

VITA

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Guest Editor, Journal of Mathematical Behavior, Elsevier, London.

Formal Education

Ed.D., October 1972, Rutgers University. Major: Mathematics Education; Minor: Statistics.

M.Ed., October 1965, Rutgers University. Major: Mathematics Education.

B.A., January 1962, Rutgers University. Major: Mathematics; Minors: Science and German.

Dissertation

An introductory statistics course based upon student planned experiments, October 1972. Dissertation Advisors: Professor Ernest R. Duncan, Education; Ellis R. Ott, Statistics.

Professional Experience

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, 1998-2021.

Coordinator, Secondary Mathematics Teacher Education, 2019-present

Mathematics 2026 Team, National Assessment of Educational Practice (NAEP), 2022

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

Research, Teaching, Service

Lifetime Achievement Award, National Council of Teachers of Mathematics (2022).
<https://www.nctm.org/Grants-and-Awards/Lifetime-Achievement-Award/Carolyn-Maher/>

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).

Associate Alumnae of Douglass College Society of Excellence Award, recognizes alumnae who have made major contributions in their field of expertise and whose life work embodies exceptional accomplishments and leadership (1991)

C. Oswald 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).

Elected Offices

Chair, Special Interest Group: Research in Mathematics Education, American Education Research Association, 2000-2003.

Chair, Special Interest Group: Research in Mathematics Education, American Education Research Association and National Council of Teachers of Mathematics, 1998-2000.

International Executive Committee Member, (elected USA representative), International Group for the Psychology of Mathematics Education (PME), 1991-1995.

President, North American Group for the Psychology of Mathematics Education (PME-NA), 1990-1991.

Executive Board, International Committee, North American Chapter of the International Group for the Psychology of Mathematics Education (PME-NA), 1986-1992.

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

Member, Board of Education, Holmdel Public Schools, Holmdel, NJ, 1983-1986.

Plenary Addresses and Invited Lectures

- Maher, C. A. (2020, July). *The Benefits of Using Videos From Research Studies for Teacher Education: Attending to Students' Reasoning and Argumentation*. Keynote talk for the Topic Study Group (TSG 36) Research on Classroom Practice at the Primary Level at the 14TH International Congress on Mathematical Education (ICME 14), Shanghai, China (postponed due to COVID 10).
- Maher, C. A. (2016, November). *Believing is Seeing: Relationships Between Teachers' Beliefs and Noticing Students' Mathematical Reasoning*. Invited lecture at the Center for Research on Learning and Teaching, University of Indiana, Bloomington.
- Maher, C. A., Wilkinson, L., & Sigley, R. (2014, October). *Using Video as Methodology*. Invited lecture at the Graduate School of Education at the University of Bristol, Bristol, UK.
- Maher, C. A. & Van Ness, C. (2014, October). *Analyzing and Critiquing Students' Viable Arguments: Using Video Data-Intensive Sources*. Invited lecture at the Graduate School of Education at the University of Bristol, Bristol, UK.
- Maher, C. A. (2013, August). *Using the Video Mosaic Collaborative for Improved Science, Technology, Engineering, and Mathematics Teaching*. Invited lecture at the US-Korea Conference On Science, Technology, and Entrepreneurship, East Rutherford, NJ.
- Maher, C. A. (2013, March). *Videos for Teacher Education Aligned with Common Core Standards for Mathematical Practices*. Invited keynote lecture at the event, Math at Beach: Common Core State Mathematical Practice Standards, California State University, Long Beach.
- Maher, C. A. (2011, July). *Supporting the Development of Mathematical Thinking through Problem Solving and Reasoning*. Plenary Panel presentation at the 35th Annual Conference of the International Group for the Psychology of Mathematics Education, Ankara, Turkey.
- Maher, C. A. (2011, April). *Mathematics in Schools and the Demise of Reasoning: Is There an Alternative?* Munroe Center for Social Inquiry at Pitzer College, Claremont, CA.
- Maher, C. A. (2010, March). *Roadblocks or Bridges to Learning Mathematics: Challenges for School Leaders*. Graduate School of Education Alumni Association's Annual Distinguished Faculty Lecture, New Brunswick, NJ.
- Maher, C. A. (2009, November). *Video Mosaic Collaborative for Improving the Learning and Teaching of Mathematics*, Rutgers Distinguished Faculty Lecture Series, Piscataway, NJ.

