. & Maher, C. A. (2014, April). *Invalid Argumentation in Student Reasoning: Are There Benefits?* Research paper presented at the 2014 Annual Meeting of the American Educational Research Association, Philadelphia, PA.
- Mueller, M. F., Yankewitz, D. & Maher, C. A. (2014, April). *The Occurrence of Indirect Reasoning: An Analysis*. Research paper presented at the 2014 Annual Meeting of the American Educational Research Association, Philadelphia, PA.
- Maher, C. A., Maher, J. A., Palius, M. F., Sigley, R. & Hmelo-Silver, C. E. (2014, April). *Validating an Evolving Video Mosaic Collaborative Design by Seeking Evidence of Teachers' Growth in Reasoning and Related Shifts in Beliefs*. Research paper presented as part of the symposium, The Video Mosaic Collaborative: An Online Professional Development Resource for Mathematics Education and the Learning Science, at the 2014 Annual Meeting of the American Educational Research Association, Philadelphia, PA.
- Hmelo-Silver, C. E., Maher, C. A., Palius, M. F., Sigley, R. & Alston, A. S. (2014, April). *Making Thinking Visible Through Multimedia Artifacts*. Research paper presented as part of the symposium, The Video Mosaic Collaborative: An Online Professional Development Resource for Mathematics Education and the Learning Science, at the 2014 Annual Meeting of the American Educational Research Association, Philadelphia, PA.
- Maher, C. A., Maher, J. A., Palius, M. F., Sigley, R., Hmelo-Silver, C. E. (2014, January). *Impact on Learning About Student Reasoning from Video on Teacher Knowledge and Beliefs*. Research presented at the Hawaii International Conference on Education, Honolulu, HI.
- Hmelo-Silver, C. E., Maher, C. A., Palius, M. F., Sigley, R., Alston, A. (2013, July). *Constructing objects for teacher reflection on learning mathematics*. Research poster presentation at the 37th Conference of the International Group for the Psychology of Mathematics Education (PME 37), Kiel: Germany.
- Maher, C. A. & Palius, M. F. (2013, April). *Using Video Mosaic Collaborative Repository to Promote Student Reasoning*. Research / Outreach Presentation at the 2013 NCTM Annual Meeting, Denver, CO.

- Wilkinson, L. C. & Maher, C. A. (2013, January). *Mathematical Reasoning: Linguistic and Cognitive Challenges Facing School-Age Children*. Research presented at the Hawaii International Conference on Education, Honolulu, HI.
- Maher, C. A., Hmelo-Silver, C. E., Palius, M. F. & Sigley, R. (2011, August) *Reflecting on Reasoning by Studying Videos*. Research presentation at the 14<sup>th</sup> Biennial Conference of the European Association for Research on Learning and Instruction (EARLI 2011), Exeter, UK.
- Maher, C. A. (2011, January) *Tasks that Elicit Mathematical Reasoning Students*. Panel presentation (with M. Capraro, R. Capraro & J. Landis) at the 9<sup>th</sup> Annual Hawaii International Conference on Education, Honolulu, HI.
- Maher, C. A. & Landis, J. H. (2011, January). *Teachers' Learning About Student Reasoning in Mathematics: Using Videos as Tools from the Video Mosaic Collaboratory*. Paper presented at the 9<sup>th</sup> Annual Hawaii International Conference on Education, Honolulu, HI.
- Alston, A. S., Basu, R., Maher, C. A., Morris, K. P., Palius, M. F. & Pedrick, L. (2011, April). Developing teachers' attention to students' mathematical thinking: lesson study as a tool. Research paper presented in Symposium Session: *Unpacking Features and Mechanisms of Lesson Study for Teacher Development across Varied Contexts*. Annual Meeting of the American Education Research Association, New Orleans, LA.
- Palius, M. F. & Maher, C. A. (2010, April). *Video Mosaic Collaborative: Accumulating and Providing Access to Mathematics Education Research*. Invited panel presentation at the Research Presession of the 2010 Annual Meeting of National Council of Teachers of Mathematics, San Diego, CA.
- Maher, C. A., Hmelo-Silver, C. E., Derry, S. J., Agnew, G. & Palius, M. (2009, August). *Cyber-Enabled Video Mosaic for Teacher Learning*. Paper presented in Symposium on "Computer-supported learning with digital videos in multiple educational settings" at the 13<sup>th</sup> Biennial Conference of the European Association for Research on Learning and Instruction (EARLI 2009), Amsterdam, the Netherlands.
- Maher, C. A. & Derry, S. J. (2009, May). *Life of a Video Collection: From Long-Term Research to Building Tools for Teacher Learning*. Two days of invited workshop presentations at the Journées ViSA Conference, Lyon, France.
- Maher, C. A. & Merges, K. (2009, May). *Polynomiography as a Visual Tool: Building Meaning from Images*. Research presentation at the DIMACS Workshop on Algorithmic Mathematical Art: Special Cases and Their Applications, Piscataway, NJ.
- Mueller, M. F. & Maher, C. A. (2009, April). *Teacher Moves in Promoting Student Reasoning*. Paper presented at the 2009 Annual Meeting of the American Educational Research Association, San Diego, CA.

- Mueller, M. & Maher, C.A. (2009, April). *Co-constructing Understanding in Middle-School Mathematics Research*. Paper presented at the Presession of the Annual Meeting of the National Council of Teachers of Mathematics, Washington, D.C.
- Mueller, M. & Maher, C. A. (2009, April). *Promoting Reasoning in Elementary and Middle-School Students through Collaborative Problem Solving*. Workshop leader at the Annual Meeting of the National Council of Teachers of Mathematics, Washington, D.C.
- Maher, C. A. (2009, February). *Learning to Reason: Results from Research Studies*. Invited presentation at the National Science Foundation 2009 REESE PI meeting, "From Discovery & Innovation to Transformations in Education, Learning Research, and Evaluation: Contributions and Emerging Knowledge from the REESE Program," Washington, D.C.
- Mueller, M., & Maher, C. A. (2008, April). *Learning to Reason in an Informal Math After-School Program*. Research report presented at the annual conference of the American Educational Research Association, New York, NY.
- Shay, K. & Maher, C. A. (2008, April). *Tracing Middle School Students' Understanding of Sample Space in an Informal Learning Environment*. Research report presented at the annual conference of the American Education Research Association, New York, NY.
- Maher, C. A. (2008, February). *Video Data Analysis for Research on Algebraic Thinking*. Invited colloquium at the School of Education, Department of Curriculum and Instruction, University of North Carolina, Greenboro, NC.
- Maher, C. A. (2006, November). *Mathematical Reasoning and Its Development Findings From a Longitudinal Study*. Research presented at an invited colloquium at University of Oslo, Norway.
- Weber, K., Maher, C., & Powell, A. B. (2006, June). *Strands of Challenging Mathematical Problems and the Construction of Mathematical Problem-Solving Schema*. Paper presented at the Sixteenth ICMI Study Conference: Challenging Mathematics in and beyond the Classroom, Trondheim, Norway.
- Maher, C. A. (2006, April). *The Discourse of Proof and Argumentation Across the Grades*. Symposium discussant at the meeting of the National Council of Teachers of Mathematics Research Presession, St. Louis, MO.
- Maher, C. A. (2006, April). *Getting Published: Conversations with JRME Panel Members*. Workshop leader at the meeting of the National Council of Teachers of Mathematics Research Presession, St. Louis, MO.
- Maher, C. A. (2006, April). *Pressing Practitioner Questions: Can Research Provide Answers?* Symposium facilitator at the meeting of the National Council of Teachers of Mathematics Research Presession, St. Louis, MO.
- Maher, C. A. (2006, April). *Teacher-Interns Studying Student Reasoning*. Symposium chair at the meeting of the National Council of Teachers of Mathematics Research Presession, St. Louis, MO.

