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**EDUCATION**

Stanford University, B.A., Psychology and Statistics, 1965

Stanford University, M.A., Educational Psychology, 1967

Stanford University, Ph.D., Educational Psychology, 1970

Advisors: L. J. Cronbach, R. E. Snow, E. R. Hilgard

**EMPLOYMENT**

1989- present Professor, Graduate School of Education, University of California at Berkeley (UCB)

2020-present Chair, Learning Science and Human Development

2018-present Chair, Studies in Engineering, Science, and Mathematics Education (SESAME)

2014-2017 Chair, Studies in Engineering, Science, and Mathematics Education (SESAME)

2013-2014 Chair, Faculty, Graduate School of Education

2010-2011 Fellow, Center for Advanced Study in the Behavioral Sciences, Stanford, CA

2006-2010 Chair, Studies in Engineering, Science, and Mathematics Education (SESAME)

2003-2006 Chancellor's Professor, UCB

2001-2002 Fellow, Center for Advanced Study in the Behavioral Sciences, Stanford, CA

1996-1998 Chair, Cognition and Development Area, UCB

1995-1996 Fellow, Center for Advanced Study in the Behavioral Sciences, Stanford, CA

1989-1996 Director, Instructional Technology Program, UCB

1985-1989 Adjunct Professor, Graduate School of Education, UCB

1986-1989 Associate Director, Instructional Technology Program, UCB

1982-1983 Fulbright Professor, Weizmann Institute, Israel

1970-1987 Research Psychologist, Lawrence Hall of Science, UCB

1977-78; 79-80 Visiting Associate Professor, School of Education, Stanford University

1974-1975 Visiting Fellow, University College, London, England

1967-1968 Visiting Fellow, Institute J. J. Rousseau, Geneva, Switzerland  
(worked with Jean Piaget)

1965-1970 Teaching Assistant, Research Assistant, Stanford University

1965-1970 Statistical Consultant, Stanford, California

1965–1968 Computer Programmer, Programming Instructor, Statistical Advisor,  
Information Processing Corporation, Palo Alto, California

### HONORS AND AWARDS (SELECTED)

2022 Facilitator’s Choice Award, 2022 STEM for All NSF Video Showcase

2020 Co-author, Best Paper Nomination, International Conference on Artificial Intelligence in Education (AIED)

2020 Co-author, Best Paper, Artificial Intelligence for Education Workshop (AI4EDU)

2018 Rockefeller Foundation Bellagio Residency Program, Italy

2017 Inaugural Fellow, International Society of the Learning Science

2015 Co-author, Best Design Paper, Computer-Supported Collaborative Learning

2015 Co-author, Outstanding Poster Award, AERA Division C

2013 Co-author, Outstanding Research Presentation, AERA Design & Technology SIG

2010–2011 Fellow, Center for Advanced Study in the Behavioral Sciences

2007 Elected, National Academy of Education, Member

2007–2010 Elected, President, International Society of the Learning Sciences (President-elect 207-2008; President 2008–2009; Past President 2009–2010)

2007 Rockefeller Foundation Bellagio Residency Program, Italy

2009 Fellow, American Educational Research Association (AERA)

2005–2008 Elected, American Association for the Advancement of Science (AAAS), Chair of the Section on Education (Chair-Elect 2005–2006, Chair 2006–2007, Retiring Chair 2007–2008)

2003–2007 Elected, International Society of the Learning Sciences, Board

2001–2002 Fellow, Center for Advanced Study in the Behavioral Sciences

1998 Council of Scientific Society Presidents: First Award for Excellence in Educational Research

1996–2000 Elected, American Association for the Advancement of Science (AAAS). Board of Directors

1995–1996 Fellow, Center for Advanced Study in the Behavioral Sciences

1994 Fellow, American Association for the Advancement of Science

1994 National Association for Research in Science Teaching: Lifetime Contributions to Science Education Research Award

1992 University of California, Alumni Association Centennial: Faculty Recognition Award

1992 International Women’s Forum

1991 American Educational Research Association: Willystine Goodsell Award

1991 Fellow, American Psychological Society

1989	International Communications Association, Outstanding Paper Award
1988	Fellow, American Psychological Association
1988	American Educational Research Association: Women in Education Research Award
1983	<i>Journal of Research in Science Teaching</i> : Outstanding Paper Award
1982	American Educational Research Association: Women in Education Research Honorable Mention
1978	National Association for Research in Science Teaching: Outstanding Paper Presented
1975	<i>Journal of Research in Science Teaching</i> : Outstanding Paper Award
1965-1968	National Defense Education Act: Fellowship for Graduate Study

## FUNDED PROJECTS

2022-2023	Principal Investigator, William and Flora Hewlett Foundation Project Anti-Racism Interactive Science Education (ARISES) [\$318,632]
2021-2025	Principal Investigator, NSF funded project 2101669 Collaborative Research, Natural Language Processing Technologies to Inform Practice in Science (NLP-TIPS) [\$2,242,500]
2020-2022	Principal Investigator, William and Flora Hewlett Foundation Project Anti-Racism Interactive Science Education (ARISE) [\$285,000]
2020	Principal Investigator, William and Flora Hewlett Foundation Project Personalizing Open Web-based Educational Resources: Evaluator & Designer (POWERED) [\$190,927]
2019	Principal Investigator, William and Flora Hewlett Foundation Project Personalizing Open Web-based Educational Resources (POWER) [\$189,666]
2019	Principal Investigator with Natalia Kucirkova, Stavanger University. Peder Sather Foundation., Personalized education: Perspective of US and Norwegian teachers and designers
2018-2022	Principal Investigator, NSF funded project Collaborative Research: STRIDES: Supporting Teachers in Responsive Instruction for Developing Expertise in Science [2,604,685]
2015-2019	Principal Investigator, NSF funded project INT: Project Learning with Automated, Networked Supports (PLANS)

[2,290,222.00]

2014-2018 Principal Investigator, NSF funded project  
DRL-1418423: *Graphing Research on Inquiry with Data in Science (GRIDS)*  
[\$2,999,748]

2011-2015 Co-Principal Investigator, NSF Funded Project through Vanderbilt University  
DRL-1119290: *Enhancing Games with Assessment and Metacognitive Emphases (EGAME)*  
[\$159,925]

2012-2014 Co-Principal Investigator, NSF Funded Project through Michigan State University  
RC100634UCB: *Designing an Integrated Framework for Genetics Education to Develop Innovative Curricula and Assessments* [\$13,600]

2012-2014 Co-Principal Investigator, DOE Funded Project through Vanderbilt University  
R305A110782: *Explanation and Prediction Increasing Gains and Metacognition (EPIGAME)* [\$159,924]

2011-2016 Principal Investigator, NSF funded project  
DRL-1119670: *Continuous Learning and Automated Scoring in Science (CLASS)*  
[\$3,147,729]

2009-2015 Principal Investigator, NSF funded project  
DRL-0918743: *Visualizing to Integrate Science Understanding for All Learners (VISUAL)* [\$3,499,553]

2008-2014 Principal Investigator, NSF funded project  
DRL-0822388: *Cumulative Learning using Embedded Assessment Results (CLEAR)*  
[\$2,977,695]

2008-2013 Co-Principal Investigator with the Concord Consortium, NSF funded project  
DRL-0733299: *Logging Opportunities in Online Programs for Science (LOOPS): Student and Teacher Learning* [\$2,999,690]

2006-2008 Principal Investigator, NSF funded sub-award (under REC-0334199)  
*Delineating and Evaluating Coherent Instructional Designs for Education (DECIDE)*  
[\$399,412]

2005-2010 Principal Investigator, NSF funded project  
ESI-0455877: *Mentored and Online Development of Educational Leaders for Science (MODELS)* [\$2,388,349]

2003-2008 Principal investigator, NFS funded project  
REC-0334199: *The Educational Accelerator: Technology-Enhanced Learning in Science (TELS)* [\$9,952,287]

- 2003-2006 Principal Investigator, NSF funded project  
REC-0311835: *Partnerships to integrate technology, curriculum, and professional development in response to new science assessments* [\$1,800,000]
- 2003-2006 Co-Principal Investigator with Robert Bjork, UCLA. IES funded project.  
*Introducing Desirable Difficulties for Educational Application in Science (IDDEAS)* [\$500,000]
- 2002-2004 Principal Investigator, Concord Consortium SubAwardee  
*Seeing Math Telecommunications Project* (Department of Education 016510)  
*CERT—Community for Effective Reform Using Technology* (NSF: 016510) [\$75,000]
- 2002-2004 Principal Investigator, NSF funded project  
REC-0128062: *Supporting Teachers and Encouraging Lifelong Learning: A Web-Based Integrated Science Environment (WISE ABR—Accomplishment Based Renewal)* [\$1,197,453]
- 2001-2006 Co-Principal Investigator, State of California funded project  
*CITRIS* [Graduate School of Education: \$166,300]
- 2001-2004 Principal Investigator, NSF funded project  
REC 00-87832: *Synergy Communities: Aggregated Learning about Education (SCALE)* [\$782,850]
- 1999-2002 Principal Investigator, NSF funded project  
REC 98-73160: *Science-Controversies On-line: Partnerships in Education (SCOPE)* [\$1,840,000]
- 1998-2001 Principal Investigator, NSF funded project  
REC 98-05420: *Supporting Teachers and Encouraging Lifelong Learning: A Web-Based Science Integrated Environment (WISE)* [\$1,187,265]
- 1997-2001 Principal Investigator, NSF funded project  
EIA 97-20384: *Center for Innovative Learning Technology (CILT)* [\$1,675,000]
- 1989-1994 Principal Investigator with A. diSessa and M. Ranney, NSF funded project  
DGE 95-54564: *Reforming Education Through Science and Design: A Ph.D. Training Initiative* [\$450,000]
- 1997-1998 Principal Investigator, UC Berkeley funded project:  
Grant No. 1-432742-39590: *Fostering University and School Partnerships through KIE User Groups; "Interactive University"* [\$35,334]
- 1994-1999 Principal Investigator, NSF funded project:  
MDR 9453861: *The Knowledge Integration Environment (KIE)* [\$1,600,000]
- 1992-1999 Principal Investigator, NSF funded project:  
RED 91-55744: *Improving the Impact and Relevance of Introductory Science Courses: Computer as Learning Partner (CLP)* [\$1,500,000]
- 1989-1993 Principal Investigator, NSF funded project:  
MDR 89-54753: *Designing Case Studies to Teach Complex Problem Solving: Capitalizing on Advanced Technologies* [\$790,000]