- Maher, C. A. (2007, June). *Critical Thinking Skills in Schools and Museums*. Invited keynote lecture, Smithsonian Center for Education and Museum Studies, Washington, D.C.
- Maher, C. A. (2007, February). *Findings From Two Decades of Longitudinal Research: Lessons Learned for Life*. Invited lecture, North Carolina State University.
- Maher, C. A. (2006, October). *Lessons Learned for Life: What Did Students Gain as Participants in a Longitudinal Study on Mathematics Learning?* Invited lecture, Rockhurst University 2006-2007 Visiting Scholar Lecture Series, Kansas City, MO.
- Maher, C. A. (2006, April). *Insights into the Development of Mathematical Reasoning: What We've Learned from an 18-Year Study*. Invited lecture, Bard College 2005-2006 Lecture Series, Annandale, New York, NY.
- Maher, C. A. (2006, March). *Informal Mathematics Learning In An Urban After-School Program*. Invited lecture, University of Pennsylvania 2005-2006 Lecture Series, Philadelphia, PA.
- Maher, C. A. (2006, February). *What Can Research On Pre-College Math Learning Contribute To Undergraduate Mathematics Learning And Teaching?* Invited Plenary, Special Interest Group of the Mathematical Association of America, Ninth Conference on Research in Undergraduate Education, Rutgers University, New Jersey.
- Maher, C. A. (2005, February). *Insights into the Development of Mathematical Reasoning: Findings from a 17-Year Study*. Invited lecture, "Friday Set Talk Series" hosted by Nobel Laureate in Physics, Martin Perl, Stanford University, Palo Alto, CA.
- Maher, C. A. (2005, February). *Tracing Students Doing Mathematics: Insights from a Long-Term Study*. Invited lecture, University of California - San Diego, San Diego, CA.
- Maher, C. A. Powell, A. B., Weber, K. (2005, December). *Informal Mathematics Learning: Urban Middle School Students' Reasoning about Mathematical Ideas*. PI at the National Science Foundation ROLE Principal Investigators Meeting, Arlington, Virginia.
- Maher, C. A. (2004, September). *A View Of Proof Development Across The Grades*. Invited talk, University of Massachusetts, Proof Project, Providence, RI.
- Maher, C. A. (2004, July). *The Development Of Mathematical Reasoning: 16-Year Study*. Invited senior lecture, Tenth International Congress of Mathematics Education, Copenhagen, Denmark.
- Maher, C. A. (2004, June). *Studying The Development Of Reasoning Using Videotape Data: A Pivotal Strand*. Invited plenary, University of Helsinki, Finland.
- Maher, C. A. (2003, March). *The Role of the Teacher in the Constructivist Classroom*, Invited lecture, Brigham Young University, Provo, UT.

- Maher, C. A. (2002, November) *Mathematical Mind - Beginners Mind: What Can We Learn from Research?* Invited lecture, University of Washington, Seattle, WA.
- Maher, C. A. (2002, July) *How Students Structure Their Own Investigations And Educate Us: What We Have Learned From A Fourteen-Year Study*. Invited plenary, Twenty-Sixth Annual Meeting of the International Conference for the Psychology of Mathematics Education (PME26). Norwich, England: School of Education and Professional Development, University of East Anglia, England.
- Maher, C. A. & Kiczek, R. D. (2002, July). *Long Term Building of Mathematical Ideas Related to Proof Making*, Invited lecture, International Congress of Mathematics Education 9, Proof and Proving in Mathematics Education, Japan.
- Maher, C.A. (2000, January). *The Legacy of Robert B. Davis*, Invited lecture, Mathematical Association of America, Washington, DC.
- Maher, C.A. (1999, November). *Michael's Understanding of Exponents*. Invited lecture, North Carolina State University, Raleigh, NC.
- Maher, C.A. (1999, June). *Learning Mathematics: From Personal Experience to Personal Knowledge*. Invited plenary (Part 1), International Conference on Mathematics and Science Education, Tapei, Taiwan.
- Maher, C.A. (1999, June). *How Can Listening to Students Promote the Development of Mathematical Ideas?* Invited plenary (Part 2), International Conference on Mathematics and Science Education, Tapei, Taiwan.
- Maher, C. A. (1998, August). *Children, Proofs and Justifications*. Invited lecture, Universidade Santa Ursula, Rio de Janeiro, Brazil.
- Maher, C. A. (1998, May). *Children's Reasoning: Combinatorics and Proof*. Invited lecture, Weizmann Institute, Jerusalem, Israel.
- Maher, C. A. (1998, April). *A Return to Basic Values: Mathematical Thinking by Students*. Invited plenary, Mathematical Association of America, Intermountain Section, Provo, UT.
- Maher, C.A. (1997, October). *Is Thinking Important?* Keynote address, Fourth Annual New York Graduate Mathematics Education Conference at Syracuse University, Syracuse, New York.
- Maher, C. A. (1997, March). *A Longitudinal Study of Children's Development Of Mathematical Ideas About Justification and Proof*. Invited lecture, Hebrew University, Jerusalem, Israel.
- Maher, C. A. (1997, March). *The Complexity of Children's Learning*. Invited lecture, The Technical University of Israel, Haifa, Israel.
- Maher, C. A. (1997, March). *Children's Explanations, Justifications, and Proof*. Invited lecture, Ben Gurion University, Beer Shiva, Israel.
- Maher, C. A. (1996, August). Visiting Lectures: "Integrating research into classrooms." Rio de Janeiro, Brazil.