- Maher, C. A., Francisco, J. M., Pedrick, L., Weber, K., Shay, K., Powell, A. B., (2006, April). *The Development of Probabilistic Reasoning Among Urban Students*. Research Presession of the Annual Meeting of the National Council of Teachers of Mathematics, St. Louis, MO.
- Maher, C.A. and Uptegrove, E.B. (2006, February). *Building Mathematical Connections Through Communication*. Paper presented at the Ninth Conference on Research in Mathematics Education, sponsored by the Mathematical Association of America.
- Maher, C. A. (2005, August). *Research as a Work in Progress*. Paper presented at the Center for Mathematics and Science Education colloquium at North Carolina State University, Raleigh, NC.
- Francisco, J. M., Powell, A., Weber, K., & Maher, C. (2005, May). *Urban Teachers Attending to Students' Mathematical Thinking: An Emergent Model of Professional Development*. Paper presented at the Fifteenth ICMI Study Conference: The Professional Education and Development of Teachers of Mathematics, Águas de Lindóia, São Paulo, Brazil.
- Maher, C. A. (2005, May). *Early Algebra: Using Technology as a Tool*. Paper presented at the mathematics department colloquium at Brigham Young University, Provo, UT.
- Maher, C. A. (2005, January). *Students Development of Reasoning in an Urban, Informal Mathematics Setting*. Paper presented at the Hawaii International Conference on Education, Honolulu, HI.
- Maher, C. A. (2004, July). Panel member of Topic Study Group on Problem Solving (TSG 18) at the meeting of the International Congress in Mathematics Education, (ICME 10), Copenhagen, Denmark.
- Maher, C. A. (2004, July). *Research on the development of probability ideas*. Working group session led at the 28th Conference of the International Group for the Psychology of Mathematics Education, Bergen, Norway.
- Maher, C. A. (2004, April). Probability is not an “iffy” subject. Paper presented at the National Council of Teachers of Mathematics Research Presession, Philadelphia, PA.
- Maher, C. A. (2003, April). *Developing Mathematics and Science Partnerships*. Team leader of a Clark County Public School District (Nevada) retreat, Lake Mead, NV.
- Maher, C. A. (2003, April). *The Quality of Mathematics Education Research*. Symposium discussant at the meeting of the National Council of Teachers of Mathematics Annual Research Presession, San Antonio, TX.
- Maher, C. A. (2002, November). *Where Can Mathematical Ideas Lead?* Paper presented at the mathematics department colloquium, University of Washington, Seattle, WA.
- Maher, C. A. (2002, October). *Toward Evidence for Instructional Design Principles: Examples from Cognitive Tutor Math*. Discussant of the plenary address of Kenneth R. Koedinger, Carnegie Mellon University, at the Twenty-fourth Annual

- Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education (PME-NA), Athens, GA.
- Maher, C. A. (2002, May). *NSF Career Day*. Panelist and presenter for the meeting of the Office of Research and Sponsored Programs, Rutgers University, New Brunswick, NJ.
- Maher, C. A. & Walter J. (2002, May). *Video Analysis for Studying the Development of Mathematical Ideas in Classrooms*. Paper presented at the invitational conference on the use of videotape data in research held at Peabody College, Vanderbilt University, Nashville, TN.
- Maher, C. A. (2002, May). *A Longitudinal Study of the Development of Proof Making in Students* Paper presented at the Principal Investigator's Meeting of the National Science Foundation's REC Division, Washington, DC.
- Maher, C. A. (2002, April). *Now They're Nineteen: Reflections on a Fourteen-Year Study*. Paper presented at the mathematics department colloquium at Brigham Young University, Provo, UT.
- Maher, C. A. & Kiczek, R. D. (2001, May). *Learning Probability and Enjoying It, Too: Student Voices from a 12-Year Study*. Paper presented at the 17th Annual Rutgers Invitational Symposium on Education, New Brunswick, NJ.
- Powell, A. B., Maher, C. A., Francisco, J. M., & O'Brien J. J. (2001, April). *An Evolving Analytical Model for Understanding the Development of Mathematical Thinking Using Videotape Data*. Paper presented at the annual conference of the American Educational Research Association, Seattle, WA.
- Maher, C. A. & Speiser, R. (2001, April). *Polynomials, Pascal's Triangle and the Building of Isomorphisms*. Paper presented at the annual conference of the American Educational Research Association, Seattle, WA.
- Maher, C. A. (2001, April). *What Should Be the Research Preparation of Doctorates in Mathematics Education?* Panel discussant at the Research Presession of the 79<sup>th</sup> Annual Meeting of the National Council of Teachers of Mathematics, Orlando, FL.
- Maher, C. A. (2001, January). *A Longitudinal Study of the Development of Proof Making in Students*. Invited poster presentation of NSF-funded projects at the Principal Investigator's Meeting of the National Science Foundation's REC Division, Washington, DC.
- Maher, C. A. (2000, October). *The Science of Learning*. Invited panel discussant with other Rutgers faculty members and Dr. Norman Bradburn of the National Science Foundation, Rutgers University, NJ.
- Kiczek, R. D., Maher, C. A., & Steencken, E. P. (2000, April). *Individual Interviews of Students: Their Reflections on their Learning*. Symposium at the annual conference of the American Educational Research Association, New Orleans, LA.

- Maher, C. A. and Steencken E. P. (2000, April). *Learning Fraction Ideas: The Classroom as a Community*. Paper presented at the annual meeting of the American Educational Research Association, New Orleans, LA.
- Maher, C. A. (1999, October). *Reorganizing/Revamping Existing Doctoral Programs*. Paper presented at the National Conference on Doctoral Programs in Mathematics Education, Lake of the Ozarks, MO.
- Adleman, K. A. & Maher, C. A. (1998, November). *What Kind of Heuristics Do Children Use to Express Convincing Arguments in a Computer Environment?* Paper presented at the Twentieth Annual Conference of the North American Group for the Psychology of Mathematics Education, Raleigh, NC.
- Maher, C. A. (1998, April). *Children's Reasoning: Combinations and Proof, Grades 4-10*. Paper presented at the Mathematics Department Colloquium, Brigham Young University, Provo, UT.
- Maher, C. A. (1998, April). *Learning and Teaching Mathematics: What Should We Be After?* Panel discussant with R. Askey, R. Graham, and F. Morgan at the meeting of the Mathematical Association of America, Salt Lake City, UT.
- Maher, C. A. & Dann, E. (1997, November). *Constructivism and Teaching Mathematics: What Can Be Learned from Research?* Paper presented at the Annual Conference of the Association for Constructivist Teaching, New York, NY.
- Maher, C. A. & Speiser, R. (1997, November). *One Child, Looking Deeply, for Eight Years: Block Towers First, Then Algebra*. Paper presented at the Colloquium of the Departments of Mathematics and Psychology and the Natural Sciences Program, University of Wyoming, Laramie, WY.
- Maher, C. A. (1997, October). *Can Children Invent Powerful Mathematical Ideas?* Paper presented to the Mathematics Department Colloquium, Syracuse University, Syracuse, NY.
- Schorr, R. Y., Maher, C. A., & Davis, R. B. (1997, July). *Does Teaching Mathematics As A Thoughtful Subject Influence The Problem-Solving Behaviors Of Urban Students?* Paper presented to the 21st Conference of the International Group for the Psychology of Mathematics Education, Lahti, Finland.
- Maher, C. A. (1997, March). *Can You Add and Get a Negative Number?"* Paper presented at a Teacher Workshop sponsored by the Technion-Israel Institute of Technology, Haifa, Israel.
- Maher, C. A. (1996, November). *Students' Idea of A Fair Game*. Paper presented at the Western Regional Conference of the National Council of Teachers of Mathematics, Albuquerque, NM.
- Maher, C. A. (1996, November). *The Complexities of Constructivist Learning and Teaching: Becoming Mathematical Storytellers*. Paper presented at the Western Regional Conference of the National Council of Teachers of Mathematics, Albuquerque, NM.

- Maher, C. A. (1996, October). *Are You Convinced? Proof Making in Young Children*. Paper presented at the Principal Investigator's Meeting of the National Science Foundation's REC Division, Arlington, VA.
- Maher, C. A., Keigher, E., Steencken, E., & Alston, A. (1996, July). *School Based Teacher Development: A School-University Partnership*. Paper presented at the Second International Conference on Teacher Education: Stability, Evolution and Revolution, Mofet Institute for Teacher Education, Zinman College, Wingate Institute, Netanya, Israel.
- Maher, C. A. (1996, July). *Can You Add And Get A Negative Number?* Paper presented at the Eighth International Congress on Mathematical Education, Seville, Spain.
- Maher, C. A. (1996, July). *The Complexity of Learning*. Paper presented at the Eighth International Congress on Mathematical Education, Seville, Spain.
- Maher, C. A. (1996, July). *What can you learn from research in the classroom?* Paper presented at the Eighth International Congress in Mathematics Education, Seville, Spain.
- Maher, C. A., Steencken, E. P. & Deming, L. (1996, July). *Are You Convinced? Proof Making in Young Children*. Paper presented at the Eighth International Congress on Mathematics Education, Seville, Spain.
- Maher, C. A. (1996, April). *Proofs, Isomorphism, and Density: Studies from Classroom Research*. Paper presented to the Mathematics Department Colloquium, Brigham Young University, Provo, UT.
- Maher, C. A., Pantozzi, R., & Martino, A. (1996, April). *How Students Build Understanding Of Mathematics In Open Learning Environments*. Paper presented at the symposium session: Doing Research is Creating Research: Using Interactive Technology to Study Rich Classroom Contexts of the American Education Research Association, New York, NY.
- Maher, C. A., Pantozzi, R., Martino, A., Steencken, E., & Deming, L. (1996, April). *Analyzing Students' Personal Histories: Foundations of Mathematical Ideas*. Paper presented at the annual conference of the American Educational Research Association, New York, NY.
- Maher, C. A. (1996, April). *Learning From Children's Constructions: Examples Of Practice Informing Theory*. Paper presented at the symposium session: Recognizing Children's Conceptual Frameworks: Implications for School Mathematics at the Research Presession of the National Council of Teachers of Mathematics, San Diego, CA.
- Maher, C. A. (1995, September). Invited speaker at a colloquium of the University of Hawaii College of Education, Honolulu, Hawaii.
- Maher, C. A. (1995, December). *Children's Explorations Leading to Proof*. Paper presented at a colloquium of the Mathematical Sciences Institute of Education, University of London, England.