- 1988–1992 Principal Investigator, NSF funded project:  
MDR 88-50552: *Designing Robust Science Instruction: Computer as Laboratory Partner* [\$650,000]
- 1988–1990 Principal Investigator, NSF funded project:  
MDR 89-53974: *Calculus and Computers: Toward a Curriculum for the 1990's* [\$42,898]
- 1986–1988 Principal Investigator, Apple Computer, Inc. funded project:  
*Technology and Teacher Education* [\$200,000]
- 1985–1988 Principal Investigator, NSF funded project:  
MDR 8470364: *Autonomous Classroom Computer Environments for Learning* [\$600,000]; MDR 84-70514: *Computers and Problem Solving* [\$325,000]
- 1983–1985 Principal Investigator, NIE funded project:  
OE 0400830017: *Assessing the Cognitive Consequences of Computer Environments for Learning*
- 1981–1984 Principal Investigator, NSF funded project:  
SED 81-12631: *Acquisition of Science Literacy In and Out of School*
- 1979–1981 Principal Investigator, NSF funded project:  
SED 79-19494: *Generalizing Science Instruction for Adolescents to Naturally-Occurring Problems*
- 1978–1980 Principal Investigator, NIE sponsored conference:  
Future of Research in Adolescent Reasoning
- 1977-1980 Director, NSF funded project:  
SED 77-18914: *Adolescent Reasoning in Naturalistic and Laboratory Settings*

#### EDITORIAL BOARDS (SELECTED)

- 2010-present Inaugural Editorial Board, *Journal of Pre-College Engineering Education Research*
- 2010-present Editorial Board, *Theory Into Practice*
- 2008-present Board of Reviewing Editors, *Science*
- 2008-present Editorial Board, *International Journal of Science and Mathematics Education (IJSME)*.
- 2008-present Advisory Board, *Journal of Engineering Education*
- 2004-present Series Editor, *Education and Technology*, Teacher's College Press
- 1994-2015 Editorial Board, *Journal of Experimental Education*
- 1991-present Editorial Board, *Journal of Science Education and Technology*
- 2002-2006 Editorial Board, *International Journal of Science and Mathematics Education*
- 1991-2000 Editorial Committee, *Science & Education*
- 1990-2005 Editorial Board, *Sex Roles*
- 1989-1994 Editorial Board, *Journal of Research in Science Teaching*
- 1988-1997 Editorial Board, *Educational Researcher*

- 1986-1988 Editorial Board, *Journal of Educational Psychology*
- 1982-1987 Editorial Board, *Child Development*
- 1978-1984 Editorial Board, *Journal of Research in Science Teaching*
- 1975-present Reviewer for journals, including *American Psychologist*, *American Educational Research Journal*, *Developmental Psychology*, *Educational Psychologist*, *Educational Researcher*, *Journal of Educational Computing Research*, *Journal of Educational Measurement*, *Journal of the Learning Sciences*, *Journal of Research in Science Teaching*, *Learning and Instruction*, *Review of Educational Research*, *Science*

### ADVISORY BOARDS (SELECTED)

- 2022-2027 Advisory Board, NSF CAREER, Transforming Science Teaching and Learning in School, Tammie Visintainer, San Jose State University
- 2021-2026 Advisory Board, NSF CAREER, Developing Elementary Teachers' Self-Efficacy to Teach about Climate Change, Amal Ibourk, Florida State University
- 2020-2025 Chair, Advisory Board, CT-ifying STEM, NSF STEM+C grant, Uri Wilensky, Northwestern University
- 2020-2021 Member, NSF DRK12 PI meeting, Program Committee
- 2020-2024 Member, Vis-Chem Advisory Board, NSF DRK12 grant, Ellen Yeziarski, Miami University 2020-2021 Member, NSF DRK12 PI meeting, Program Committee
- 2019-2020 Advisory Committee, 150W, [150 Years of Women at Berkeley](#), UC Berkeley
- 2019-2022 Advisory Board, Faculty Learning Optimizes Student Success (FLOSS), CA Learning Lab Professional Development Grant. Tim Herrlinger, UC Berkeley
- 2019-2024 Advisory Board, NSF CAREER, Making Science Visible for Linguistically Diverse Students, Kelly Ryoo, University of North Carolina, Chapel Hill
- 2019-2024 Chair, Advisory Board. NSF CT-STEM project: Integrating Science and Computational Thinking through Algorithmic Explanations and Computational Modeling. PI Uri Wilensky
- 2019-2022 Advisory Board NSF IUSE project: Berkeley Undergraduate Research Evaluation Tools (BURET). Ann Baranger, Chemistry, UC Berkeley
- 2018-2022 Advisory Board, IES Spatial Reasoning Project, Sheryl Sorby, University of Chicago
- 2018-2024 Member, Scientific Advisory Board of the University of Helsinki Multidisciplinary Research Initiative and Academy of Finland.
- 2018-2021 Review Panel, Excellence Strategy by the German Federal and State Governments to Promote Science and Research at German Universities. German Research Foundation
- 2017-2021 Intelligent Representations: How to Blend Physical and Virtual Representations by Adapting to the Individual Student's Needs in Real Time, Martina Rau, PI. CAREER Grant (NSF), University of Wisconsin
- 2017-present International Scientific Advisory Board, Learning and Assessment for Digital Citizenship, University of Hong Kong, Nancy Law, PI

2017-present	Scientific Advisory Committee (SAC) for the University of Sydney's Centre for Research on Learning and Innovation (CRLI)
2015-2017	Committee, National Academy of Sciences, Strengthening Research Experiences for Undergraduate STEM Students
2015	Committee and Speaker. National Academy of Sciences, Convocation on Discovery-Based Research in Undergraduate Courses
2015-present	Enhancing Middle School Mathematics Achievement through Spatial Skills Instruction, Sheryl Sorby, PI, University of Cincinnati
2014-present	Science Inquiry Using Physical and Virtual Experiments (NSF), Sadhana Puntambekar, PI University of Wisconsin.
2013-present	Scaffolding Engineering Design to Develop Integrated STEM Understanding with WISEngineering, Jennifer Chiu CAREER Grant (NSF), University of Virginia
2012-2017	Supporting Computational Algorithmic Thinking, Jakita Thomas CAREER Grant, (NSF), Spellman College
2011-present	The Trump Foundation Advisory Council, Jerusalem, Israel
2010-2014	High Adventure Science (NSF), Amy Pallant, PI, Concord Consortium
2007-2011	Tracing Children's Developing Understanding of Heredity over Time, Michelle Williams, CAREER Grant (NSF), Michigan State University
2008-2011	National Academy of Sciences (NAS). Computational Thinking for Everyone, Chair
2008-2010	National Academy of Sciences (NAS). Science Education and 21 <sup>st</sup> Century Skills
2008-2010	Cyberlearning Task Force, National Science Foundation
2010-present	ESTABLISH, European Science and Technology in Action, Dublin, Ireland
2009	National Science Foundation (NSF) Committee of Visitors. National STEM Education Distributed Learning (NSDL) Program, Chair
2009	National Science Foundation (NSF) Committee of Visitors. Course, Curriculum, and Laboratory Improvement (CCLI) Program, Chair
2008-present	Advisory Board Chair, National Academy of Sciences (NAS). Computational Thinking for Everyone
2007-present	Spatial Intelligence and Learning Center (SILC), Nora Newcombe PI
2007-2009	American Educational Research Association (AERA). Task Force on an AERA Fellows Program, Member
2007-2009	American Psychological Association (APA). Math and Science Education Task Force, Member
2007-2008	Institute of Education Sciences. Science Education Curriculum Research and Evaluation Working Group
2005-present	Singapore Learning Sciences Lab. International Advisory Committee
2004-2007	Educational Testing Service. Diagnostic Items in Mathematics and Science, Advisory Board



2004-2007 Arizona State University. Center for Research on Education in Science, Mathematics, Engineering, and Technology (CRESMET) Math and Science Partnership, National Advisory Board

2003-2010 National Science Foundation. Education and Human Resources, Advisory Board

2006-2010 Collaboration for Leadership in Urban Science Teaching (CLUSTER). Evaluation and Research, New York Hall of Science, Advisory Board

2006-2010 DeepThink: Thinking Deeply About Biodiversity, University of Michigan. Advisory Board

2006-2008 Certiport. Digital Communications, Advisory Board

2006-2008 *Science* Magazine. Education Forum, Advisory Committee

2006-2008 Wallenberg Foundation. Wallenberg Global Learning Network, Advisory Panel

2006-present Designated Emphasis in Gender Studies, Affiliated Faculty Member

2006 National Science Foundation (NSF) Committee of Visitors. Course, Curriculum, and Laboratory Improvement (CCLI) Program, Chair

2005 National Science Foundation (NSF) Committee of Visitors. EHR Interagency Educational Research Initiative Program, Chair

2005 The National Academies Committee on IT Fluency and High School Graduation Outcomes, Member

2004-2008 International Society of the Learning Sciences. Education Committee, Chair

2002-2008 System-wide Change for All learners and Educators (SCALE), National Advisory Board

2002-2005 Office of Science and Technology Policy. RAND Panel on Planning a Research Agenda—Health and Development of Children and Adolescents

2001-2005 Education Development Center, Inc. Gender and Diversities Institute, Advisory Board

2000-2004 National Academy of Sciences. GIS in Education, Committee Member

1998-2002 MDR Associates. WorkWise, Advisory Board

1998-2000 American Association for University Women (AAUW). Commission on Technology and Gender

1998-2000 National Center for Science Education (NCSE), Board Member

1997-2006 National Academy of Sciences. National Research Council Board on Behavioral, Cognitive, and Sensory Sciences, Board Member

1997-1999 California Council on Science and Technology, Member of Electronic Teaching Media Task Force