- Maher, C. A. (1996, August). *Teacher Development and Children's Thinking*. Invited lecture, Rhodes University, Grahamstown, South Africa.
- Maher, C. A. (1996, July). *Constructivism and Constructivist Teaching - Can They Co-Exist?* Invited lecture, Eighth International Congress on Mathematics Education, Seville, Spain.
- Maher, C. A. (1996, July). *Are You Convinced? Proof Making in Young Children*. Invited lecture, Eighth International Congress on Mathematics Education, Seville, Spain.
- Maher, C. A. (1996, June). *Investigating the Complexity of Learning and Teaching*. Invited lecture, Institute for Advanced Study, Princeton, New Jersey.
- Maher, C. A. (1996, May). *Mathematics, Meaning and Community: The Complex Trilogy Of Learning*. Keynote speaker, Tenth Annual Research Institute for the Center for Research and Development in Mathematics and Science Education, North Carolina University, Raleigh, NC.
- Maher, C. A. (1995, August). *Children's Development of Ideas in Probability and Statistics: Studies from Classroom Research*. Invited lecture, International Congress on the Teaching of Statistics, Beijing, China.
- Maher, C. A. (1995, February). *Children's Invention of Proof*. Invited lecture, Rhodes University, Grahamstown, South Africa.
- Maher, C. A. (1995, February). *Case Studies of the Development of Children's Mathematical Thinking: Combinatorics*. Invited lecture, Math Centre for Primary Teachers, Johannesburg, South Africa.
- Maher, C. A. (1995, February). *Classroom Research in Mathematics*. Invited lecture, Wits University School of Education, Johannesburg, South Africa.
- Maher, C. A. (1995, February). *Case Studies of the Development of Children's Mathematical Thinking: Rational Numbers*. Invited lecture, Math Centre for Primary Teachers, Johannesburg, South Africa.
- Maher, C. A. (1995, February). *Children's Mathematical Thinking*. Invited lecture, Wits University School of Education, Johannesburg, South Africa.
- Maher, C. A. (1994, January). *Constructivism and the Learning of Mathematics*. Invited lecture, Joint Math Meetings, American Mathematical Society and the Mathematical Association of America. Special Session on Mathematics and Education Reform, Cincinnati, OH.
- Maher, C. A. (1993, July). *Children's Construction of Mathematical Ideas*. Invited plenary, Sixteenth Annual Conference of the Mathematics Education Research Group of Australia (MERGA), Brisbane, Australia.

Editorial Service

Editor: Journal of Mathematical Behavior, Oxford, UK: *Elsevier Inc.* (1998-2021).

Associate Editor: Journal of Mathematical Behavior, Norwood, NJ: *Ablex Publishing* (1990-1998).

Advisory Editorial Board: Mathematics Teaching and Learning, an international book series, Rotterdam, The Netherlands: *Sense Publishers* (2011-present).

Editorial Board: The British Journal of Educational Studies, York, UK: *Routledge* (for the *Society for Educational Studies*) (2011- present).

Editorial Board: Journal for Research in Mathematics Education, Reston, VA: National Council of Teachers of Mathematics (NCTM) (2003-2007).

Editorial Board: International Journal of Applied Engineering Education, Oxford, UK: *Pergammon Press* (1986-1989).

Guest Editor: Telecommunications in Science and Engineering Education, The International Journal of Applied Engineering Education, Oxford, UK: Pergammon Press (with L. Baldwin) (1988).

Book Series Editor

Campbell, S. R., & Zazkis, R. (2001). Learning and teaching number theory: research in cognition and instruction. (C. A. Maher & R. Speiser, Eds.). CT, Westport: Ablex Publishing.

Speiser, R., & Walter, C. (2000). Five women build a number system (C. A. Maher & R. Speiser, Eds.). CT, Stamford: Ablex Publishing.

Conference Proceedings (Editor)

Speiser, R., Maher, C. A., & Walter, C. N. (2001) (Eds.). Proceedings of the Twenty-third Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education (Vols. 1-2). Columbus OH: ERIC Clearinghouse for Science, Mathematics and Environmental Education.

Maher, C. A., Goldin, G. A., & Davis, R. B. (1990) (Eds.), Proceedings of the Eleventh Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education. Rutgers University, Vol. 1 and 2.

Publications

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)

- Zhang, D., C. Maher, & L. Wilkinson. (2022). Meaningful assessments of students who struggle to learn mathematics. In Y. Xin, R. Tzur & H. Thoulsee (eds.), *Enabling mathematical learning of struggling students*: New York, NY: Springer Nature.
- Bailey, A., Maher, C., Wilkinson, L., & Nyakoojo, U. (2021) The role of assessment in learning and teaching mathematics with English-speaking and EL students (Chapter 8). In D. Varier & S. Nichols (eds.), *American Education Research Association Theory to Practice Series: Educational psychology for teachers and*

- teaching: Teaching on assessment. Charlotte, NC: Information Age Publishing. ISBN-10 : 1648024289 ISBN-13 : 978-1648024283.
- Wilkinson, L., Bailey, A., & C. Maher. (2020). Students' learning language and learning to reason mathematically. In M. Daszkiewicz & A. Dąbrowska (eds.) In search for the language educational paradigm. Kraków, Poland: Oficyna Wydawnicza IMPULS Press. ISBN 978-83-7850-779-6.
- Bailey, A., Maher, C., Wilkinson, L., & Nyakoojo, U. (2020). The role of assessment in learning and teaching mathematics with English-speaking and EL students. In D. Varier & S. Nichols (eds.), *Theory to practice: Educational psychology for teachers and teaching: Teaching on assessment*. Charlotte, NC: Information Age Publishing.
- Maher, C., & Wilkinson, L. C. (2019). Designing and conducting quality research in education: Building a program. In K. Leatham (ed.). *Designing, conducting, and publishing quality research in mathematics education*. NY & Berlin: Springer. <https://www.springer.com/gp/book/9783030235048>
- Maher, C., Uptegrove, E. & Wilkinson, L. C. (2019). Early career researchers: Publishing in the Journal of Mathematical Behavior. In G. Kaiser & N. Presmeg (eds). *Compendium for early career researchers in mathematics education*. NY & Berlin: Springer. <https://doi.org/10.1007/978-3-030-15636-7>
- Bailey, A., Maher, C., Wilkinson, L., & Nyakoojo, U. (2019). The role of assessment in learning and teaching mathematics with English-speaking and EL students. In D. Varier & S. Nichols (eds.), *Theory to practice: Educational psychology for teachers and teaching: Teaching on assessment*. Charlotte, NC: AERA/Information Age Publishing. <https://www.infoagepub.com/products/Teaching-on-Assessment>
- Maher, C., & Wilkinson, L. C. (2019). Designing and conducting quality research in education: Building a program. In K. Leatham (ed.). *Designing, conducting, and publishing quality research in mathematics education*. NY & Berlin: Springer. <https://www.springer.com/gp/book/9783030235048>
- Maher, C., Uptegrove, E. & Wilkinson, L. C. (2019). Early career researchers: Publishing in the Journal of Mathematical Behavior. In G. Kaiser & N. Presmeg (eds). *Compendium for early career researchers in mathematics education*. NY & Berlin: Springer. <https://doi.org/10.1007/978-3-030-15636-7>
- Bailey, A., Maher, C., & Wilkinson, L. C. (2018). Introduction: Language, Literacy, and Learning in the STEM Disciplines (Chapter 1). In Bailey, A., Maher, C., & Wilkinson, L. C. (eds). *Language, literacy, and learning in the STEM disciplines: How language counts for English learners*. New York, NY & Oxford, UK: Routledge Taylor Francis. <https://tinyurl.com/ybg226vb>