- Maher, C. A. (1995, April). *Exploring the Territory Leading to Proof*. Paper presented at the Research Pre-session of the National Council of Teachers of Mathematics, Boston, MA.
- Maher, C. A. (1995, February). *Integrating Research and Practice within Teacher Development Partnerships*. Paper presented at a colloquium of the College of Education, University of Cape Town, Cape Town, South Africa.
- Maher, C. A. (1995, February). *Teacher Preparation and Development in Mathematics at Rutgers University*. Paper presented at colloquium of the Mathematics Centre for Professional Teachers (MCPT), Johannesburg, South Africa.
- Maher, C. A. (1995, February). *The Importance of Building Multiple Representations of Mathematical Ideas: An Example involving Multiplication*. Invited lecture at Johannesburg Teachers College, Johannesburg, South Africa (with A. Alston).
- Maher, C. A. (1995, February). *The Connection Meaning and Symbolic Representations: An Example involving Multiplication*. Invited lecture at Johannesburg Teachers College, Johannesburg, South Africa (with A. Alston).
- Maher, C. A. (1995, February). *Mathematics Teacher Preparation and Development at Rutgers: The Integration of Research and Practice*. Lecture presented at a colloquium of the Primary Education Department, Johannesburg Teachers College, Johannesburg, South Africa.
- Maher, C. A. (1994, November). *Interactive Multimedia: Its Impact on Research*. Paper presented at the annual conference of the North America Group for the Psychology of Mathematics Education, (PME-NA), Baton Rouge, LA. (with T. Perl).
- Maher, C. A. (1994, September). *Assessment of Student's Knowledge in Solving Combinatoric Problems that Deal with Dependent and Independent Events*. Paper presented at a mathematics department colloquium, University of Pennsylvania, Philadelphia, PA.
- Maher, C. A. (1994, April). *Using Assessment to Guide Instructional Decisions*. Paper presented at the annual conference of the National Council of Teachers of Mathematics (NCTM), Indianapolis, IN.
- Maher, C. A. (1994, April). *Teacher Questioning to Stimulate Justification and Generalization in Mathematics*. Paper presented at the annual conference of the American Education Research Association (AERA), New Orleans, LA (with A. Martino).
- Maher, C. A. (1994, February). *Using Video-Portfolios to Analyze Children's Invention of Mathematics*. Invited talk delivered to the Western Regional Conference of the National Council of Teachers of Mathematics, San Francisco, CA.
- Maher, C. A. (1994, October). *Inventing Notations and Making Connections: Examples From Video Portfolios*. Invited at the annual conference of the National Council of Teachers of Mathematics, Omaha, NE.



- Maher, C. A. (1993, October). *Four Case Studies of the Stability and Durability of Children's Methods of Proof*. Paper presented at the Fifteenth Annual Meeting of the Psychology of Mathematics Education, North American Division, Pacific Grove, CA.
- Maher, C. A. & Martino, A. M. (1993, October). *MAPS: Mathematics Projects with Schools*. Paper presented to Colts Neck Public Schools, Colts Neck, NJ.
- Davis, R., Maher, C., Trout, R., Dann, E. & Purdy, T. (1993, July). *Assessing Mathematical Standardized Test Scores of New Brunswick Students for the Years 1987 - 1992*. Paper presented to the Educational Task Force of New Brunswick Tomorrow.
- Maher, C. A. (1993, July). *Children's Development of Methods of Proof*. Paper presented at the Seventeenth Annual Conference of the International Group for the Psychology of Mathematics Education, Tsukuba, Japan.
- Maher, C. A. & Dann, E. (1993, March). *Implementing a Thinking Curriculum in Mathematics: Paying Attention to Children's Thinking*. Paper presented at The Southeastern Regional Conference of the National Council of Teachers of Mathematics, Columbus, GA.
- Maher, C. A. (1992, December). *Studying the Development of Mathematical Ideas in Children*. Invited lecture, Mathematics Seminar Series, San Jose State University San Jose, CA.
- Maher, C. A. (1992, December). *Children's Ideas of Proof*. Paper presented at the 35th Annual Asilomar Mathematics Conference, California Mathematics Council, Monterey Peninsula, Monterey, CA (with J. Landis).
- Maher, C. A. (1992, December). *Studying the Development of Mathematical Ideas in Children*. Invited lecture for the Mathematical Sciences Education Board, National Research Council, Rutgers University, New Brunswick, NJ.
- Maher, C. A. (1992, November). *Children's Early Attempts at Proof*. Paper presented at a meeting of the Hawaii Council of Teachers of Mathematics, Honolulu, HI (with A. Alston).
- Maher, C. A. (1992, August). *Tracing the Development of Children's Thinking About Proof*. Paper presented at the National Science Foundation Invitational Conference, Washington, D.C. (with R. B. Davis & A. Martino).
- Maher, C. A. (1992, August). "Conditions Contributing to Conceptual Change in Building the Idea of Mathematical Justification." Invited Presentation for Working Group on the Formation of Elementary Mathematical Concepts at the Primary Level, Seventh International Congress on Mathematical Education, Laval University, Quebec, Canada.
- Maher, C. A. (1992, August). "Constructivism and Teaching." Invited talk on research on the psychology of mathematics teacher development, Seventh International Congress on Mathematical Education, Laval University, Quebec, Canada.

- Maher, C. A. (1992, August). *Teaching Exploratory Data Analysis Through Problem Solving*. Paper presented at a conference of the International Statistical Institute, Lennoxville, Quebec State, Canada (with J. Pancari).
- Maher, C. A. (1992, August). *Studying the Processes of Mathematical Thinking Via Videotape*. Paper presented at the Fourth International Five Nations Conference, Rutgers University, New Brunswick, NJ.
- Maher, C. A. (1992, April). *The Teacher as Researcher*. Paper presented at a meeting of the Research Advisory Committee of the National Council for Teachers of Mathematics, The Special Interest Group for Research in Mathematics Education of the American Educational Research Association and the National Council of Supervisors of Mathematics, Nashville, TN.
- Maher, C. A. (1991, October). *Documenting Teacher Change*. Paper presented at the Wisconsin Center for Education Research and Educational Development, Madison, WI.
- Maher, C. A. (1991, May). *Implications of Constructivism for Teacher Education*. Invited Working Group Leader (with C. Gaulin), Canadian Mathematics Education Study Group, Fredericton, New Brunswick, Canada.
- Maher, C. A. (1991, April). *Language and Belief in Mathematics and Computer Science*. Discussant at a meeting of the American Education Research Association, Division C & SIG - Research in Mathematics Education, Chicago, IL.
- Maher, C. A. (1991, April). *From Concrete to Abstract*. Talk delivered to the Mathematics Leadership Conference, Bank Street College, New York, NY (with R.B. Davis).
- Maher, C. A. (1991, February). *What It Means to Do Mathematics: The Rutgers-New Brunswick Teacher Development Project in Mathematics*. Talk delivered to the New Jersey Board of Higher Education, Trenton, NJ (with R.B. Davis).
- Maher, C. A. (1990, November). *Constructing Meaning in Mathematics: A Two Year Case Study*. Paper presented at the Rutgers Invitational Symposium on Education, New Brunswick, NJ.
- Maher, C. A. (1990, November). *The Rutgers-Colts Neck Mathematics Collaboration*. Talk delivered to the Board of Education of Colts Neck Public School, Colts Neck, NJ.
- Maher, C. A. (1990, July). *Children's Connections Among Representations of Mathematical Ideas*. Paper presented to the 14th International Conference of the Psychology of Mathematics Education, Oaxtapec, Mexico (with A. Alston).
- Maher, C. A. (1990, June). *Partnerships with Schools: Mathematics Projects in Collaboration with Rutgers University Center for Mathematics, Science and Computer Education*. Paper presented at the annual conference of the American Society for Engineering Education, Toronto, Canada (with J. Pancari).