1997-1999 National Academy of Sciences. National Research Council Committee on *Information Technology Literacy*, Computer Science and Telecommunications Board, Member

1996-2001	National Center for Research in Mathematics and Science Education (NCRMSE). National Advisory Board
1995-2000	Office of Education. National Center for Improving Student Learning and Achievement in Mathematics and Science (NCISLA), , National Advisory Board
1994-2001	Third International Mathematics and Science Study (TIMSS). United States Steering Committee; Executive Committee, 1994-1999
1992-1996	American Educational Research Association. Committee on Role and Status of Women, Chair
1991-1998	Carnegie Mellon University. Board of Advisors to the President, Academic Services
1990-1997	James S. McDonnell Foundation. Cognitive Studies in Educational Practice, Board; Chair, 1994-1997
1990-1995	Educational Testing Service. Graduate Record Examination Board (GREB)
1990-1993	NSTA/NARST/AAAS. Task Force for Developing a Research Agenda
1988-1997	Educational Testing Service. Technical Advisory Committee (TAC) for the GREB, Member; Chair, 1992-1997
1985-1993	National Science Foundation. Research in Teaching and Learning, Advisory Board
1988-1992	Spencer Foundation. Fellowship Advisory Committee
1988	U.S. Air Force Training Program. Advisory Panel, HyperText and Education
1986-1993	Longitudinal Study of American Youth. Advisory Committee

## PROFESSIONAL ORGANIZATIONS

### **American Association for the Advancement of Science (AAAS)**

2019-2021	Elected Committee on Nominations, Chair
2009-2021	Board of Reviewing Editors (BORE), Science
2005-2008	Elected Chair-Elect, Chair, and Past Chair of the Education Section
1996-2000	Elected Board of Directors
1994	Elected Fellow
1990-1994	Elected Member-at-Large, Education Section
1990-present	Member

### **American Educational Research Association (AERA)**

2015	Co-author, Outstanding Poster Award, AERA Division C
2013	Co-author, Outstanding Research Presentation, AERA Design & Technology SIG

2009 Elected Fellow  
 1994-1996 Program Committee  
 1983-1996 Appointed to President's Committee on the Role and Status of Women in Educational Research and Development, 1983-1985; 1993-1996; Chair, 1995-1996  
 1981-1985 Special Interest Group on Research on Women in Education, Secretary-Treasurer, 1981-1982; Chair Elect, 1982-1983; Chair, 1983-1984; Past Chair, 1984-1985  
 1981-1983 Special Interest Group on National Assessment of Educational Progress (NAEP), Secretary-Treasurer, 1981-1983  
 1989-1992 Special Interest Group on Education in Science and Technology, Organizing committee, Chair, 1989-1991; Past Chair, 1991-1992  
 1987-1991 Editorial Board, *Review of Educational Research*  
 1988-1997 Editorial Board, *Educational Researcher*  
 1970-present Member

**International Society for Learning Sciences (ISLS)**

2017 Inaugural Fellow, International Society of the Learning Science  
 2016- present Chair, Awards Committee  
 2015 Co-author, Best Design Paper, Computer-Supported Collaborative Learning  
 2009-present Chair, Education Committee  
 2008-2010 Elected President-Elect, President, Past President  
 2003-2007 Elected Board of Directors  
 2002-present Member

**International Women's Forum, Northern California Chapter**

2015-present Board of Directors, International Women's Forum, Northern California  
 2012-2013 Program Committee, San Francisco Conference  
 1996-1997 Program Committee, International Women's Forum  
 1995-1997 Membership Committee  
 1992-present Member

**American Psychological Society (APS)**

1991-present Member and Fellow

**European Association for Research on Learning and Instruction (EARLI)**

1999-present Member

**EDUCOM**

1991-1996 Member Affiliate  
 1990-1994 Chair and organizer, Task force on Women in Computing

**National Science Teachers Association (NSTA)**

1993-1994 NSTA Research in Science Education Task Force  
 1987-1990 Research Agenda Committee

**American Psychological Association (APA)**

2007-2009 Math and Science Education Task Force  
 1992-1993 Nominating Committee, Division 15  
 1986-1988 Editorial Board, *Journal of Educational Psychology*  
 1988 Elected Fellow  
 1981-present Member

### **National Association for Research in Science Teaching (NARST)**

- 1992-1998 Representative to the American Association for Advancement of Science Section X, Societal Impacts of Science and Engineering
- 1994 *Lifetime Contributions to Science Education Research Award*
- 1992-1995 Equity in Science Education Committee
- 1989-1994 Associate Editor, *Journal of Research in Science Teaching*
- 1983-1986 Elected to Executive Board
- 1982-1986 Chair of Finance Committee
- 1978-1984 Editorial Board, *Journal of Research in Science Teaching*
- 1970-present Member

### **Council for International Exchange of Scholars (CIES)**

- 1983-1986 Fulbright Program
- 1983-1986 Appointed to Middle East Area Committee (Committee makes final recommendations for selection, advises on policy)
- 1983, 1985 Professor Abroad, Israel

### **Pi Lambda Theta, Education Honor Society**

- 1967 Elected to membership

### **Society for Research in Child Development (SRCD)**

- 1982-1987 Editorial Board, *Child Development*
- 1974-2000 Member

### **Society for Research on Adolescence (SRA)**

- 1991-1992 Program Committee
- 1988-1991 Membership Committee
- 1988-2000 Member

### **American Association of Museums (AAM)**

- 1976-1978 National Steering Committee on Museum Evaluation

## **PROPOSAL REVIEWS**

Reviewer for proposals to many programs including the National Science Foundation, the Institute of Education Sciences, the Wallenberg Foundation, the Greater Texas Foundation, the Department of Education, Spencer Foundation, McDonnell Foundation, National Institute of Education, National Institute of Mental Health, American Educational Research Association, International Society of the Learning Sciences, American Psychological Association, Society for Research on Adolescence, and National Association for Research in Science Teaching.

## **UNIVERSITY COMMITTEES**

- 2021-present Chair, Berkeley School of Education, Research Committee
- 2019-2020 Advisory Committee, 150W, [150 Years of Women at Berkeley](#), UC Berkeley
- 2019-present Berkeley School of Education. Learning Sciences and Human Development, Convener
- 2018-2020 Search Committee, Lawrence Hall of Science Director
- 2018-2021 School of Education Committees: Fellowship, Admissions, Space, Academic Review
- 2018-2022 Standing Committee for review of selected personnel actions for Coordinator of Public Programs

2018-present Studies in Engineering, Science, and Mathematics Education (SESAME). Chair, Equity Chair

2016-2017 School of Education. Equity Committee

2015-2017 School of Education. Planning Committee

2014-2017 School of Education. Chair, Education in Mathematics, Science, and Technology

2014-2017 Studies in Engineering, Science, and Mathematics Education (SESAME). Chair, Equity Chair

2013-2015 School of Education. Chair of Futures Committee

2013-2014 School of Education. Chair of the Faculty

2013-2016 School of Education. Academic Review Committee

2012-2017 School of Education. Equity Committee

2011-2012 Computer Science Division. Dissertation Awards Committee

2006-2010 School of Education. Chair, Studies in Engineering, Science, and Mathematics Education (SESAME)

2004-present Center for New Media. Affiliated Faculty Member

2004-2006 School of Education. Dissertation Awards Committee

2004-2006 School of Education. Education in Mathematics, Science, and Technology (EMST) Curriculum Committee

2002-2004 Chair, Coordinator of Public Programs, Standing Committee

2002-2003 Vice Chancellor's E-Berkeley Symposium Committee

2000-present Gender and Women's Studies, Affiliated Faculty Member

1997-1998 School of Education. Chair, Cognition and Development

1996-2003 Office of the President. University of California-California State University, Joint Graduate Board.

1996-2000 Academic Senate. Committee on Computing and Communications

1994-1995 Academic Senate. Committee in Educational Policy (CEP)

1994-1995 School of Education. Futures Committee

1993-1995 Berkeley Language Center. Director Search Committee

1992-1997 School of Education. Academic Review Committee, Chair, 1996-1997

1990-2000 University of California System. Cal Space Curriculum Development Committee, Space Sciences

1986-1994 Academic Senate. Classroom Committee and Hi-Tech Subcommittee.

1992-1993 Academic Senate. Lawrence Hall of Science Additions and Alterations Academic Effect Study, Subcommittee to the Space Assignments and Capital Improvements Committee (SACI)

1990-1999 School of Education. Personnel Committee, 1990-1992; 1994-95; 1997-1999

1989-1990 School of Education. Search Committee, Educational Statistics, Chair, 1990-1991

1990-1991 School of Education. Dissertation Awards Committee  
1999-2000  
1990 University of California, Berkeley. Student Services Building Committee

## TEACHING EXPERIENCE

### University of California at Berkeley

Professional Development  
Technology-Enhanced Learning  
Conceptual Change  
Metacognition  
Instructional Design in Science and Mathematics Education  
Technology and Assessment  
Visualization, Multimedia, and Instruction  
Cognitive Consequences of Computers in Classrooms  
Programming and Problem Solving  
Gender, Mathematics, and Science  
Evaluation of Educational Programs  
Seminars on Learning and Instruction  
Visualization and Modeling

### Weizmann Institute, Israel

Evaluation of Educational Programs  
Role of Microcomputers in Education

### Stanford University

Introduction to Test Theory  
Adolescent Scientific Reasoning  
Instrument Design  
Planning Educational Evaluations

## SELECTED PRESENTATIONS

### 2023 PRESENTATIONS

#### **Applying idea detection in dialog designed to support integrated revision**

American Educational Research Association (AERA) Annual Meeting  
Chicago, Illinois  
April 16, 2023

### 2022 PRESENTATIONS

#### **AI Based Assessments: Design, Validity, and Impact**

*Keynote* AI and Education Conference (NSF funded)  
University of Georgia, Athens, Georgia  
May 27, 2022

#### **Let's Visualize Soft Sound: Students' Drawings Reveal Insights Into the Physics of Sound**

American Educational Research Association (AERA) Annual Meeting  
San Diego, CA  
April 26, 2022