- Bailey, A., Maher, C., & Wilkinson, L. C. (2018). Afterword. In Bailey, A., Maher, C., & Wilkinson, L. C. (eds). *Language, literacy, and learning in the STEM disciplines: How language counts for English learners*. New York, NY & Oxford, UK: Routledge Taylor Francis. <https://tinyurl.com/ybg226vb>
- Bailey, A., Maher, C., Wilkinson, L., & Nyakoojo, U. (2021) The role of assessment in learning and teaching mathematics with English-speaking and EL students (Chapter 8). In D. Varier & S. Nichols (eds.), *American Education Research Association Theory to Practice Series: Educational psychology for teachers and teaching: Teaching on assessment*. Charlotte, NC: Information Age Publishing. ISBN-10 : 1648024289 ISBN-13 : 978-1648024283.
- Wilkinson, L., Bailey, A., & C. Maher. (2020). Students' learning language and learning to reason mathematically. In M. Daszkiewicz & A. Dąbrowska (eds.) *In search for the language educational paradigm*. Kraków, Poland: Oficyna Wydawnicza IMPULS Press. ISBN 978-83-7850-779-6.
- Bailey, A., Maher, C., Wilkinson, L., & Nyakoojo, U. (2020). The role of assessment in learning and teaching mathematics with English-speaking and EL students. In D. Varier & S. Nichols (eds.), *Theory to practice: Educational psychology for teachers and teaching: Teaching on assessment*. Charlotte, NC: Information Age Publishing.
- Maher, C., & Wilkinson, L. C. (2019). Designing and conducting quality research in education: Building a program. In K. Leatham (ed.). *Designing, conducting, and publishing quality research in mathematics education*. NY & Berlin: Springer. <https://www.springer.com/gp/book/9783030235048>
- Maher, C., Uptegrove, E. & Wilkinson, L. C. (2019). Early career researchers: Publishing in the Journal of Mathematical Behavior. In G. Kaiser & N. Presmeg (eds). *Compendium for early career researchers in mathematics education*. NY & Berlin: Springer. <https://doi.org/10.1007/978-3-030-15636-7>
- Bailey, A., Maher, C., Wilkinson, L., & Nyakoojo, U. (2019). The role of assessment in learning and teaching mathematics with English-speaking and EL students. In D. Varier & S. Nichols (eds.), *Theory to practice: Educational psychology for teachers and teaching: Teaching on assessment*. Charlotte, NC: AERA/Information Age Publishing. <https://www.infoagepub.com/products/Teaching-on-Assessment>
- Maher, C., & Wilkinson, L. C. (2019). Designing and conducting quality research in education: Building a program. In K. Leatham (ed.). *Designing, conducting, and publishing quality research in mathematics education*. NY & Berlin: Springer. <https://www.springer.com/gp/book/9783030235048>
- Maher, C., Uptegrove, E. & Wilkinson, L. C. (2019). Early career researchers: Publishing in the Journal of Mathematical Behavior. In G. Kaiser & N. Presmeg

(eds). *Compendium for early career researchers in mathematics education*. NY & Berlin: Springer. <https://doi.org/10.1007/978-3-030-15636-7>

- Bailey, A., Maher, C., & Wilkinson, L. C. (2018). Introduction: Language, Literacy, and Learning in the STEM Disciplines (Chapter 1). In Bailey, A., Maher, C., & Wilkinson, L. C. (eds). *Language, literacy, and learning in the STEM disciplines: How language counts for English learners*. New York, NY & Oxford, UK: Routledge Taylor Francis. <https://tinyurl.com/ybg226vb>
- Bailey, A., Maher, C., & Wilkinson, L. C. (2018). Afterword. In Bailey, A., Maher, C., & Wilkinson, L. C. (eds). *Language, literacy, and learning in the STEM disciplines: How language counts for English learners*. New York, NY & Oxford, UK: Routledge Taylor Francis. <https://tinyurl.com/ybg226vb>
- Koschmann, T., Sigley, R., Zemel, A., & Maher, C. (2018). How the 'machinery' of sense-production changes over time. In E. González-Martinez, S. Pekarek Doehler, & J. Wagner (Eds.), *Documenting change across time: Longitudinal studies in conversation analysis*. New York: Palgrave Macmillan.
- Maher, C. A. (2017) Introduction. In Maher, C. A. & Yankelewitz, D. (Eds.). *Children's reasoning while building fraction ideas*. Boston, MA: Sense.
- Maher, C. A. & Yankelewitz, D. (2017). The experiment. In Maher, C. A. & Yankelewitz, D. (Eds.). *Children's reasoning while building fraction ideas*. Boston, MA: Sense.
- Maher, C. A., Alston, A. S., & Yankelewitz, D. (2017). Epilogue. In Maher, C. A. & Yankelewitz, D. (Eds.). *Children's reasoning while building fraction ideas*. Boston, MA: Sense.
- 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).
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Peer Reviewed Research Conference Presentations