- Maher, C. A. (1990, June). *College/School Collaboration*. Panel discussant at the annual conference of the American Education Research Association, Division C & SIG - Research in Mathematics Education, Chicago, IL.
- Maher, C. A. (1990, June). *An Assessment of the District's Mathematics Program*. Presentation to the Board of Education of Springfield Public Schools, Springfield, NJ.
- Maher, C. A. (1990, May). *Building Mathematical Knowledge*. Talk delivered to Education Technologies, Inc., Mt. Freedom, NJ.
- Maher, C. A. (1990, January). *Integration of Preservice with Inservice Teacher Education: A Rutgers Model*. Talk delivered to the Holmes Group, Washington, DC.
- Maher, C. A. & Alston, A. (1988, July). *Implementing a Model for Teacher Development in Mathematics*. Paper presented at the Sixth International Congress on Mathematical Education, Budapest, Hungary.
- Maher, C. A. (1988, July). *Proposed Model for Elementary Mathematics Teacher Preparation*. Paper presented at the Sixth International Congress on Mathematical Education, Budapest, Hungary.
- Maher, C. A., Alston, A., & Landis, J. H. (1986, April). *Implementing a Model for Learning as the Construction of Knowledge- A Teacher Development Project*. Paper presented at the Research Pre-session to the Annual Meeting of the National Council of Teachers of Mathematics, Washington, D.C.
- Maher, C. A. & Alston, A. (1985, April). *Elementary School Mathematics as a Problem Solving Activity: A Model for Teacher Preparation*. Paper presented at the annual conference of the American Educational Research Association, Chicago, IL.

### **Invited Courses**

- Maher C. A. (1996-1997). Invited lectures at International Forum on Curriculum and Mathematics Education at the Universidade Santa Ursula, Rio de Janeiro, Brazil.
- Maher, C. A. (1995). Invited graduate course on Proof and Justification for the special program of Exchange of Scholars in Mathematics Education in Rio de Janeiro, Brazil.
- Maher, C. A. (1995). Invited graduate course on the integration of research into classroom practice for 39 teachers from Licenciatura em Educacao Matematica do Ensino Primario (LEMEP) of the Instituto Superior Pedagogico (ISP), Beira, Mozambique, February 20-25, 1995.
- Maher, C. A. (1995). Invited research seminar for science and mathematics faculty (11 participants) from Universidade Pedagogica, Maputo and Instituto Superior Pedagogico, Beira, Mozambique, February 20-25, 1995.

### **Invited Lecture Tour (South Africa)**

#### ***Invited Lecture Tour, sponsored by USAID and ABEL (1995)***

Maths Centre for Primary Teachers, South Africa, and MEP  
College of Education, University of Cape Town;  
AMESA; University of Port Elizabeth, Port Elizabeth.  
Dower Teacher College, Dower;  
RUMEP, Rhodes University, Grahamstown;  
AMESA, Independent Teacher Enrichment Center, East London;  
Johannesburg Teachers College, Johannesburg;  
MCPT, Soweto Township; guest teacher facilitating class of students from  
Standards 4 and 5, Seiling Farm School, Soweto Township.

### **Grant Funding**

(Total Funding in Excess of \$16 M)

*Increasing the Impact of the Robert B. Davis Institute for Learning (2015-2018)*, funded by the Jim Neuberger and Helen Stambler Neuberger Foundation, \$75,000.

*BCC: Collaborative Research: Community Building for Research on Mathematics Learning Using Data-Intensive Sources (2014-2016)*, funded by the National Science Foundation, \$604,661, award DGE-1439570, (with M. F. Palius and S. Wang).

*Supplemental Support for Cyber-Enabled Design Research to Enhance Teachers' Critical Thinking Using a Major Video Collection*, (2013-2014), funded by the National Science Foundation, \$198,982 supplement to award DRL-0822204 (with M. F. Palius, C. E. Hmelo-Silver, and G. Agnew)

*Leveraging existing technologies to build mathematical reasoning and content knowledge of pre-service teachers in an online environment* (2013-2014), award from the Goal Advancement Program (GAP), funded by Rutgers University Graduate School of Education, \$8,000 (with Sigley, R. (PI) and Alqahtani, M.).

*Exploring the use of an available video archive to support learning about child development* (2012-2013), award from the Goal Advancement Program (GAP), funded by Rutgers University Graduate School of Education, \$7,600 (with S. Golbeck (PI) and C. E. Hmelo-Silver).

*EXP: Constructing Multimedia Artifacts Using a Video Repository* (2012-2015), award IIS-1217087 funded by the National Science Foundation, \$549,917 (with C. E. Hmelo-Silver, G. Agnew, and S. Golbeck).

*Evaluation of K-8 Mathematics Curriculum for Pelham Schools* (2012), contract funded by Pelham Union Free School District, \$18,000 (with A. S. Alston and M. F. Palius).

*Research Experience for Undergraduates – Supplemental funding* (2010-2012) to award DRL-0822204 funded by the National Science Foundation, \$38,750 (with C. E. Hmelo-Silver, and M. F. Palius).

*NJ Partnership for Excellence in Middle School Mathematics*, (2009-2014), award DUE-0934079 funded by the National Science Foundation, \$5,000,000 (with A. Cohen (PI), J. W. Bennett, J. Coleman, and R. M. Beals).

*Cyber-Enabled Design Research to Enhance Teachers' Critical Thinking Using a Major Video Collection*, (2008-2012), award DRL-0822204 funded by the National Science Foundation, \$2,132,621 (with G. Agnew, C. E. Hmelo-Silver, and M. F. Palius). Collaborative research with separate grant award of \$866,955 to the University of Wisconsin at Madison (S. J. Derry).

*Synthesizing Video Data on Students' Mathematical Reasoning* (2007-2009), award DRL-0723475 funded by the National Science Foundation, \$200,000.

*Regional Center of NJSSI*, (2007-2008), funded by NJSSI (sub-award from their State of New Jersey funding), \$80,000.

*A Community of Learners and Thought Shapers*. Educational partner on NSF-funded IGERT Biointerfacial Engineering grant to develop and study an interdisciplinary learning community (2003-2008), \$66,075 over five years (with Prabhas Moghe, PI of IGERT grant).

*Students Understanding Critical Connections between Environment, Society and Self (SUC<sub>2</sub>ES<sub>2</sub>)*, funded as sub-contract on Environmental and Occupational Health Sciences Institute (EOHSI) and University of Medicine and Dentistry of New Jersey (UMDNJ) grant from the National Institutes of Health, (2000-2007), \$130,107 over seven years.

*Regional Center of NJSSI*, (2006-2007), funded by NJSSI (sub-award from their State of New Jersey funding), \$80,000.

*Research on Informal Mathematics Learning*, (2003-2006), award REC-0309062 funded by the National Science Foundation, \$1,149,020 (with A. B. Powell).

*Improving Teacher Quality through Lesson Study Partnerships*, (2003-2006), funded by New Jersey Department of Education, \$779,133 (with A. Alston).

*Regional Center of NJSSI*, (2005-2006), funded by NJSSI (sub-award from their State of New Jersey funding), \$80,000.

*Journal of Mathematical Behavior*, (2003-2006), funded by Elsevier Science, Inc., \$26,000 (\$6,500 per year).

*Regional Center of NJSSI*, (2004-2005), funded by NJSSI (sub-award from their State of New Jersey funding), \$80,000.

- Regional Center of NJSSI*, (2003-2004), funded by NJSSI (sub-award from their State of New Jersey funding), \$85,000.
- MetroMath Research*, (2005), awards through the NSF-funded MetroMath Center to conduct pilot studies for “Early Algebra Using Technology as a Tool” and “Teacher as Researcher”, with Alston, Powell & Weber, \$21,500.
- Preserving the R. B. Davis Archives*, (2005), Roy and Marie Neuberger Foundation, \$50,000.
- Regional Center of NJSSI*, (2004-2005), funded by NJSSI (sub-award from their State of New Jersey funding), \$80,000.
- Regional Center of NJSSI*, (2003-2004), funded by NJSSI (sub-award from their State of New Jersey funding), \$80,000.
- Building from Prototypes: Learning and Teaching Mathematics in Collaboration*, (2003), award INT-0303660 funded by the National Science Foundation, \$13,900.
- Supporting International Students*, (2003), Roy and Marie Neuberger Foundation grant, \$18,000.
- Regional Center of NJSSI*, (2002-2003), funded by NJSSI (from SSI’s NSF grant), \$80,000.
- Eisenhower Professional Development Program Year 2 of 2*, (2002-2003), funded by New Jersey Department of Education, \$247,300 (with A. Alston).
- Mathematics Urban Initiative with Plainfield*, (2001-2003), funded jointly by NJSSI and Research for Better Schools, \$100,000, (with A. Alston).
- Partnership Program*, (2001-2003), funded by NJSSI (from SSI’s NSF grant), \$20,000.
- Eisenhower Professional Development Program Year 1 of 2*, (2001-2002), funded by New Jersey Department of Education, \$247,274 (with A. Alston).
- Journal of Mathematical Behavior*, (2001-2002), funded by Elsevier Science, Inc., \$15,000.
- Strategic Resource and Opportunity Analysis Program Grant*, (2001-2002), Rutgers University, \$50,000.
- Defining Quality in Early Mathematics Education*, (2002), funded by Carnegie Corporation of New York, \$43,300.
- New Jersey Statewide Systemic Initiative Regional Center Grant*, (1992-2001), funded by the National Science Foundation, \$1,135,877.
- Enhancing the Rutgers-Kenilworth Longitudinal Study of the Development of Proof Making in Students*, (2000-2001), supplement to award REC-9814846 funded by the National Science Foundation, \$99,457.
- Strategic Resource and Opportunity Analysis Program Grant*, (2000-2001), Rutgers University, \$60,000.