#### **Eliciting Middle Schoolers' Repertoire of Science Ideas and Determining Multiple Learning Paths**

American Educational Research Association (AERA) Annual Meeting  
San Diego, CA  
April 23, 2022

**Leveraging Each Student's Everyday Language to Co-Design an Inclusive Science Learning Environment**

American Educational Research Association (AERA) Annual Meeting  
San Diego, CA  
April 22, 2022

**A Natural Language Processing–Driven Teacher Dashboard to Support Responsive Instruction**

American Educational Research Association (AERA) Annual Meeting  
San Diego, CA  
April 21, 2022

**Science Teachers' Use of a Learning Analytics Dashboard to Design Responsive Instruction**

American Educational Research Association (AERA) Annual Meeting  
San Diego, CA  
April 21, 2022

**2021 PRESENTATIONS**

**Science Learning with Virtual Experiments**

*Symposium Discussant*  
International Society of the Learning Sciences  
Virtual Meeting  
June 19, 2021

**STEM, Civil Discourse, and Reasoning**

*Symposium Moderator & Organizer*  
National Science Foundation DRK-12 PI Meeting  
Virtual Meeting  
June 17, 2021

**Supporting Students to Choose Consequential Science Projects**

American Educational Research Association (AERA) Annual Meeting  
Virtual Meeting  
April 11, 2021

**Analyzing Automated Content Scoring for Knowledge Integration in Science Explanations Using Saliency Maps**

American Educational Research Association (AERA) Annual Meeting  
Virtual Meeting  
April 10, 2021

**WISE in Wuhan**

*Online Keynote*  
Wuhan University  
January 4, 2021

**2020 PRESENTATIONS**

**Analyzing saliency in neural models for scoring content in science explanations.**

*Symposium Presentation* BlackboxNLP 2020: Analyzing and interpreting neural networks for NLP  
Virtual Conference  
November 16-20, 2020



**How Can Natural Language Processing (NLP) be Used to Diagnose Student Progress? How do Teachers Respond?**

*Online Keynote* Diagnosis-based Teaching in Science and Mathematics  
Weizmann Institute  
October 19, 2020

**Personalizing Online Instruction with Help from Natural Language Processing**

*Keynote* 4th International and Interdisciplinary Perspectives on Children & Recommender and Information Retrieval Systems (KidRec)  
*Virtual Conference*  
June 19, 2020

**Technology and COVID**

Invited talk: International Centre for Engineering Education  
Tsinghua University, Beijing China  
Virtual Conference  
April 28, 2020

**Does student choice of guidance during inquiry learning improve outcomes?**

American Educational Research Association (AERA) Annual Meeting (In-person cancelled)  
April 17-21, 2020

**Learning to revise: Using Annotation to Model Integrated Revision of Explanations**

National Association for Research in Science Teaching (NARST) 93rd Annual International Conference (In-person cancelled)  
Portland, OR  
March 15, 2020

**Identifying NGSS-Aligned Ideas in Student Science Explanations Association for Advancement of Artificial Intelligence International Conference**

Workshop on Artificial Intelligence for Education  
New York, NY  
February 8, 2020

**Supporting Teachers to Use Evidence from Student Work to Rapidly Customize Instruction**

Invited Talk: Stanford University  
January 2020

**2019 PRESENTATIONS**

**Curriculum Customization in Science**

Invited Talk: National Science Teachers Association  
Salt Lake City, UT  
October 25, 2019

**Beyond Autoscoring: Extracting Conceptual Connections from Essays for Classroom Instruction**

Educational Data Mining  
Montreal, Canada  
July 3, 2019

**Supporting Student Agency in Revision: Annotator + Adaptive Guidance**

Computer Supported Collaborative Learning (CSCL)

Lyon, France  
June 20, 2019

**Using Inquiry Learning to Promote Revision**

Invited Talk: Inquiry Learning, Instructional Design & Education Technology  
Munich Center of the Learning Arts  
June 13, 2019

**Designing Educational Innovations**

Workshop: Reason Doctoral Consortium  
Ludwig Maximilian University  
LMU  
Munich, Germany  
June 11-13, 2019

**Mechanisms for URE Success**

*Keynote* Conference: Focus on Undergraduate Research Experiences  
Universitat Hohenheim  
Hohenheim Palace, Stuttgart, Germany  
June 7, 2019

**Student Explorations of Human Impact on Global Temperature: Leveraging Choice to Promote Knowledge Integration**

American Educational Research Association (AERA) Annual Meeting  
Toronto, CA  
April 8, 2019

**Curriculum Customization: Linking Pedagogy, student work, and teacher inquiry**

National Association for Research in Science Teaching (NARST) 92nd Annual International Conference  
Baltimore, MD  
April 2, 2019

**How does a research-based instructional framework support teachers' customization of web-based curriculum?**

National Association for Research in Science Teaching (NARST) 92nd Annual International Conference  
Baltimore, MD  
April 1, 2019

**Guiding Revision of Essays: What helps?**

Invited Seminar  
New York University  
New York New York  
March 14, 2019

**Promoting Self-Directed Learning by Personalizing Instruction**

Hewlett Foundation Convening  
Savannah, Georgia  
February 12, 2019

## 2018 PRESENTATIONS

### **Leveraging Technology to Support Diverse Learners**

National Academy of Education Annual Meeting [Plenary Organizer and Presenter]  
Washington DC  
November 16, 2018

### **Big Data Goes to School**

Cognitive Science Society Annual Meeting [Invited Panelist]  
Madison, WI  
July 28, 2018

### **25 Years of Knowledge Integration: Reflection and Vision**

Knowledge Integration Extravaganza  
University of California, Berkeley  
July 16

### **What helps students learn to grapple with complex scientific dilemmas?**

*Keynote* SciTrek Lecture  
University of California, Santa Barbara  
May 3, 2018

### **Education, Equity, and Underrepresentation in STEM**

*Keynote* Bias Busters Conference  
University of California, Berkeley  
April 26, 2018

### **Robert Tinker's Initiative in Technology-Enhanced Learning in Science**

American Educational Research Association (AERA) Annual Meeting  
New York  
April 17, 2018

### **Knowledge Integration as a Lens for Structuring and Evaluating Students' Exploratory Practices with Virtual Models. (Symposium)**

American Educational Research Association (AERA) Annual Meeting  
New York  
April 17, 2018

### **Teaching Energy Transformation in Photosynthesis to Middle School Students**

American Educational Research Association (AERA) Annual Meeting  
New York  
April 16, 2018

### **Impact of an Embedded Notebook Tool on Students' Design Recommendations and Experimentation for Understanding Thermodynamics**

American Educational Research Association (AERA) Annual Meeting  
New York  
April 13, 2018

### **The Aluminum Foil Attracts Heat: Student Nonnormative Ideas About Energy Transformation**

American Educational Research Association (AERA) Annual Meeting  
New York  
April 14, 2018

**Learning Science for Life: Technology Matters**

Rockefeller Foundation Bellagio Center  
Bellagio, Italy  
March 22, 2018

**From Accumulating to Integrating Ideas: Technology Matters**

*Keynote* National Association for Research in Science Teaching (NARST) Annual Conference  
Atlanta, GA  
March 12, 2018

**Preparing Students for Independent Inquiry Learning**

*Keynote* INHERE 2018  
Ludwig Maximilian University (LMU), Munich, Germany  
March 8, 2018

**2017 PRESENTATIONS**

**Knowledge Integration and Global Climate Change**

*Invited Address*, Hong Kong University  
Hong Kong, China  
November 2, 2017

**Knowledge Integration and the Learning Sciences**

*Keynote* Central China Normal University (CCNU) Science Education Conference  
Wuhan, China  
November 1, 2017

**Science Learning and Teaching with the Web-based Inquiry Science Environment (WISE)**

Central China Normal University (CCNU) Science Education Conference  
Wuhan, China  
October 31, 2017

**Research on Knowledge Integration**

Central China Normal University (CCNU) Science Education Conference  
Wuhan, China  
October 30, 2017

**WISE Research Opportunities**

Beijing Normal University  
Beijing, China  
October 27, 2017

**Guiding Integrative Revision in Science: How Can Technology Contribute?**

*Keynote* Connecting Language, Interaction and Education in Digital Environments (CLIEDE)  
Waterbury Lecture  
Penn State University  
September 26, 2017

**Knowledge Integration and Science Learning**

*Keynote* Elevating Teacher Expertise Conference  
Taipei, Taiwan  
February 2017

**Teaching Science with Inquiry Technologies to Promote Knowledge Integration**

Invited Address: National Chiao Tung University  
Taipei, Taiwan  
February 2017

## 2016 PRESENTATIONS

### **Current and emerging trajectories in knowledge integration research**

Knowledge Integration [Symposium Invited Talk and Paper]  
Weizmann Institute  
Rehovot, Israel  
November 6, 2016

### **Educational Reforms in the United States: What Have We Learned?**

*Keynote* Israeli Academy of Sciences  
Jerusalem, Israel  
November 6, 2016

### **Leveraging advances in technology to improve STEM teaching and learning**

*Keynote* STEM 2016 Conference  
*Beijing Normal University*  
Beijing, China  
October 26, 2016

### **Teaching with Technology: Leveraging technology to improve professional practice**

*Invited Speaker* East China Normal University  
Shanghai, China  
October 21, 2016

### **WISE Ways to Strengthen Inquiry Science Learning**

*Keynote* Educational Datamining Conference  
North Carolina  
September 2016

### **Examining the Impacts of Annotation and Automated Guidance on Essay Revision and Science Learning**

International Conference of the Learning Sciences  
Singapore  
June 2016

### **Use of Interactive Computer Models to Promote Integration of Science Concepts Through the Engineering Design Process**