- Alhadi, M. A., Zhang, D., Wang, T., Maher, C. A. (2022, November 17-20). *Digitalized interactive item components in computer-based assessment in mathematics for K12 students: a research synthesis* [Paper presentation]. The 44th Annual Conference of the North American Chapter of the International Group for the Psychology of Mathematics Education, Nashville, TN, United States.
- Alhadi, M. A., Zhang, D., Wang, T., Maher, C. A. (2022, June 25-26). *Digitalized interactive item components in computer-based assessment in mathematics for K12 students: a research synthesis* [Paper presentation]. The 6th Canadian International Conference on Advances in Education, Teaching & Technology, Toronto, ON, Canada.
- Maher, C. A., Schmeelk, S., Wilkinson, L. (2021). Students' argumentation, reasoning and language representations of fractions: A multidisciplinary analysis. *Hawaii International Conference on Education-2021*. Honolulu, January 4-7, 2021.
- Krupnik, V., Maher, C.A. (2020). Tracing the Early Development and Application of Proof-Like Reasoning for Justifying Solutions to Counting Tasks: A 3-Year Case Study. In Proceedings of the Hawaii International Conference on Education, Honolulu, HI.
- Schmeelk, S., Krupnik, V., Nyakoojo, U., Maher, C.A., Horwitz, K. (2020). Research on Computational Thinking In: The Video Mosaic Collaborative. In Proceedings of the Hawaii International Conference on Education, Honolulu, HI

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- Wilkinson, L., Bailey, A., & C. Maher. (2020). The role of language in assessing students' mathematical knowledge. The Educational Role of Language Conference, virtual conference, May 5, 2020.
- Wilkinson, L., Bailey, A., & C. Maher. (2020). Primary teachers' recognition of students' mathematical reasoning and beliefs about teaching, learning and communication. 14th International Congress on Mathematical Education. Shanghai, July 12-19, 2020. Unable to deliver; conference postponed due to COVID-19 outbreak.
- Maher, C. A., Maher, J. A. (2020). The role of beliefs in the acquisition of teacher learning about children's reasoning from video. 14th International Congress on Mathematical Education. Shanghai, July 12-19, 2020. Unable to deliver; conference postponed due to COVID-19 outbreak.
- Wilkinson, L. C., Bailey, A., & Maher, C. (2019). School writing in the mathematics register: Implications for the instruction of English learner students. *Hawaii International Conference on Education*, Honolulu, January 5-8, 2019.
- Wilkinson, L. C., Bailey, A., & Maher, C. (2019). Students' learning to reason mathematically and acquiring the mathematics register. Research presentation at the *4th International Pedagogical and Linguistic Conference: The Educational Role of Language from Practice to Theory and from Theory to Practice*, Craiova, Romania, June 17-18, 2019.
- Maher, C., Wilkinson, L.C., & Bailey (2018). Video narratives as a tool to study children's argumentation. *Hawaii International Conference on Education*. Honolulu, January 4-7, 2018.
- Schmeelk, S. and Maher, C. A. (2018). Resources and Tools for Studying Learning: The Video Mosaic Collaborative." Tel Aviv University. Tel Aviv, Israel.
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- Maher, C. A. (2016). *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. Palus and L. C. Wilkinson), at the 14th Annual Hawaii International Conference on Education, Honolulu, HI.
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Videotapes, CD-ROM (Samples)

(A digital library with a collection of 4000 CD-Videotapes is available through the Robert B. Davis Institute for Learning)

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.

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).

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)

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Unpublished Contributions to Symposia and Meetings

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.

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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., Yankelewitz, 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.

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- 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 14th 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 9th 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 9th 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 Pre-session 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 13th 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 Pre-session 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 Pre-session, 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 Pre-session, 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 Pre-session, 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 Pre-session, 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 Pre-session 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 Pre-session, 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 Pre-session, 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 Pre-session of the 79th 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 Pre-session 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 (LEMPEP) 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)

Robert B. Davis Institute for Learning (2022-present), funded by the Steven and Jennifer Maher Foundation, \$50,000

Continuing the Impact of the Robert B. Davis Institute for Learning (2018-2022), funded by the Jim Neuberger and Helen Stambler Neuberger Foundation, \$75,000.