- A Longitudinal Study of the Development of Proof Making in Students*, (1998-2001), award REC-9814846 funded by the National Science Foundation, \$639,500.
- Strategic Resource and Opportunity Analysis Program Grant*, (1999-2000), Rutgers University, \$95,000.
- Private Universe Project in Mathematics*, (1999-2000), Harvard Smithsonian Astrophysical Observatory, \$66,224.
- The Rutgers-Colts Neck Partnership for Implementing A Thinking Curriculum*, (1999-2000), funded by the Exxon Education Foundation, \$21,104.
- Professional Development in Mathematics, Science and Language Arts in Three Urban Districts*, (1998-2001), funded by the New Jersey Department of Education, \$610,000 (with W. Firestone).
- Journal of Mathematical Behavior*, (1998-2001), funded by Ablex Publishing Corporation, \$15,000.
- New Jersey Statewide Systemic Initiative Regional Center Planning Grant*, (1998-1999), funded by the National Science Foundation, \$15,000.
- Strategic Resource and Opportunity Analysis Program Grant*, (1998-1999), Rutgers University, \$30,000.
- Support for the Journal of Mathematical Behavior*, (1998-1999), funded by the Exxon Education Foundation, \$8,200.
- Rutgers-Colts Neck Teacher Development Project in Mathematics*, (1998-1999), \$33,000.
- Teacher Material Development*, (1998-1999), funded by the Annenberg/CPB Math and Science Project, \$25,000.
- NJ SSI Thrust I Program Grant*, (1993-1998), \$380,500 (Maher and Davis).
- Mathematics 2000 Project, Freehold Regional District*, (1996-1998), \$48,750.
- Mathematics 2000 Project, Freehold Regional High School District*, (1996-1998), \$61,350.
- Strategic Resource and Opportunity Analysis Program Grant*, (1997-1998), Rutgers University, \$40,000.
- Rutgers-Colts Neck Teacher Development Project in Mathematics*, (1990-1997) \$25,000 (with R.B. Davis).
- Rutgers-New Brunswick Schools Math Project Dissemination and Replication*, The Johnson & Johnson Family of Companies Contribution Fund, (1991-1997), \$125,000.
- NJ SSI Thrust I Preservice Grant*, (1993-1997), \$102,000 (with R. B. Davis).
- NJ SSI Technology Integration Grant*, (1993-1997), \$47,000 (with R. B. Davis).
- Rutgers-School District Partnerships* (1994-1997), (Magen David Yeshiva Project, Montgomery Township, Fredon), \$107,713.

- A Consortium for Teacher Enhancement in Mathematics: Planning Grant*, (1995-1997), funded by the Exxon Education Foundation, \$10,000.
- Strategic Resource and Opportunity Analysis Program Grant*, (1996-1997), Rutgers University, \$20,000.
- Rutgers-New Brunswick Schools Math Project Dissemination and Replication* (1991-1996), The Johnson & Johnson Family of Companies Contribution Fund, \$125,000 (with R.B. Davis).
- NJ SSI Thrust II Category 3 Grant*, (1994-1996), Resource Services to Kittatiny Regional Consortium, \$13,200 (with R. B. Davis).
- NJ SSI Resource Services Grant*, (1994-1996), \$32,148 (with R. B. Davis & G. J. Pallrand).
- NJ SSI Thrust II Category 3 Grant*, (1994-1996), Resource Services to New Brunswick Schools, \$34,000 (with R. B. Davis & G. J. Pallrand).
- NJ SSI Thrust II District Grant* (New Brunswick), (1994-1996), \$59,305 (with R.B. Davis and G.J. Pallrand).
- NJ SSI Thrust II Category 3 Grant*, Resource Services to Union County Cluster, (1994-1996), \$34,000 (with R. B. Davis & G. J. Pallrand).
- NJ SSI Thrust II District Grant* (Union County Cluster), 1994-1996, \$19,224 (with R. B. Davis and G.J. Pallrand).
- A Three and One Half-Year Longitudinal Study of Children's Development of Mathematical Knowledge*, (1991-1995), award MDR-9053597 funded by The National Science Foundation, Division of Materials Development, Research, and Informal Science, \$1,233,082 (with R. B. Davis).
- Teachers as Partners in Mathematics Education Reform: Curriculum for the Year 2000*, (1992-1995), funded by the New Jersey Department of Higher Education, \$274,519.
- Building Power in the Teaching of Mathematics: The Rutgers - New Brunswick Schools Mathematics Project*, (1992-1995), funded by the New Jersey Department of Higher Education, \$307,595.
- NJ SSI Thrust I Program Grant*, (1993-1995), \$215,000 (with R. B. Davis & G. J. Pallrand).
- Collaborative Leadership Project in Teaching Probability and Statistics in Schools*, New Jersey Department of Higher Education, (1991-1994), \$178,604 (with A. E. Kelly).
- New Jersey Statewide System Initiative, Thrust I Planning Grant*, (1993-1994), \$10,000 (with R. B. Davis).
- Rutgers-New Brunswick Assessment Project*, (1992-1993), funded by Exxon Education Foundation, Johnson & Johnson, and the AT & T Foundation, \$70,000.



*Rutgers-School Projects*, (1991-1993), funded by Rabbi Pesach Raymon Yeshiva and East Orange Public Schools, \$54,940.

*NJ SSI Technology Integration Grant*, (1992-1993), \$50,000 (with R. B. Davis & G. J. Pallrand).

*Rutgers-New Brunswick Schools Math Project*, (1988-1992), funded by New Brunswick Tomorrow (Includes funds from Johnson & Johnson, AT&T, Middlesex County College), \$258,000 (with R. B. Davis).

*Rutgers-New Brunswick Schools Math Project*, (1988-1991), funded by the New Jersey Department of Higher Education, \$354,000 (with R. B. Davis).

*Children With Partners*, (1989-1992), funded by AT&T & New Brunswick Tomorrow, \$45,000 (with R. B. Davis).

*Assessment Model for Elementary Mathematics: Conceptual Understanding and Problem Solving*, (1990-1992), funded by Exxon Education Foundation, \$75,000 (with R. B. Davis & G. A. Goldin).

*Rutgers-Kenilworth Project*, (1986-1991), funded by Kenilworth Public Schools, \$14,250.

*Rutgers-Camden Teacher Development Project in Mathematics*, (1990-1991), \$26,000.

*Rutgers-Colts Neck Teacher Development Project in Mathematics*, (1990-1991), \$2,000.

*Teacher Development Workshops in Mathematics*, (1988-1990), funded by nine independent New Jersey public schools and one county consortium of 21 public and private school districts \$16,500 (with R. B. Davis).

*Springfield Mathematics Assessment Project*, (1990), funded by Springfield Public Schools \$5,700 (with R.B. Davis).

*Mathematics Education Teacher Development Consortium*, (1988-1989) funded by the National Center for Research in Mathematical Sciences Education, University of Wisconsin, \$2,750.

*Center for Math, Science and Computer Education Development*, (1985-1986), funded by the New Jersey Department of Higher Education \$82,200 (with G. Goldin).

*Teacher Development in Mathematics National Working Conference*, (1985-1986), funded by the New Jersey Department of Higher Education, (with G. A. Goldin), \$5,514.

*Development of the Center for Math Science and Computer Education*, (1984-1985), funded by the New Jersey Department of Higher Education, \$62,200.

### ***Service to Rutgers University***

*Director*, Robert B. Davis Institute for Learning (RBDIL), 1999-present

*Acting Director*, Rutgers University Center for Mathematics, Science, and Computer Education, 1984-1985.