International Conference of the Learning Sciences  
Singapore  
June 2016

### **Real-Time Visualization of Student Activities to Support Classroom Orchestration**

International Conference of the Learning Sciences  
Singapore  
June 2016

### **Students Using Graphs to Understand the Process of Cancer Treatment**

International Conference of the Learning Sciences  
Singapore

June 2016

**Designing a Data-Centered Approach to Inquiry Practices With Virtual Models of Density**

International Conference of the Learning Sciences

Singapore

June 2016

**Science Inquiry: How to make instruction effective**

*Invited Lecture* Learning Sciences Center

Ludwig-Maximilians-Universität München

May 11, 2016

**2015 PRESENTATIONS**

**Recent results for knowledge integration: Guiding students to integrate their ideas**

East China Normal University

Shanghai, China

December 2015

**Advances in knowledge integration: Using WISE to teach science**

**Institute Seminar**, Tsinghua University

Beijing, China

December 2015

**Designing Instruction for science and engineering: recent insights**

Invited Lecture, Tsinghua University

Beijing, China

December 2015

**WISE and Computational Learning**

Invited Talk, Center for Computational Learning Systems

Columbia

October 2, 2015

**How do you design automated guidance for students' writing in inquiry science?**

ESERA Conference Symposium

Helsinki, Finland

September 3, 2015

**Examining the real and perceived impacts of a public idea repository on literacy and science inquiry**

ESERA Conference Symposium

Helsinki, Finland

September 3, 2015

**Knowledge Integration Processes and Design Principles**

Invited Talk

University of Oslo

August 31, 2015

**WISE in Europe: Discovering the Web-based Inquiry Science Environment from three perspectives**

EARLI ICT Demonstrations

Limassol, Cyprus

August 26, 2015

**Critiquing peer ideas during technology-enhanced science inquiry learning**

EARLI Poster session  
Limassol, Cyprus  
August 26, 2015

**Guiding inquiry teaching and learning: Partnerships, progress, and prospects**

*Keynote* EARLI Conference  
Limassol, Cyprus  
August 2015

**Learning with and learning from technology-enhanced inquiry practices**

EARLI Conference Invited SIG Talk  
Limassol, Cyprus  
August 26, 2015

**Undergraduate Education: Evidence of Best Practices and Ongoing Challenges**

**Invited Speaker, NRC: Strengthening Research Experiences for Undergraduate STEM Students**  
National Academy, Washington DC  
June 5, 2015

**Writing and Revising Scientific Arguments: Design of Effective Guidance Multidisciplinary Invited Speaker, Advances in Reading and Writing for Science Education**

New York, NY  
May 2015

**Inquiry and Problem Solving: Tools, Scaffolds, and Strategies**

American Educational Research Association (AERA) Annual Meeting  
Chicago, IL  
April 17, 2015

**Learning Science Through Games, Simulations, and Technologies in Diverse Environments**

American Educational Research Association (AERA) Annual Meeting  
Chicago, IL  
April 17, 2015

**Applications of Computerized Scoring in Assessment**

American Educational Research Association (AERA) Annual Meeting  
Chicago, IL  
April 17, 2015

**Teachers as Designers of Technology Enhanced Learning**

American Educational Research Association (AERA) Annual Meeting  
Chicago, IL  
April 19, 2015

**Literacy for Science (Invited Speaker Session)**

American Educational Research Association (AERA) Annual Meeting  
Chicago, IL  
April 19, 2015

**The State of the Art in Automated Scoring of Science Inquiry Tasks (Symposium talk)**

American Educational Research Association (AERA) Annual Meeting  
Chicago, IL  
April 19, 2015

**Prospects and Challenges in Teacher Curricular Adaptation Across Disciplines (Discussant)**

American Educational Research Association (AERA) Annual Meeting  
Chicago, IL  
April 19, 2015

**Designing Assessments Aligned with Current Science Education Reforms**  
**National Association for Research in Science Teaching**  
Chicago, IL  
April 14, 2015

**Automated Scoring of Inquiry Learning**  
American Association for the Advancement of Science  
San Jose, CA  
February 2015

## **2014 PRESENTATIONS**

**Designing Guidance for Inquiry Science Learning that Promotes Knowledge Integration**  
Weizmann Institute of Science  
Tel Aviv, Israel  
November 13, 2014

**Navigating STEM Success**  
National Science Foundation DRK12 PI meeting  
Washington, DC  
August 6, 2014

**Designing Critique to Improve Conceptual Understanding**  
International Conference of the Learning Sciences  
Boulder, CO  
June 26, 2014

**Promoting Student Learning Through Automated Formative Guidance on Chemistry Drawings**  
International Conference of the Learning Sciences  
Boulder, CO  
June 26, 2014

**Teachers as Designers**  
International Conference of the Learning Sciences  
Boulder, CO  
June 26, 2014

**Exploring A Digital Tool for Exchanging Ideas During Science Inquiry**  
International Conference of the Learning Sciences  
Boulder, CO  
June 26, 2014

**Dynamic Visualization of Motion for Student-Generated Graph**  
International Conference of the Learning Sciences  
Boulder, CO  
June 25, 2014

**Intelligence in the Web-based Inquiry Science Environment (WISE)**  
Army Research Laboratory-Institute for Intelligent Systems (ARL-IIS)  
University of Pittsburgh



June 12, 2014

**Using new technologies to improve urban schooling**

Invited speaker, Committee on Education - Workshop on Education Lecture Series  
University of Chicago  
June 3, 2014

**Inspiring Science Literacy: Linking Museums, Science Centres, and Classrooms**

Asia Pacific Network of Science & Technology Centres Conference *Keynote*  
Brunei, Darussalam  
May 7, 2014

**Inquiry Learning: Technology and Science**

Invited Speaker, Network of Academic Programs in the Learning Sciences (NAPLeS) Webinar  
University of California Berkeley  
April 30, 2014

**Using visualizations for science teaching and learning**

MAGNET (Media and Games Network) Steinhardt School of Culture, Education, and Human  
Development  
New York University  
April 30, 2014

**Innovations In Online Education: What Works**

Invited speaker, Conversations on Online Learning Series  
Columbia University  
April 17, 2014

**Investigating a Digital Annotation Tool for Distinguishing Visual Evidence in Science Inquiry**

American Education Research Association (AERA) Annual Meeting  
Philadelphia, PA  
April 6, 2014

**Providing Investigation Choices to Promote Learner-Directed Inquiry**

American Education Research Association (AERA) Annual Meeting  
Philadelphia, PA  
April 4, 2014

**How does Fidelity of Implementation Impact Students' Understanding of Energy?**

American Education Research Association (AERA) Annual Meeting  
Philadelphia, PA  
April 4, 2014

**Designing Automated Guidance to Improve Diverse Students' Understanding of Energy Flow**

American Education Research Association (AERA) Annual Meeting  
Philadelphia, PA  
April 4, 2014

**2013 PRESENTATIONS**

**Designing Visualizations and Automated Guidance to Create 21st Century Learners**

*Keynote* International Conference on Computers in Education  
Bali, Indonesia  
November 20, 2013

**Lifelong Science Learning in the Digital Age**

Weizmann Institute of Science  
Rehovot, Israel  
October 2013

**Realizing the Promise of Visualizations for Science Teaching and Learning**

Learning Sciences Research Institute  
Nottingham, England  
June 25, 2013

**How Can CSCL and Learning Sciences Research Inform Large-Scale Educational Reform?**

International Conference of the Learning Sciences (ICLS)  
Madison, WI  
June 17, 2013

**Using Visual and Spatial Thinking in Science Education**

American Educational Research Association (AERA)  
San Francisco, CA  
May 1, 2013

**Synergies in Conceptual Change: Perspectives**

American Educational Research Association (AERA)  
San Francisco, CA  
May 1, 2013

**Culturally Relevant Computer Science: Pathways to Broadening Participation**

American Educational Research Association (AERA)  
San Francisco, CA  
April 30, 2013

**Commentary on Research on Environmental Education**

Invited Speaker, American Educational Research Association (AERA)  
San Francisco, CA  
April 30, 2013

**Technology Integration to scaffold and assess students' use of visual evidence in science inquiry**

American Educational Research Association (AERA)  
San Francisco, CA  
April 30, 2013

**National Science Foundation Priorities and Perspectives**

Invited respondent, American Educational Research Association (AERA)  
San Francisco, CA  
April 29, 2013

**Expanding item types for assessing inquiry**

American Educational Research Association (AERA)  
San Francisco, CA  
April 28, 2013

**Automated Scoring and Adaptive Guidance**

American Educational Research Association (AERA)  
San Francisco, CA  
April 28, 2013

**Designing Assessment to Measure Cumulative Learning of Energy Topics**

American Educational Research Association (AERA)  
San Francisco, CA  
April 27, 2013

**Online Inquiry Learning Public Workshop Lecture**

Eminent Visiting Professor  
Sultan Hassanah Bolkiah Institute of Education  
Universiti Brunei Darussalam  
April 16, 2013

**Technology-Enhanced Science Educational: Realizing the Potential**

Eminent Visiting Professor *Keynote*  
Universiti Brunei Darussalam  
April 15, 2013

**Technology-Enhanced Assessment: Implications for Science Education Policy**

National Association for Research in Science Teaching (NARST) Annual Meeting  
San Juan, Puerto Rico  
April 6, 2013

**Automated Assessment using Student-Generated Concept Diagrams:  
Comparing Knowledge Integration and Specific Guidance**

National Association for Research in Science Teaching (NARST) Annual Meeting  
San Juan, Puerto Rico  
April 6, 2013

**Designing automated feedback on student-generated chemistry drawings**

National Association for Research in Science Teaching (NARST) Annual Meeting  
San Juan, Puerto Rico  
April 5, 2013

**Education Technology: The Next Generation**

Brookings Institution  
Washington, DC  
March 20, 2013

**NRC Learning Technology Research Reviews: Academic Developers/Researchers**

National Research Council  
Washington, DC  
March 4, 2013

**2012 PRESENTATIONS**

**Technology-enhanced scaffolding in the Web-based Inquiry Science Environment: Advantages of knowledge integration guidance**

University of Georgia, College of Education  
Athens, GA  
October 12, 2012

**Automated and teacher-designed feedback and guidance**

Spatial Cognition Annual Conference  
Munich, Germany  
September 5, 2012

**New opportunities for technology enhanced instruction**

Spatial Cognition Annual Conference  
Munich, Germany  
September 5, 2012

**Synergies in Conceptual Change Perspectives**

International Conference of the Learning Sciences  
Sydney, Australia  
July 5, 2012