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 Biinterfacial 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 (SUC₂ES₂), 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, STATE, AND THE PROFESSION

Robert B. Davis Institute for Learning (Director and Founder)

The Robert B. Davis Institute for Learning (RBDIL) has a successful history of long-term commitments to education reform initiatives and works closely with schools and districts, K-12. Presentations and workshops for groups of teachers, math educators and administrators have been conducted throughout the United States as well as in diverse settings in several countries to include Australia, Brazil, Canada, Israel, South Africa, Mozambique, Japan and China. The Institute houses an extensive digitized video collection from longitudinal and cross-sectional research on mathematics learning, reasoning, argumentation and proof making in learners. The unique collection of over 4000 hours of videos with accompanying metadata from longitudinal and cross-sectional studies is stored in the cloud and available on the VMC to create video narratives (VMCAnalytics). The Rutgers-Kenilworth longitudinal study followed a cohort of students from grade 1 through grade 12, and through college and beyond. Strands of tasks, student work and other metadata can be viewed in the Video Mosaic Collaborative (see www.videomosaic.org). The video collection on the VMC is available worldwide, open source. Over 80 video narratives are published and available as resources for learning and teaching.

Department (Learning and Teaching)

Coordinator, Teacher Certification for Secondary. Mathematics Education, 2019-present

Coordinator, EdD Program, Mathematics Education, 1977-present

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

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

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

School (Graduate School of Education)

Graduate School of Education Teacher Education Committee, 2020-present

Graduate School of Education Scholarship Committee, 2022

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

Doctoral Faculty, Ed.D, Learning Sciences

SROA Education Committee, 2000-2004.

Continuing Education Committee, 1994-1995.

Rules and Procedures Committee, 1993-1994, 2005-2006, 2008-2009.
Appointments & Promotions Committee, 1998-1999; 2004-2006 (chair); 2007-2008; 2012-2013
Search Committee, Director of Development, 2003-2005.
Review Committee, 2002-2004; 1997-1998.
International Programs Committee, 1993-1998.
Teaching Portfolio Assessment Committee, 1993.
Professional Development School Committee, Rutgers-New Brunswick, 1993-1997.
Teacher Education Faculty, 2019-2020; 1987-1989.
Models for Teacher Education and Development in Mathematics, 1985-1988.

University (Rutgers-The State University)

Rutgers School of Social Work, Committee on Appointments and Promotions, Fall 2021, Fall 2022
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.

Rutgers University Center for Mathematics Science and Computer Education (CMSCE)

Faculty, MetroMath Center

Associate, Center for Mathematics, Science, and Computer Education, Science and Engineering Resource Center, Rutgers University, 1986-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)

Member, Leadership Project in the Teaching of Probability and Statistics, Center for Mathematics, Science and Computer Education, 1990-1993.

Service to Schools

Secondary Mathematics Teacher Certification Programs, Graduate School of Education, Coordinator, 2019-present.

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)

Organized Special Journal of Mathematics Behavior Issue, 13th International Congress on Mathematical Education (ICME-13), 2016 and 14TH International Congress on Mathematical Education (ICME-14), Shanghai, China (postponed due to COVID 10), 2021

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. Döerfler, 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 Universtiy (Israel) and Rutgers University (USA), and two remote New Jersey sites celebrating the 75th Anniversary of Rutgers Graduate School of Education, May 27, 1998.
- First Inivtational 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 Board Member

NSF Discovery Research (DRK-12), Developing Pre-service Elementary Teachers' Ability to Facilitate Goal-Oriented Discussions in Science and Mathematics Via the Use of Simulated Classroom Interactions, 2016-present.

NAEP, National Assessment for Educational Progress, Standing committee mathematics advisor, invited by Educational Testing Service, 2014-present.

Winsight Mathematics Item Review, Committee Member, Educational Testing Service, Princeton, NJ 2015-present

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

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

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

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

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

New Jersey Statewide Systemic Initiative for New Elementary School Teachers, (Advisor), directed by D. Cook, Rutgers University 1994-2006.

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

Mathematics Curriculum Framework Project, (Advisor), New Jersey, 1992-1996.

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

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

Teaching Thinking and Problem Solving, (Advisory Board), 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, 1994-1996.

Mathematics Leadership Network, Reviewer, Summer Math for Teachers, Mount Holyoke College, South Hadley, MA, 1989-1991.

Reviewer (Manuscripts and Proposals)

American Education Research Journal (AERJ), 2005-present

Journal for Research in Mathematics Education (JRME), NCTM, 1982-present.

Journal of Mathematical Behavior (JMB), Elsevier Inc., 1989-present.

Journal for Mathematics Teacher Education (JMTE), 2003-present.

American Educational Research Journal (AERJ), 2005-present.

Journal of Applied Developmental Psychology (JADP), 1991-1992.

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 (2001).

Mathematics Curriculum Framework, NJ (1992-1996).

American Society for Engineering Education, Mathematics Division (1990-1991).

FOCUS on Learning Problems in Mathematics, (1987-1993).

North American Group for the Psychology of Mathematics Education (PME-NA), 1985-present.

International Group for the Psychology of Mathematics Education (PME), 1987-present.

American Education Research Association (AERA), Division C, Section 4, 1986-1992.

American Education Research Association (AERA), Special Interest Group,
Research in Mathematics Education, 1981-1995.

Jean Piaget Society, 1985-1990.

Reviewer (Grant Proposals)

The Leverhulme Trust, London, England, 2006.

University of Cyprus, Greece, 2006.

Social Sciences and Humanities Research Grants Council, Canada, 2002, 2009.

Hampton Fund, 2002.