*Director*, New Jersey Department of Higher Education Grant: Center for Mathematics, Computing, and Science Education, (with G. A. Goldin), 1985-1986.

*Director*, Mathematics Projects with Schools, Rutgers Center for Mathematics, Science and Computer Education, 1988-1995, (with R. B. Davis)

*Coordinator*, EdD Program, Mathematics Education, 1977-present

*Organizer*, Lecture Series in Mathematics Education, 2000-present.

*Chair*, Search Committee, for Mathematics Education, 2000-present.

*Member*, Search Committee, for Science Education, 1993-1994.

*Doctoral Faculty*, Ph.D. program in mathematics-education, 1999-present; 1999-2000 (coordinator).

*SROA Education Committee*, 2000-2004.

*Continuing Education Committee*, 1994-1995.

*Rules and Procedures Committee*, 1993- - present

*Appointments & Promotions Committee*, 1998- present

*Search Committee*, Director of Development, 2003-2005.

*International Programs Committee*, 1993-1998.

*Teaching Portfolio Assessment Committee*, 1993-present.

*Professional Development School Committee*, Rutgers-New Brunswick, 1993-1997.

*Teacher Education Faculty*, 1987-1989.

*Models for Teacher Education and Development in Mathematics*, 1985-1988.

### ***University (Rutgers-The State University)***

*Libraries Advisory Committee on Appointments and Promotions to Librarian I*, Fall 2012, Fall 2013

*Review Committee for 2012 Faculty Research Grant Program*, 2011 fall term

*Dean's Review Committee*, 2011-2012

*Executive Council*, 2007-2008.

*P-16 Education Committee*, 2005- present.

*Social Sciences Area Committee*, Graduate School, 2002-2003.

*NSF Advisory Committee*, Office of Research and Sponsored Programs, 2002-2003.

*Executive Committee*, Rutgers University Center for Mathematics, Science and Computer Education, 1986-ongoing.

*Search Committee*, for Dean of University College, 1994-1995.

*University Committee to Select Sussman Award*, 1992-1993.

*University Libraries Committee*, 1989-1992.

*Mathematics Education Reform Association (MERA)*, Rutgers Representative,  
University of Illinois, Chicago, 1998.

*Probability and Statistics in Schools*, 1985-1986.

*Search Committee*, for Director of the Center for Mathematics, Science, and  
Computer Education, 1984-1985.

*Planning Committee*, to Establish Rutgers University Center for Mathematics,  
Science, and Computer Education, 1983-1984.

### ***Service to Schools***

*Rutgers University Regional Center for the New Jersey Statewide Systemic Initiative (SSI)*, serving 98 school districts in the counties of Monmouth, Middlesex, and Union, Director, 1997-2008.

*Rutgers University Professional Development Site: School-University Partnerships for Leadership in Teaching*, Program for State Systemic Initiative, National Science Foundation and New Jersey Department of Education, Director, (with R. B. Davis), 1994-2001.

*Magen David Professional Development Project Consultant*, Brooklyn New York, 1994-1997,

*Children With Parents*, New Brunswick Public Schools, NJ, Director, (with R. B. Davis) 1990-1993.

*Professional Preparation of Elementary School Teachers*, University of Chicago Working Group Member, 1990-1991.

*Multidigit Working Group*, University of Wisconsin, Member, 1988-1990.

*Partners With Parents*, Asbury Park, NJ, Director, 1986-1988.

*Rutgers Summer Institute in Mathematics and Computers for Elementary School Teachers*, Director, 1984-1988.

*Rutgers University-Kenilworth Public Schools Teacher Development Project in Mathematics*, Director, 1985-1986.

*Educational Task Force*, New Brunswick Public Schools, Director, 1982-1986.

*Project CLIMB*, Middlesex Public Schools, Middlesex, NJ, 1976-1980

United States Office of Education Project for Teacher Training, Assistant Director, 1976-1979.

***International/National Collaborations (Conference Organizer)***

- Knowledge in/for Teaching Mathematics at Primary Level*, co-chair (with Peter Sullivan), Topic Study Group 45 at the 13th International Congress on Mathematical Education (ICME-13), University of Hamburg, Germany, July 24-31, 2016.
- New Trends in Mathematics Education Research*, co-chair, Topic Study Group 36 at the 11th International Congress on Mathematics Education (ICME-11), Monterrey, Mexico, July 6-13, 2008.
- Working Group Meeting - Research on Proof Making*, organizer, (with R. Speiser, Brigham Young University, N. Balacheff, University of Grenoble, and G. Harel, University of California, San Diego), Provo, UT, October 13-16, 2005.
- Seventh Annual Robert B. Davis Conference on Mathematical Thinking*, organizer, (with G. Gjone, University of Oslo, and J. Lithner, University of Umea, University of Umea, Sweden), an international assembly of mathematicians, mathematics educators, teachers, and school administrators, University of Umea, Sweden, June 2003.
- Defining Quality in Early Mathematics Education*, organizer, (with H. P. Ginsburg, Teachers College), funded by Carnegie Corporation of New York, Rutgers University, July 2002.
- Sixth Annual Robert B. Davis Conference on Mathematical Thinking*, organizer, (with W. Dörfler, University of Klagenfurt and R. Speiser, Brigham Young University), Klagenfurt, Austria, June 2002.
- Colloquium Series*, organizer, (with R. Speiser), interactive video teleconferencing between Rutgers University and Brigham Young University for faculty, staff and graduate students, 2001-2002.
- Rutgers Invitational Symposium on Education (RISE)*, “Understanding Mathematical Understanding,” organizer, (with S. Pirie, University of British Columbia), Rutgers University, May 2001.
- Fifth Annual Robert B. Davis Conference on Children’s Mathematical Thinking*, organizer, (with R. Speiser, Brigham Young University, Provo, UT, and Neil Pateman, University of Hawaii, Honolulu), Honolulu, Hawaii, May/June 2001.
- International Group for the Psychology of Mathematics Education Conference*, North American Chapter (PME-NA), organizer, (with R. Speiser and C. Walter), Snowbird, UT, October 2001.
- Fourth Annual Robert B. Davis Conference on Children’s Mathematical Thinking*, organizer, (with R. Speiser, Brigham Young University), Snowbird, UT, May/June 2000.

- International Emerald Isle Secondary Mathematics Teacher Education Conference*, organizer, (with S. Berenson, University of North Carolina), Raleigh, Emerald Isle, NC, November 2000.
- Third Invitational Conference on Thinking About Student's Mathematical Thinking*, organizer, (with R. Speiser), Snowbird, UT, May, 1999.
- Statistical Education in Elementary Education*, session organizer, The Fifth International Conference on Teaching Statistics (ICOTS 5), Beijing, China, June 21 - June 26, 1998.
- Second Invitational Conference on Thinking about Children's Mathematical Thinking*, organizer, (with M. Amit), Ber Sheva, Israel, May, 1998.
- Interactive Conference on Children's Mathematical Thinking*, organizer, Ber Sheva University (Israel) and Rutgers University (USA), and two remote New Jersey sites celebrating the 75<sup>th</sup> Anniversary of Rutgers Graduate School of Education, May 27, 1998.
- First Invitational Conference on Thinking about Children's Mathematical Thinking*, organizer, (with R. B. Davis and R. Speiser), held at Snowbird, UT, June 9-14, 1997.
- Rutgers Invitational Symposium on Education*, chair (with R. B. Davis), Relating Schools to Reality in Mathematics Learning, Rutgers University, Fall 1990.
- Research Presession*, The 77th Annual Meeting of the National Council of Teachers of Mathematics, Conference Co-Chair, San Francisco, CA, April 19- 21, 1999.
- International Group for the Psychology of Mathematics Education (PME)*, Member, International Committee, Recife, Brazil, July 1995.
- International Group for the Psychology of Mathematics Education (PME)*, Program Committee Member, 1989-1990.
- International Group for the Psychology of Mathematics Education*, North American Chapter (PME-NA), President of Steering Committee, 1988-1990.
- Eleventh Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education (PME-NA)*, Conference Co-Chair (with G. A. Goldin, Rutgers University), 1988-1989.
- American Society for Engineering Education Annual Conference (ASEE)*, Mathematics Division, Program Chair, 1988-1989.
- North American Chapter of the International Group for the Psychology of Mathematics Education (PME-NA)*, Steering Committee Member, 1984-1988.

***Advisor/Advisory Boards***

Advisor, *National Assessment for Educational Progress (NAEP)*, Standing committee for mathematics, invited by Educational Testing Service, 2013-present.

Advisor, *Winsight Math Committee*, Mathematics Item Analysis, Educational Testing Service, 2016-present.