**Platforms & Pedagogy**

National Science Foundation Principal Investigator meeting  
Washington, D.C.  
June 14, 2012

**Teaching and Assessing Scientific Thinking: Online Inquiry Units with Automated Scoring**

American Educational Research Association (AERA)  
Vancouver, Canada  
April 14, 2012

**Designing Assessments to Track Student Progress in Understanding the Complex Roles of Energy in Photosynthesis**

American Educational Research Association (AERA)  
Annual Meeting, Vancouver, Canada  
April 14, 2012

**Technology-Enhanced Education: Realizing the Promise**

University of Athens  
Greece  
February 24, 2012

**Designing Embedded Assessments to Strengthen Science Teaching and Learning**

European Science and Technology in Action Building Links with Industry, School and Home  
Cyprus  
February 21, 2012

**WISE Science: Global collaboration opportunities**

Cyprus University of Technology  
Cyprus  
February 22, 2012

**WISE Science: Knowledge Integration, Teaching, and Learning**

Pedagogical Institute, University of Cyprus  
Cyprus  
February 23, 2012

**Developing Integrated Understanding of Global Climate Using Dynamic Visualizations**

AAAS Annual Meeting Symposium  
Vancouver, Canada  
February 16-19, 2012

**Computational Thinking and Computer Science Education**

Computation and Education [CE-21] Meeting  
National Science Foundation  
Washington, D.C.  
February 3, 2012

**Designing Embedded Assessments to Strengthen Science Teaching and Learning**

Stanford University  
Stanford, CA  
January 20, 2012

**Technology-Enhanced Education: Realizing the Promise**

Keynote, International Conference on Technology Enhanced Education  
Amrita University, Amritapuri, Kerala, India  
January 3, 2012

**2011 PRESENTATIONS**

**Adaptive Educational Technologies Project Institutional Responses and Innovation Panel**

Institutional Responses and Innovation Panel  
University of California Berkeley  
December 1, 2011

**Realizing the Promise of Cyberlearning for Science Education**

Keynote Tokyo University Conference  
Tokyo, Japan  
November 15, 2011

**Technology-Enhanced Inquiry Teaching and Learning in Science**

Kaput Center Interdisciplinary Colloquium Series  
University of Massachusetts, Dartmouth  
November 10, 2011

**Can Embedded Assessments Strengthen Science Learning**

University of Virginia Colloquium  
Charlottesville, VA  
October 6, 2011

**Technology-Enhanced Assessment Opportunities**

*Keynote* Google Faculty Institute Conference  
Mountain View, CA  
August 11, 2011

**Agreeing to Disagree: Challenges with Ambiguity in Visual Evidence**

Computer-supported Collaborative Learning  
Hong Kong, China  
July 7, 2011

**Collaboration as Scaffolding: Learning Together with Dynamic, Interactive Scientific Visualizations and Computer Models**

Computer-supported Collaborative Learning  
Hong Kong, China  
July 6, 2011

**Technology and International Education Policy**

Global Policy Forum on Learning  
Hong Kong, China  
July 5, 2011

**Exploring students' conceptions of global climate change: Reasoning about mechanisms and everyday human actions**

Jean Piaget Society  
Berkeley, CA  
June 2, 2011

**Interpreting and using embedded assessment and student logs to improve teaching and learning: A Work in progress**

SRI International  
Menlo Park, CA  
May 19, 2011

**WISE Adaptive Educational Technologies**

National Academy of Education Conference on Adaptive Technology  
Washington DC  
May 12, 2011

**WISE Science: Impacts of Online Inquiry Instruction Around the World**

American Educational Research Association  
New Orleans, LA  
April 11, 2011

**A Comparison of How Two Professional Development Programs Affect Technology-Enhanced Science Teaching and Learning**

American Educational Research Association  
New Orleans, LA  
April 10, 2011

**A Design-based Approach to Fostering Understanding of Global Climate Change (Co-author)**

American Educational Research Association  
New Orleans, LA  
April 10, 2011

**Developing Criteria for Explanations in Science: Scaffolding Peer Critique and Feedback in Technology-Enhanced Instruction (Co-author)**

American Educational Research Association  
New Orleans, LA  
April 10, 2011

**Empowering Students Through Exploration of Everyday Actions and Mechanisms of Global Climate Change (Co-author)**

American Educational Research Association  
New Orleans, LA  
April 9, 2011

**Visualizing Energy Transformation at the Molecular Level: Promoting Middle School Students' Understanding of Energy Photosynthesis (Co-author)**

American Educational Research Association  
New Orleans, LA  
April 9, 2011

**Reaching the Next Level in Computer Science and Engineering Education**

National Academies' Symposium  
Washington, DC  
March 22, 2011

**Cognition and Education: Mathematics, Science, and Technology**

Invited Speaker, Georgia State University  
Atlanta, GA  
February 16, 2011

**2010 PRESENTATIONS**

**Visualizing Global Climate Change for Middle School Students**

Invited Speaker, Hong Kong University  
Hong Kong, China  
December 21, 2010

**Visualizing Science: Using Technology to Promote Knowledge Integration**

*Keynote* Global Chinese Conference on Science Education  
Hong Kong, China  
December 20, 2010

**Advantages of Technology for Science Teaching and Learning**

East China Normal University  
Shanghai, China  
December 13, 2010

**Research on Scientific Visualization**

*Keynote* East China Normal University Conference  
Shanghai, China  
December 12, 2010

**Patterns and Principles to Guide Design of Science Instruction**

Invited Speaker, K12 Meeting  
Herndon, VA  
November 4, 2010

**Visualizing Science: Using Technology to Improve School Science**

Center for Advanced Study in the Behavioral Sciences  
Stanford, CA  
October 13, 2010

**Setting a Research Agenda: Engineering & Design Education**

*Keynote* P-12 Engineering and Design Education Research Summit  
Seaside, OR  
August 13, 2010

**Learning from Chemistry Visualizations: Deceptive Clarity and Desirable Difficulties**

*Keynote* The Royal Australian Chemical Institute & IUPAC International Congress of Pesticide  
Chemistry Conference  
Melbourne, Australia  
July 6, 2010

**Energy across the Curriculum: Cumulative Learning Using Embedded Assessment Results, Symposium  
organized by Vanessa Svihla**

International Conference of the Learning Sciences  
Chicago, IL  
June 2010

**Helping Students Make Controlled Experiments More Informative (Second Author)**

International Conference of the Learning Sciences  
Chicago, IL  
June 2010

**Visualizing Science: Design Issues and Opportunities**

Centre for Research on Computer-supported Learning and Cognition (CoCo) Seminar Series  
University of Sydney, Australia  
May 25, 2010

**Visualizing Science: Deceptive Clarity or Desirable Difficulties**

School of Education Board, Lawrence Hall of Science  
Berkeley, CA  
May 17, 2010

**Promoting Students' Integrated Understanding of Energy in Photosynthesis Using a Technology-  
Enhanced Science Curriculum (Second Author)**

*Keynote* International Conference of the Korean Society for Educational Technology Conference  
Seoul, Korea  
May 9, 2010

**Teaching and Learning Computer Science**

*Keynote* Western Canadian Conference on Computer Science Education  
Kelowna, British Columbia  
May 7, 2010

**What Can Students Learn by Comparing Rather Than Isolating Variables? (Second Author)**

American Educational Research Association  
Denver, CO  
May 4, 2010

**Longitudinal Impact of an Eighth-Grade Inquiry Curriculum on Students' Beliefs and Achievement in  
Science (Second Author)**



American Educational Research Association  
Denver, CO  
May 1, 2010

**Measuring Middle School Students' Knowledge Integration in Science Through Generation Versus Selection Explanation Item Formats (Co-author)**

American Educational Research Association  
Denver, CO  
April 30, 2010

**Investigating Teacher Impact on Student Inquiry Science Learning Using a Hierarchical Linear Model (Co-author)**

National Association of Research in Science Teaching  
Philadelphia, PA  
March 23, 2010

**Representational Reasoning in the Teaching and Learning of Science, Administrative Symposium**

Discussant, National Association of Research in Science Teaching  
Philadelphia, PA  
March 22, 2010

**Technology and Science Teaching**

Invited Speaker, Carnegie Mellon University  
Pittsburgh, PA  
March 19, 2010

**Visualizing Science: Opportunities for Instruction**

Invited Speaker, Carnegie Mellon University  
Pittsburgh, PA  
March 18, 2010

**WISE Teaching and Learning**

Time to Know Conference  
Boston, MA  
March 15, 2010

**A comparison among multiple-choice, constructed-response and explanation multiple-choice items (Co-author)**

National Council on Measurement in Education  
Denver, CO  
March 2010

**Can Virtual Experiments Succeed Where Hands-On Investigations Have Failed?**

American Association for the Advancement of Science  
San Diego, CA  
February 19, 2010

**Transition to Inquiry: Instructional Practice of Inquiry-Based Online Science Curricula in Taiwan (Second Author)**

6<sup>th</sup> International Conference on Science, Mathematics and Technology Education  
Hualien, Taiwan  
January 19-22, 2010

## **2009 PRESENTATIONS**

### **Teaching Science with Technology**

Steinhardt School of Culture, Education, and Human Development (New York University)  
New York, NY  
November 6, 2009

### **Technology Enhanced Learning in Science**

National Science Foundation Education Technology Senate Showcase  
Washington, DC  
November 4, 2009

### **Technology Enhanced Learning in Science (TELS): Impact of Visualizations**

European Science Education Research Association  
Istanbul, Turkey  
September 2009

### **Learning to Teach Computer Programming**

International Computing Educational Research  
Berkeley, CA  
August 15-16, 2009

### **Teaching Science with Technology**

Hong Kong Institute of Education  
Hong Kong  
May 29, 2009

### **Using Visualization for Cumulative Learning in Science**

Hong Kong Institute of Education  
Hong Kong  
May 24, 2009

### **Cumulative Science Learning**

Center for Information Technology in Education (CITE) Seminar  
University of Hong Kong  
May 14, 2009