National Science Foundation, 1993-present

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

Understanding Mathematics Learning (online)

History of Mathematics

Secondary School Mathematics Curriculum Improvement Study (SSMICS)

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
Reasoning in Mathematics Education (in-person and online)
Research Into the Development of Mathematical Ideas
Seminar in Mathematics Education Research (in-person and online)
Introduction to Mathematics Education (in-person and online)
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

Sponsored Visiting International Faculty/Scholars (1998-2006)

Africa: Marcos Cherinda (Mozambique).
China: Beijing Normal University, Hangzhou
Europe: Willi Doerfler, (Klagenfurt University, Austria), Despina Potari (University of Patras, Greece) and Sanjoy Mahajan (Cambridge University, England).
Israel: Shlomo Vinner, (Hebrew University), Nitsa Moschovitz-Hadar, Technion), Anna Sfard (University of Haifa), Miriam Amit, (Ben Gurion University
Middle East: Dina Tirosh (University of Tel Aviv, Israel), Orit Zaslowsky (The Technical University of Israel, Haifa) and Miriam Amit (Israel Ministry of Education and Ben Gurion University, Israel).
South America: Sumaia Vazquez (Universidade Federal do Espirito Santo Brazil) and Maria Cecilia Fantinato (University of San Paolo, Brazil)

Scandinavia: Gunnar Gjone (Univ of Oslo, Norway), Markus Hähkiöniemi (University of Jyväskylä, Finland), Alan Simonsen (University of Aarhus, Denmark), John Andersen (University of Aarhus, Denmark), Arne Mogensen (University of Aarhus, Denmark); Peder Rostgaard (Teacher Training College, Denmark), Heidie Clemens (Aarhus University College of Education, Denmark). Christine Neilsen (Denmark)

Doctoral Students (80), Dissertation Chair

Krupnik, Victoria, PhD (2020). *Early Development and Application of Proof-Like Reasoning: Longitudinal Case Studies*

Rivera-Dominguez, Alberto, EdD (2020). *Influence of Students' Conversations in Constructing Mathematical Knowledge*

Leslie, Joyce, EdD (2020). *Investigating a Teacher Professional Development Model of Algebra Learning for Low SES Minority Students*

Teehan, Kara, PhD (2019). *Applying the Pirie-Kieren Theory for Tracing Growth in Mathematical Understanding*

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

Winter, Esther, PhD (2017), *Collaborative Video Analysis: How Teachers, Teacher 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*

- Palius, 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, Fredda, 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 (3 students in progress) with Signed Proposals

- Foley, Ron, EdD (2017). *Students' Recognition of Problem Structure; Findings from a Longitudinal Study*

Current Doctoral Students Developing Proposals

- Meola, Jianene, PhD (in progress).
- Girt, Molly, PhD (in progress).

Abadir, Rasha, PhD (in progress).

Member of Other (16) Doctoral Committees

Paul, Sarita (2021). *Teaching Students in Heterogeneous Classes*

Silber, Charles (2020). *Financial Literacy Education: Creating Pedagogy Through Open-Source Software That Promotes Equitable Education In Urban Environments*

Alqahtani, Muteb (2016). *Interactions between Teachers' Use of Collaborative, Dynamic Geometry Environment and their Geometrical Knowledge*

Dicker, Loretta (2015). *Investigating the Mathematics Valued by Employers.*

Merges, Kevin (2011). *Tracing Knowledge Transfer through a Wiki in an Online, Synchronous Environment.*

O'Hara, Kate (2011). *Tracing students' mathematical identity in an online synchronous environment*

Ilaria, Daniel, Jr. (2009). *Teacher questions that engage students in mathematical conversations.*

Radu, Iuliana (2009). *To infinity and beyond: Toward a local instruction theory for completed infinite iteration*

Shulman, Steven (2009). *What was the Madison Project?*

Shteingold, Nina (2008). *Young children's thinking about negative numbers.*

Abdi, Yusuf, (2007). *Analysis of teachers' discourse moves in an open-ended problem solving environment.*

Hanna, Evelyn (2007). *Teachers' discourse community: What it reveals about knowledge of teaching mathematics.*

Warner, Lisa B. (2005). *Behaviors that indicate flexible mathematical thought.*

King, Adrienne deWindt (2002). *Evidence for visual imagistic representations in task-based interviews with four elementary school children.*

Wersan, Norman (1981). *Utilizing a self-generated visual art strategy to facilitate proportional problem solving in mathematics.*

Paramore, Eddie C. (1976). *A computer-based tutorial model for evaluating individual hypothetico-deductive reasoning*

External Reviewer, Ph.D. Dissertation Research by International Students

Torkildsen, Ole Einar ,2006, University of Oslo, Norway

Ward, Jennifer, 2010, University of Ottawa, New Zealand

Naalsund, Margrethe, A2012, University of Oslo, Norway

Masters Theses Supervised (2012-Present)

Teehan, Kara (2017, Jan). *Tracing One Student's Growth in Mathematical Understanding from Third to Fourth Grade in a Combinatorial Context*. Readers C. A. Maher and Arthur Powell

Mastriano, Audra (2015, May). *Lesson Study of How Visual Representations Help Students Solve And Write about Mathematical Problems*. Readers C. A. Maher and A. S. Alston.

Kaur, Bhupinder (2015, May). *Lesson Study: Connecting Students' Representations for Combinatorial Problems*. Readers C. A. Maher and A. S. Alston.

Kang, Melissa (2015, May). *Testimony of My Classroom Implementations over Two School Years*. Readers C. A. Maher and A. S. Alston.

Ortiz, Solaris (2015, January). *Problem Solving: Student Reasoning and Invention of Proof-like Arguments in the 8th Grade*. Readers C. A. Maher and A. S. Alston.

Langer, Donna (2014). *Lesson Study and Professional Development*. Readers: C. A. Maher and A. S. Alston.