Advisory Board member, National Science Foundation Discovery Research (DRK-12) Grant, *Developing Preservice Elementary Teachers' Ability to Facilitate Goal-Oriented Discussions in Science and Mathematics Via the Use of Simulated Classroom Interactions*, 2016-present.

Advisory Board Member, *Databrary*, National Science Foundation grant to New York University, directed by K. Adolph with R. Gilmore of Penn State University and D. Millman of New York University, 2012-2016

Advisory Board Member, *Center for Mathematics and Science Education*, Advisor, National Science Foundation grant to North Carolina State University, directed by S. Berenson, 2001-2009.

Advisory Board Member, *Early algebra project*, National Science Foundation funded project directed by D. Carraher, Educational Development Center and A. Schliemann, Tufts University, 2003-2008.

Advisory Board Member, *Fostering mathematical practices in urban classrooms: Focus on representation and justification*, (National Science Foundation funded project directed by Despina Stylianou, CCNY, 2005-2008.

Advisory Board Member, *Proof in the middle grades*, National Science Foundation funded project directed by E. Knuth, University of Wisconsin, 2001-2005.

Advisory Board Member, *New Jersey Statewide Systemic Initiative for New Elementary School Teachers*, directed by D. Cook, Rutgers University 1994-2006.

Advisory Board Member, *Harvard-Smithsonian digital video library: A resource to support research-based inquiry learning*, National Science Foundation funded project directed by M. Schnepps, Harvard Astrophysics Observatory, 2001-2004.

Advisory Board Member, *Mathematics Curriculum Framework Project*, New Jersey, 1992-1996.

Advisory Board Member, *Mathematics for Tomorrow Project*, (Educational Development Center, Newton, MA, 1994-1996.

Advisory Board Member, *FOCUS on Learning Problems in Mathematics*, Framingham, MA: Research Council on Mathematics Learning (RCML) and the Center for Teaching/Learning of Mathematics (CTLM), 1987-1993.

Advisory Board Member, *Teaching Thinking and Problem Solving*, Mahwah, NJ: Lawrence E. Erlbaum Publishing, 1985-1988.

*National Council of Teachers of Mathematics*, (Advisor), American Association for the Advancement of Science, 1984-1987.

***Reviewer (Programs)***

Pennsylvania State University GRT program in Cognition and Technology,  
Reviewer, National Science Program Site Visit,

*Mathematics Leadership Network*, Reviewer, Summer Math for Teachers, Mount Holyoke College, South Hadley, MA

***Reviewer (Manuscripts and Proposals)***

*American Education Research Journal (AERJ)*

*Journal for Research in Mathematics Education (JRME, NCTM)*

*Journal of Mathematical Behavior (JMB)*, Elsevier Inc.

*Journal for Mathematics Teacher Education (JMTE)*

*American Educational Research Journal (AERJ)*

*Journal of Applied Developmental Psychology (JADP)*

*Mathematics Curriculum Framework*, NJ

*American Society for Engineering Education*, Mathematics Division

*FOCUS on Learning Problems in Mathematics*

*North American Group for the Psychology of Mathematics Education (PME-NA)*

*International Group for the Psychology of Mathematics Education (PME)*

*American Education Research Association (AERA)*, Division C

*American Education Research Association (AERA)*, Special Interest Group,  
Research in Mathematics Education

*Jean Piaget Society*

*Adding it up: Helping children learn mathematics*. J. Kilpatrick, J. Swafford, and B. Findell (Eds.). National Research Council, Mathematics Learning Study Committee, Center for Education, Division of Behavioral and Social Sciences and Education. Washington, DC: National Academy Press

***Reviewer (Grant Proposals)***

*The Leverhune Trust*, London, England

*University of Cyprus*, Greece

*Social Sciences and Humanities Research Grants Council*, Canada,

*Hampton Fund*

*National Science Foundation*,

### **Organizational Memberships**

European Association for Research on Learning and Instruction (EARLI)  
American Educational Research Association (AERA)  
AERA Special Interest Group Research in Math Education (SIG-RME)  
International Group for the Psychology of Mathematics Education (PME)  
International Group for the Psychology of Mathematics Education, North American Chapter (PME-NA)  
Mathematical Association of America (MAA)  
National Council of Teachers of Mathematics (NCTM)  
Jean Piaget Society (1985-1990)  
American Society for Engineering Education (ASEE)

### **Courses Developed and Taught at Rutgers University**

Topics in Mathematics Education: Analysis of Mathematical Reasoning (hybrid course)  
Topics in Mathematics Education: Critical Thinking and Reasoning (internet course)  
Video Data Methodology  
Topics in Mathematics Education: Institute on Learning and Teaching Mathematics  
Topics in Mathematics Education: Mu Seminar  
Topics in Mathematics Education: Understanding Mathematical Understanding  
Topics in Mathematics Education: Early Childhood Mathematics Education Institute  
Using Videotapes to Study Mathematical Thinking  
Research Into the Development of Mathematical Ideas  
Seminar in Mathematics Education Research  
Introduction to Mathematics Education  
Analysis of Mathematics Curricula I and II  
Institute for Teaching Probability and Statistics  
Summer Institute in the Teaching and Learning of Mathematics and Computers (Logo and Robotics)  
Modern High School Mathematics  
Dissertation Study, Independent Study, and Practicum  
Computers in Education



## **Courses Developed and Taught Secondary Level and Undergraduate Math**

Algebra 1, 2 and Honors; Geometry and Advanced Geometry; Analysis, PreCalculus, Calculus; Statistics, Probability, Independent Study (Abstract Algebra, Logic, Analytic Geometry), Unified (Integrated) Mathematics (Grades 7-12), Statistics for the Beginning Researcher

### **Doctoral Students, Dissertation Chair**

Gerstein, Miriam, PhD (2017), *The Interplay Between Teacher Questioning and Student Reasoning*

Winter, Esther, PhD (2017), *Collaborative Video Analysis: How Teachers, TVeacher Educators, and Researchers Engage in Computer-Supported Collaborative Video Analysis*

Van Ness, Cheryl, PhD (2017). *Creating and Using VMCAalytics for Preservice Teachers' Studying of Argumentation*

Cipriani, Phyllis, PhD (2017). *The Effect of a Professional Development Intervention on In-service Teachers' Attending to Mathematical Reasoning*

Sigley, Robert, PhD (2016). *Teacher Learning About Student Mathematical Reasoning in a Technology Enhanced, Collaborative Course Environment*

Horwitz, Kenneth, EdD (2016). *Utilizing Video Analytics to Examine the Role of Representations in Problem Solving Across Grade Bands*

McGowan, William, EdD (2016). *Exploring In-Service Teachers' Recognition of Student Reasoning in a Semester-Long Graduate Course*

Brookes, Elijah, EdD (2015). *Student Roles in Collaborative Math Groups*

Lieberman, Melissa, EdD (2014). *Secondary Pre-Service Teachers' Recognition of Students' Mathematical Reasoning*

Brophy, Anna, EdD (2013). *Exploring and Justifying Ideas in an Undergraduate Mathematics Course: A Case Study*

Palus, Marjory F., EdD (2013). *Deepening Teachers' Awareness of Students' Mathematical Reasoning through Video Study in an Online Course*

Dandola-DePaolo, EdD Andrea (2011). *Investigating Students Learning and Building the Concept of Inverse Function*

Halien, William B., EdD (2011). *Tracing Students' Understanding Of Instantaneous Changes*

Tozzi, Barbara, EdD (2011). *A Study on Middle School Students' Use of Computer Generated Representations As They Solve a Probability*

Aboelnaga, Eman, EdD (2011). *A Case Study: The Development Of Stephanie's Algebraic Reasoning*

Ahluwalia, Anoop, PhD (2011). *Tracing the building of Robert's connections in mathematical problem solving: A sixteen-year case study*