### **Teaching with Dynamic, Interactive Scientific Visualizations**

*Keynote* Chais Distinguished Lecture Series  
Israel  
May 6, 2009

### **Learning with Dynamic, Interactive Scientific Visualizations**

Chais Distinguished Lecture Series  
Israel  
May 5, 2009

### **Contemporary Trends– Gender and Success in Mathematics, Science, and Technology**

*Keynote* 50<sup>th</sup> Anniversary of the Department of Education in Technology and Science  
Technion, Israel  
May 3, 2009

**Designing effective collaborative inquiry: New technology Frameworks**

Computer Supported Collaborative Learning  
Rhodes, Greece  
May 2009

**Collaboration and Knowledge Integration**

Computer Supported Collaborative Learning  
Rhodes, Greece  
May 2009

**CSCL and Policy: Goals, Evidence, Next Steps**

Computer Supported Collaborative Learning  
Rhodes, Greece  
May 2009

**STEM Education and Gender Similarities**

American Educational Research Association  
San Diego, CA  
April 2009

**Fostering Learning in the Networked World**

American Educational Research Association  
San Diego, CA  
April 2009

**Using Scientific Visualizations in Inquiry Instruction**

Society for Research in Child Development  
Denver, Colorado  
April 3, 2009

**Teaching with Technology: Connecting Student and Teacher Learning**

*Keynote* Technology as an Agent of Change for Teaching and Learning  
American Educational Research Association  
San Diego, CA  
April 2009

**Visualizations for Science Learning: Molecular Workbench, Virtual Worlds, and Handheld Computers**

National Association for Research in Science Teaching  
Orange County, CA  
April 2009

**Critique and Cumulative Learning**

National Association for Research in Science Teaching  
Orange County, CA  
April 2009

**Fostering Learning in the Networked World**

American Educational Research Association  
San Diego, CA  
April 2009

**Virtual Laboratories for Global Climate Change, Recycling, Asthma Epidemics, and Energy Alternatives**

New Media Roundtable  
University of California, Berkeley  
March 2009

**Cyberlearning—a Global Opportunity to Transform Schooling**

Italian Ministry of Education  
Florence, Italy  
March 2009

**Visualizing Earth**

American Association for the Advancement of Science  
Chicago, IL  
February 2009

**IDDEAS and Basketball—Unintended consequences of collaboration**

Festschrift in Honor of Robert A. Bjork  
Los Angeles, CA  
January 10, 2009

**2008 PRESENTATIONS**

**Cyberlearning in the Classroom**

Discovery Research, PI meeting, NSF  
Washington, DC  
November 13, 2008

**STEM Education, Girls, and the Challenges that Follow**

Science, Technology, Engineering, and Math (STEM) Education Caucus  
Washington, DC  
July 16, 2008

**Visualizing Science**

International Conference of the Learning Sciences  
Utrecht, Netherlands  
June 2008

**International Opportunities for Technology-Enhanced Learning**

Center for Information Technology in Education (CITE) 10<sup>th</sup> Anniversary Seminar  
University of Hong Kong  
May 14, 2008

**Technology and Science Learning**

Guangxi Normal University  
Guilin, Guangxi, China  
May 5, 2008

**Using Dynamic Visualizations and Online Guidance to Bring Learning to Life**

*Keynote* Hong Kong IT in Education Symposium 2008, 21st Century Learning @ Hong Kong Conference  
King George V Campus, Hong Kong  
May 3, 2008

**Interactive Visualization and Simulation Tools – Do They Make a Difference?**

*Keynote* Wallenberg Global Learning Network  
Lund University, Sweden  
April 1, 2008

**Examining the Role of Teacher Partnerships in Science Education Research, Professional Development, and Teacher Learning (with Keisha Varma & Freda Husic)**

National Association of Research in Science Teaching (NARST) Annual Meeting  
Baltimore, MD  
March 31, 2008

**Science, Technology and Policy**

*Keynote* National Association of Research in Science Teaching (NARST) Annual Meeting  
Baltimore, MD  
March 31, 2008

**Digital Media and a New Looking Glass for Learning: Theoretical, Methodological, and Empirical Issues for 3D Multi-User Virtual and Serious Game Environments (Discussant)**

American Educational Research Association (AERA) Annual Meeting  
New York, NY  
March 26, 2008

**Understanding and Improving Science Teachers' Knowledge and Practice Through Research-Based Professional Development (Discussant)**

American Educational Research Association (AERA) Annual Meeting  
New York, NY  
March 26, 2008

**Discussion: Reflections on the Three Cases and Thoughts About the Future (with Robert Boruch)**

American Educational Research Association (AERA) Annual Meeting  
New York, NY  
March 25, 2008

**Investigating the Long-Term Impact of Technology-Rich Interventions on Knowledge Integration (with Hee-Sun Lee)**

American Educational Research Association (AERA) Annual Meeting  
New York, NY  
March 25, 2008

**Gender, STEM, and Policy**

*Keynote* Santa Fe Institute, Annual Board Meeting  
Santa Fe, NM  
February 2008

**Justified Choice of Methodology**

NAEd Spencer Postdoctoral Fellows Retreat  
The Keck Center, Washington DC  
January 17, 2008

## 2007 PRESENTATIONS

### **Do Gender Differences in Academic Achievement Really Exist?**

NYU Steinhardt Education Policy Breakfast Series  
New York, NY  
November 30, 2007

### **Cyber-Enabled Learning**

EHR Board Meeting  
Washington, DC  
November 8, 2007

### **Bringing Science to Life with Technology**

*Keynote* The 2nd International Conference on Science Education for the Next Society (ICSSENS)  
Seoul, Korea  
November 3, 2007

### **Panel: Future Science Education in Asia**

The 2nd International Conference on Science Education for the Next Society (ICSSENS)  
Seoul, Korea  
November 3, 2007

### **Learning in Specific Domains**

Kaleidoscope Legacy Workshop  
Santiago de Compostela, Spain  
October 17, 2007

### **Instructional Approaches and Affordances of Representations in Multimedia Learning Environments (Discussant)**

European Association for Research on Learning and Instruction (EARLI) Annual Meeting  
Budapest, Hungary  
August 31, 2007

### **Teaching for Conceptual Change: Distinguish or Extinguish Ideas (with Keisha Varma)**

European Association for Research on Learning and Instruction (EARLI) Annual Meeting  
Budapest, Hungary  
August 30, 2007

### **Visualization and Science Learning (with Hsin-Yi Chang, Helen Zhang, & Jennifer Chiu)**

European Association for Research on Learning and Instruction (EARLI) Annual Meeting  
Budapest, Hungary  
August 29, 2007

### **Technology-Enhanced Inquiry Learning and Teaching**

London Knowledge Lab Seminar, Institute of Education, University of London  
London, England  
July 2, 2007

### **Technology-Enhanced Inquiry Learning and Teaching**

Collaborative Design of Effective Learning Environments Seminar, University of Oslo  
Oslo, Norway  
June 29, 2007

**Technology-Enhanced Inquiry Learning and Teaching**

TELS Retreat  
Mills College, Oakland, CA  
June 5, 2007

**Technology-Enhanced Inquiry Learning and Teaching**

Bellagio Academic Retreat  
Bellagio, Italy  
May 7, 2007

**Advanced research on STEM Learning (with Bill Schmidt, Robert Boruch, & Dennis Bartels)**

EHR Advisory Committee Meeting  
Washington, DC  
May 2, 2007

**Validating Inquiry Science Assessments at the Design, Construct, and Instruction Levels (with Ou Lydia Liu & Hee-Sun Lee)**

American Educational Research Association (AERA) Annual Meeting  
Chicago, IL  
April 11, 2007

**Construct Validity of Inquiry Assessments: Role of Multiple-Choice and Explanation Item Formats (with Ou Lydia Liu & Hee-Sun Lee)**

TELS AERA Meeting  
Chicago, IL  
April 9, 2007

**Technology-Enhanced Inquiry Learning and Teaching**

University of Florida School of Teaching and Learning  
Gainesville, FL  
March 27, 2007

**Can Desirable Difficulties Improve Science Learning?**

American Association for the Advancement of Science (AAAS) Annual Meeting  
San Francisco, CA  
February 17, 2007

**When High Stakes Assessments Mislead: Measuring Impacts of Inquiry Modules**

American Association for the Advancement of Science (AAAS) Annual Meeting  
San Francisco, CA  
February 17, 2007

**Professional Development: What Does Research Say?**

Workshop on Enhancing Professional Development for Teachers: Potential Uses of Information  
Technology, National Academy of Science  
Irvine, CA  
February 8, 2007

**Technology Enhanced Learning in Science (TELS)**

American Association of Physics Teachers (AAPT) Annual Meeting  
Seattle, WA  
January 8, 2007

## **2006 PRESENTATIONS**

### **Technology-Enhanced Learning in Science: Visualization benefits**

University of Technology  
Sydney, Australia  
July 12, 2006

### **Technology, Assessment, & Science Learning**

Australian Science Education Research Association (ASERA) Annual Meeting  
Canberra, Australia  
July 7, 2006

### **Whither Education Research? Science Policy Implications of NSF Research Support (with J. Cherniavsky, J. Earle, H. Narayanan, R. Pea, & J. Bransford)**

7<sup>th</sup> International Conference of the Learning Sciences (ICLS)  
Bloomington, IN  
July 1, 2006

### **Programming, Modeling, and Visualization**

7<sup>th</sup> International Conference of the Learning Sciences (ICLS)  
Bloomington, IN  
June 30, 2006

### **Animation, Narration, and Visualization**

7<sup>th</sup> International Conference of the Learning Sciences (ICLS)  
Bloomington, IN  
June 28, 2006

### **How we learn: Bringing Cognitive Research into the Classroom**

Institute of Education Sciences' 2006 Research Conference  
Washington, DC  
June 15, 2006

### **Technology Enhanced Learning in Science (TELS)**

Coalition for National Science Funding (CNSF) Event and Reception  
Washington, DC  
June 7, 2006

### **Using Technology in School Science**

National Institute of Education  
Singapore  
May 18, 2006

### **Knowledge Integration and Visualization**

National Institute of Education  
Singapore  
May 17, 2006

### **Conversations on America's Lab Report: Investigations in High-School Science**



American Educational Research Association (AERA) Annual Meeting  
San Francisco, CA  
April 11, 2006