Lappostato, Jena (2014). *The Role of "Mathematical Reasoning" and "Relational Understanding" in Solving Mathematical Problems As It Relates to Student Understanding of the Common Core State Standards*. Readers: C. A. Maher and A. S. Alston.

Rohm, Michael (2014). *A Transition to the Discovery of Relational Understanding and Mathematical Reasoning in Student Work*. Readers: C. A. Maher and A. S. Alston.

Luczak, Alice (2014, January). *Lesson Study and Professional Development*. Readers: C. A. Maher and A. S. Alston.

Januszkiewicz, Erik (2014, January). *How Collaboration and Discourse Lead to Mathematical Cognition*. Readers: C. A. Maher and A. S. Alston.

Riccobono, Mary (2014, January). *Growth in Student Thinking in the Classroom*. Readers: C. A. Maher and A. S. Alston.

Rothauser, Suzanne M. (2014, January). *Implementing the Common Core Standards for Mathematical Practice in the Middle School Classroom*. Readers: C. A. Maher and A. S. Alston.

Tranchina, Derek (2014, January). *The Student-Centered Classroom: Teaching Methods that Give Students Ownership of their Own Learning*. Readers: C. A. Maher and A. S. Alston.

Hrdina, Daniel (2014, October). *Teacher In-Service Preparation: Middle School Mathematics, After-School Program for Student Enrichment through Critical Thinking and Problem Solving Methods*. Readers C. A. Maher and A. S. Alston.

- Almasoud, Hanan (2014, October). *Developing a Productive Mathematics Classroom*. Readers C. A. Maher and A. S. Alston.
- Krupnik, Victoria (2014, May). *Teacher-Student Interactions that Include Mathematical Arguments: Stephanie and her Towers*. Readers: C. A. Maher and A. S. Alston.
- Carrigan, Sean (2014, May). *Fostering the Problem-Solving Cycle to Increase Student and Teacher Understanding*. Readers: C. A. Maher and D. Battey.
- Barton, Margaret (2014, May). *Fostering the Problem-Solving Cycle to Increase Student and Teacher Understanding*. Readers: C. A. Maher and D. Battey.
- Blanchard, Kimberly (2013). *Developing Mathematical Practices and Mathematical Content Using Early Algebraic Understanding With One Variable Equations*. C. A. Maher and A. S. Alston.
- Whitfield, Patricia (2013). *My Notepad of Resource*. C. A. Maher and M. F. Palius.
- Reinhold-Canneto, Robin (2013). *Integrating Technology into the Mathematics Classroom to Increase Student Engagement and Understanding*. C. A. Maher and A. S. Alston.
- Rebak, Lisa (2013). *Teaching Methods that Allow Children to Explore and Understand*. C. A. Maher and A. S. Alston.
- Donegan, Ryan (2013). *Exploring Relationships among Fraction Numbers using Cuisenaire Rods*. C. A. Maher and A. S. Alston.
- Cozad, Linda (2013). *Online Collaboration in Mathematical Problem Solving*. C. A. Maher and A. S. Alston.
- Connors, Ashley (2013). *Number Sense: The Meaning and Value of Fractions through the use of Cuisenaire Rods*. C. A. Maher and A. S. Alston.
- Kovac, Diane (January 2013). *Using Geometric Representations to Deepen Student Understanding of Binomials Expansion*. C. A. Maher and A. S. Alston.
- Alston, Lois (2013, May). *Integrating Technology into the Mathematics Classroom to Increase Student Engagement and Understanding*. Readers C. A. Maher and A. S. Alston
- Peist, David (2013). *Guess My Rule*. C. A. Maher and A. S. Alston.
- Dubil, Keith (2013). *Exploring fractions through Cuisenaire Rods*. C. A. Maher and A. S. Alston.
- Dovidauskas, Sarah (2013). *Fractional Reasoning at the Middle School Level*. C. A. Maher and A. S. Alston.
- Murolo, Mariantonia (2012). *Early Algebra Learning: Expanding Guess My Rule*. C. A. Maher and A. S. Alston.
- Minue, Lenore (2012). *Early Algebra Analytic Project*. C. A. Maher and A. S. Alston.
- Lampkin, Jarrett (2012). *Early Algebra Learning with Guess My Rule*. C. A. Maher and A. S. Alston.

Farooqui, Kulsum (2012). *Early Algebra Learning Using Guess My Rule*. C. A. Maher and A. S. Alston.

Agosto, Jacqueline (2012). *Early Algebra Learning: Guess My Rule*. C. A. Maher and A. S. Alston.

Published Video Mosaic Collaborative Analytics (2011-Present)

<https://videomosaic.org/analytics>

Baldev, Satyen (2021). Detection and Exploitation of Structural Relationships by A Group of Four Twelfth Graders Working on The Taxicab Problem. Retrieved from <https://doi.org/doi:10.7282/t3-jrpa-3r49>

Leslie, Joyce (2021). Guess My Rule and Discovery of the Properties of Linear Equations. Retrieved from <https://doi.org/doi:10.7282/t3-292j-7p88>

Abadir, Rasha (2021). Nine-Year Old Brandon's Problem Solving For Accounting For All Possible Pizzas Choosing From 4 Toppings and Recognition Of a Connection To The Towers-4 Tall Selecting From 2 Colors. Retrieved from <https://doi.org/doi:10.7282/t3-bv69-dj55>

See all at <https://videomosaic.org/analytics>