- Lo, Weiwei, EdD (2011). *Task Analysis: The Inherent Mathematical Structures in Students' Problem Solving Processes*
- Steffero, Maria, EdD (2010). *Tracing beliefs and behaviors of a participant in a longitudinal study for the development of mathematical ideas and reasoning: A case study*
- Sran, Manjit K, EdD (2010). *Tracing Milin's Development of Inductive Reasoning: A Case Study*
- Neuberger, James A., EdD (2010). *Fostering Effective Mathematics Teaching: Professional Coaching and Teachers' Instructional Practices*
- Schmeelk, Suzanna, EdD (2010). *An Investigation of Fourth-Grade Student's Growing Understanding of Rational Numbers*
- Baldev, Prashant, EdD (2009). *A study of urban, seventh-grade students' ideas about linear functions*
- Marchese, Charlene, EdD (2009). *Representation and Generalization in Algebra Learning of 8th grade students*
- Pantozzi, Ralph, EdD (2009). *Students Making Sense of the Fundamental Theorem of Calculus*
- Shay, Kathleen, PhD (2009). *Tracing Middle School Students' Understanding of Probability*
- Spang, Kathleen, EdD (2009). *Teaching Algebra Ideas to Elementary School Children: Robert B. Davis' Introduction to Early Algebra*
- Yankelewitz, Dina, EdD(2009). *The Development Of Mathematical Reasoning in Elementary School Students' Exploration of Fraction Ideas*
- Giordano, Patricia, EdD (2008). *Learning the concept of function: Guess my rule activities with Robert B. Davis.*
- Mayansky, Elmira, EdD (2007). *An Analysis of the Pedagogy of Robert B. Davis: Young Children Working on the Tower of Hanoi Problem*
- Mueller, Mary, EdD (2007). *A Study of the Development of Reasoning in Sixth Grade Students*
- Benko, Palma , EdD (2006). *Study of the Development of Students' Ideas in Probability*
- Sweetman, Timothy, EdD (2005). *The Flow of Mathematical Ideas in Group Problem-Solving Sessions*
- Reynolds, Suzanne L., EdD (2005). *Study of Fourth Grade Students' Explorations Into Comparing Fractions*
- Uptegrove, Elizabeth B., EdD (2005). *To symbols from meaning: Students' investigations in counting*
- Tarlow, Lynn D., EdD (2004). *Tracing Students' Development of Ideas in Combinatorics and Proof*

- Walter, Janet G., EdD (2004). *Tracing Mathematical Inquiry: High School Students Mathematizing A Shell*
- Francisco, John M., PhD (2004). *Students' Reflections on Their Learning Experiences: Lessons from a Longitudinal Study on the Development of Mathematical Ideas and Reasoning*
- Powell, Arthur B., PhD (2003). *"So Let's Prove It!": Emergent and Elaborated Mathematical Ideas and Reasoning in the Discourse and Inscriptions of Learners Engaged in a Combinatorial Task*
- Bulgar, Sylvia, EdD (2002). *Through a Teacher's Lens: Children's Constructions of Division of Fractions*
- Glass, Barbara H., EdD (2001). *Mathematical Problem Solving and Justification with Community College Students*
- Kiczek, Regina D., EdD (2001). *Tracing The Development of Probabilistic Thinking: Profiles from a Longitudinal Study*
- Steencken, Elena P., EdD (2001). *Tracing The Growth in Understanding of Fraction Ideas: A Fourth Grade Case Study*
- Adleman, Kathleen A., EdD (1999). *Problem Solving Strategies of Young Children Working on a Combinatorics Task in a Computer Environment*
- Bellisio, Carol W., EdD (1999). *A Study of Elementary Students' Ability to Work with Algebraic Notation and Variables*
- Muter, Ethel M., EdD (1999) *The Development of Student Ideas in Combinatorics and Proof: A Six Year Study*
- Weir, Donna M., EdD (1999). *The Application of Professional Development In Combinatorics and Proof to Classroom Teaching*
- Schorr, Roberta Y., EdD (1995). *Does Dealing With Mathematics as a Thoughtful Subject Influence the Mathematical Achievement of Urban Students?*
- O'Brien, Marcia, EdD (1994). *Changing a School Mathematics Program: A Ten-Year Study*
- Purdy, Thomas, EdD (1994). *Reforming Mathematics Education: Perspectives from the Communities of Business, Education, and Parents as Developed in the Process of Designing Authentic Mathematical Activities*
- Martino, Amy M., EdD (1992). *Elementary Students' Construction Of Mathematical Knowledge: Analysis by Profile*
- Riegel, Arlene Marasco, EdD (1991). *An Analysis of Strategies, Representations, and Misconceptions Revealed in the Mathematical Behavior of a Sixth Grade Student While Studying Rational Numbers in a Small Group Setting Within the Classroom*
- Alston, Alice S., EdD (1990). *Effects of Small Group Problem-Solving Activities Using Concrete Embodiments of Mathematical Properties on Individual Seventh Grade Children's Success in Solving Numerical Problems with the Same Structure*

- Johnson, Colonel, EdD (1990). *A Place For The Nine-Element Vector Space In The Linear Algebra Curriculum*
- Landis, Judith, EdD (1990). *Teachers' Prediction and Identification of Children's Mathematical Behaviors: Two Case Studies.*
- Pancari, John, EdD (1990). *Investigating Student Understanding and Learning of One Variable Exploratory Data Analysis Integrated into a High School Physics Class*
- Wheeler, Fran, EdD (1990). *An Investigation of the Application by Third Graders of the "Think of a Simpler Problem" Heuristic in Selecting Correct Operations to Solve Word Problems*
- Pace, John, EdD (1989). *A Model For Teaching Area and Perimeter Concepts from A Constructivist Perspective to Adult Community College Students through Applied Problem Solving and Activity-Based Instruction*
- Bakum, John, EdD (1988). *An Investigation Into the Acquisition of Statistical Concepts b Children*
- Paschitti, Mary, EdD (1988). *An Investigation of the Success and Processes Used to Solve Mathematical Insight Problems by SAT-Identified Gifted Seventh and Eighth Grade Students*
- Gnepp, Armen, EdD (1987). *An Investigation of Generalizing Ability Within the Context fo Mathematical Problem Solving*
- Smith, Judith F., EdD (1987). *A Longitudinal Examination of the Association Between Three Structure Variables and Problem-Solving Performance*
- Beattys, Candice B., EdD (1985). *The Effects of Instructional Approach and Spatial Ability on the Learning of Area Measurement in Intermediate Grades*
- Heller, Lucille, EdD (1982). *An Exploration of the Effect of Structure Variables on Mathematical Word Problem-Solving Achievement*
- Johnson, Muriel, EdD (1982). *An Investigation of Transformational Geometry with Special Reference to the High School Curriculum of New Zealand*
- Smith, Jesse, EdD (1982). *Writing as a Tool for Assessing Mathematical Knowledge : Case Studies in a Sixth Grade Class*
- DeStefano, Frank, EdD (1981). *A Comparison Between the Linear Equation and Ratio and Proportion Methods for Solving Percent Problems*
- Friederwitzer, Freda, EdD (1981). *The Development, Implementation, And Evaluation of A Model Inservice Program in the Teaching Of Measurement Concepts to Third and Fifth/Sixth Grade Elementary School Teachers*
- Normandia, Bruce, EdD (1981). *The Relationship Between Cognitive Level and Modes of Instruction, Teacher-Centered And Activity-Centered, to the Learning of Introductory Transformational Geometry*

- O'Brien, John J., EdD (1981). *The Relationship Between Piagetian Cognitive Level and Memory Level in the Logical and Spatial Domain for Suburban Eighth Grade Students*
- Parrino, Leonard, EdD (1981). *The Use of Cognitive Development Tasks As Predictors of Success in Developmental Mathematics Courses*
- Silverberg, Roberta, EdD (1981). *Teaching Algebraic Concepts Through the Use of Coding Theory*
- Ziegenbalg, Sherry, EdD (1980). *Manipulative Versus Non-Manipulative Approaches to Teaching Renaming in Addition And Subtraction in Second Grade: An Experimental Study*
- Atkinson, Melvis, EdD (1979). *Attitudes of Black College Freshman in Black Colleges Toward Mathematics*
- Curriero, Francis, EdD (1979). *Derivations of a Set of Prediction Equations Used to Predict Results on the State Assessment Test*
- Leone, Alfred, EdD (1979). *Teaching Basic Statistical Concepts to Senior High School Students Using Programmed Instructional Material*
- Sahagian, Edward, EdD (1978). *Relationship Between Success in High School Geometry and Cognitive Development with Respect to Euclidean Measurement*

***Current Doctoral Students (in progress) with Signed Proposals (EdD and PhD)***

- Foley, Ron, EdD (2017). *Students' Recognition of Problem Structure; Findings from a Longitudinal Study*
- Krupnik, Victoria, PhD (2017). *Tracing the development of students' representational systems of combinatorics problems and their interplay with teacher moves and student interaction: case studies*
- Poprik, Brad, EdD (2017). *Using Multimedia Narratives for Studying and Observing Teacher Moves that Promote Mathematical Discourse in the Classroom*
- Rivera-Dominquez, Alberto, EdD (2017). *Influence of students' conversation in their construct of mathematics operativess*
- Teehan, Kara, PhD (2017). *Applying the Pirie-Kieren Theory for Tracing Growth in Mathematical Understanding*
- Leslie, Joyce, EdD (2016). *Investigating a Teacher Professional Development Model of Algebra Learning for Low SES Minority Students*
- Wright, Erica, EdD (2015). *Tracing Middle-School Teachers' Recognition of Forms of Reasoning*