**Cyber-Infrastructure and Education Research: A Research Agenda for Cyber-Learning**

American Educational Research Association (AERA) Annual Meeting  
San Francisco, CA  
April 9, 2006

**Design and Validation of inquiry-Based Science Assessments: An Item-Response Modeling Approach  
(with Ou Lydia Liu, Hee-Sun Lee, Carolyn Hofstetter)**

American Educational Research Association (AERA) Annual Meeting  
San Francisco, CA  
April 8, 2006

**The Scientific Foundations of Science Education: A View from the National Science Foundation**

American Educational Research Association (AERA) Annual Meeting  
San Francisco, CA  
April 8, 2006

**Science Teaching and Learning Invited Presentation**

American Educational Research Association (AERA) Annual Meeting  
San Francisco, CA  
April 7, 2006

**TELS Past, Present, Future...**

TELS Advisory Board Meeting  
San Francisco, CA  
April 6, 2006

**How Do Inquiry-Based Curricula with Technology Transform Students, Teachers, and Schools?**

National Association of Research in Science Teaching (NARST) Annual Meeting  
San Francisco, CA  
April 5, 2006

**Knowledge Integration as a Framework for Research Partnerships**

National Association of Research in Science Teaching (NARST) Annual Meeting  
San Francisco, CA  
April 4, 2006

**Teacher's customization of their teaching practices and technology-enhanced projects to support science understanding**

National Association of Research in Science Teaching (NARST) Annual Meeting  
San Francisco, CA  
April 4, 2006

**TELS Knowledge Integration Design Process (with Jeffrey Holmes)**

National Association of Research in Science Teaching (NARST) Annual Meeting  
San Francisco, CA  
April 4, 2006

**Methodologies that Cross Communities**

NSF Centers for Learning and Teaching (CLT) PI Meeting  
Washington, DC  
February 3, 2006

## **2005 PRESENTATIONS**

### **Merging Classroom and Laboratory Research Traditions**

University of Washington  
Seattle, WA  
November 23, 2005

### **Has Technology Failed Science Education?**

Alumni Colloquium, University of California  
Berkeley, CA  
October 1, 2005

### **Developing Expertise—a knowledge integration perspective**

European Association for Research on Learning and Instruction (EARLI)  
Nicosia, Cyprus  
August 25, 2005

### **Technology and Student Learning**

Kaleidoscope Conferences  
Oberhausen, Germany  
July 7, 2005

### **Scientific Models and Science Learning**

University of Essen  
Essen, Germany  
July 5, 2005

### **Technology Enhanced Learning: Students, Teachers, and Designers**

University of Essen  
Essen, Germany  
July 4, 2005

### **Chair: Visualization and Language in Learning Chemistry**

Gordon Conference on Chemistry Education Research and Practice  
New London, CT  
June 29, 2005

### **Desirable Difficulties in Science Learning: Taking What We Learn in the College Classroom into the Middle School Classroom**

CASL PI Meeting  
Washington, DC  
May 17-18, 2005

### **Research at the National Science Foundation: Priorities**

EHR Board Presentation  
Washington, DC  
May 12, 2005

### **Technology Enhanced Learning in Science (TELS)**

Reverse Site Visit  
Washington, DC  
April 28, 2005

**Working Women**

UC Berkeley Chancellor's Inauguration  
Berkeley, CA  
April 16, 2005

**Bringing Cognitive Science into the Classroom**

The American Educational Research Association Annual Meeting  
Montreal, Canada  
April 14, 2005

**Improving Science Learning: Generation and Reflection**

The American Educational Research Association Annual Meeting  
Montreal, Canada  
April 14, 2005

**Technology Enhanced Learning in Science: Nanoscience**

International Conference on Materials Research in Education  
Doha, Qatar  
April 5, 2005

**Collaborative Courses and Distance Learning**

NSF Centers for Learning and Teaching (CLT) PI Meeting  
Washington, DC  
February 17, 2005

**Desirable Difficulties and Science Learning**

The 16<sup>th</sup> Annual Winter Conference on Discourse, Text and Cognition  
Jackson Hole, WY  
January 21, 2005

**2004 PRESENTATIONS**

**National and International Perspectives on Gender Equity**

Righting the Angle, Marymount College of Fordham University  
Tarrytown, NY  
December 3, 2004

**Learning Matters – Why Technology Has Failed Science**

The National Science Teachers Association National Convention  
Indianapolis, IN  
November 5, 2004

**WISE Research-to-Practice**

The U.S. Department of Education Research-to-Practice Summit  
Washington, DC  
July 19, 2004

**Can Technology-Enhanced Science Improve Learning?**

Colloquium, King's College  
London, England  
July 1, 2004

**Defining the Science in the Learning Process**

The Sixth International Conference of the Learning Sciences  
Los Angeles, CA  
June 26, 2004

**High School Science Laboratories & Modern Technology**

The NAS Board on Science Education High School Labs Study Committee, Meeting 2  
Washington, DC  
June 4, 2004

**Research in Science Education**

Visit of Russ Whitehurst, UC Berkeley School of Education  
Berkeley, CA  
May 26, 2004

**Introducing Desirable Difficulties**

The Center for Accelerated Student Learning PI Meeting  
Washington, DC  
May 17, 2004

**Science Teachers Becoming Adept with Promoting Inquiry and Using Technology**

The American Educational Research Association Annual Meeting  
San Diego, CA  
April 13, 2004

**TELS Strategic Plan, TELS Review**

The American Educational Research Association Annual Meeting  
San Diego, CA  
April 12, 2004

**Long Lived Data Collections (LLDC)**

National Science Board  
Washington, DC  
March 23, 2004

**Broader Impacts: Education and Community Building**

Center for the Analysis of Learning and Memory meeting, UCLA  
Los Angeles, CA  
March 12, 2004

**TELS Research Review**

TELS NSF PI Meeting  
Washington, DC  
February 11, 2004

**WISE Teachers – Teaching for Science Inquiry with Technology**

NSF Center for Learning and Teaching Meeting  
Lisbon, Portugal  
January 5, 2004

## **2003 PRESENTATIONS**

### **Using Technology to Promote Cell Biology Learning: A Web-Based Inquiry Science Environment (WISE)**

The American Society for Cell Biology 43<sup>rd</sup> Annual Meeting  
San Francisco, CA  
December 15, 2003

### **Scientific Controversy as a Teaching Strategy**

The American Society for Cell Biology 43<sup>rd</sup> Annual Meeting  
San Francisco, CA  
December 13, 2003

### **Promise of Technology for Science Learning**

Technology Enhanced Learning in Science (TELS) Inaugural Meeting  
Durham, NC  
December 4, 2003

### **Evidence-Based Planning with WISE**

ROLE National Science Foundation Presentation  
Washington, DC  
October 27, 2003

### **Technology Enhanced Learning in Science**

CITRIS Corporate Sponsor Day  
Santa Cruz, CA  
October 15, 2003

### **Assessing Technology Literacy**

National Academy of Engineering  
Washington, DC  
September 22, 2003

### **Learning Technologies – Pitfalls and Promises**

The American Psychological Association Annual Convention  
Toronto, Canada  
August 10, 2003

### **Redefining Collaboration to Make it Work in Classrooms**

Cognitive Science  
Boston, MA  
August 1, 2003

### **Design Research**

Visualization in Science and Education, Gordon Conference  
Oxford, England  
July 22, 2003

### **Learning Environments for Large Undergraduate Classes**

E-Berkeley Symposium

Berkeley, CA  
May 2, 2003

**UC-WISE—Research on Introductory Computer Science**

CISCO International Conference

Berkeley, CA

May 1, 2003

**Gendered by Design**

The American Educational Research Association Annual Meeting

Chicago, IL

April 22, 2003

**Teaching Complex Scientific Ideas**

The American Educational Research Association Annual Meeting

Chicago, IL

April 21, 2003

**Learning Technologies – Opportunities and Obstacles**

Michigan State University

Lansing, MI

April 3, 2003

**Collaborations in Science**

Japan-US Workshop: Exploring Collaborations

San Francisco, CA

March 18, 2003

**New Roles for Participants in Lab-Based Programming Courses**

Computer Science Education Conference

Reno, NE

February 20, 2003

**2002 PRESENTATIONS**

**Models for Education Research Studies**

Invited Seminar

National Science Foundation

Washington, DC

December 11, 2002

**Establishing a Research Agenda—Cognition and Technology**

Learning Federation

Orlando, FL

December 5, 2002

**Professional Development and Technology**

Modena, Italy

November 25, 2002

**WISE at the London Zoo**

Kings College

London, UK

November 22, 2002

**Assessment for Knowledge Integration**

International Conference of the Learning Sciences  
Seattle, WA  
October 25, 2002

**Contrasting Models for the Customization of Curriculum**

International Conference of the Learning Sciences  
Seattle, WA  
October 24, 2002

**Formal and Informal Learning with Technology**

Kings College  
London, UK  
July 1, 2002

**Curriculum, Instruction, Learning, Design, Rigorous Investigation**

NSF PI Meeting  
Washington, DC  
May 17, 2002

**Curriculum, Scaling, Teaching, Learning, & Community**

NSF PI Meeting  
Washington, DC  
May 16, 2002

**Design Principles for Educational Software**

CILT Design Theme  
AERA 2002  
New Orleans  
April 1-5, 2002

**WISE Teachers and partnerships**

AERA 2002  
New Orleans  
April 1-5, 2002

**Design Principles for Learning Environments**

Computer Supported Collaborative Learning (CSCL)  
Boulder, Colorado  
January 8, 2002

**2001 PRESENTATIONS**

**Research Methods for International Collaboration**

NSF and German Science Foundation Mentored Collaboration  
Freiburg, Germany  
October 11, 2001

**Promoting International Science Education Through Technology**

Keynote Address  
6th International Science Education Research Congress  
Barcelona, Spain  
September 13, 2001

**WISE Science**

Keynote Address, European Science Education Research Association  
Thessaloniki, Greece  
August 23, 2001

**Design Studies—New ways to investigate innovation**

American Education Research Association (AERA)  
Seattle, Washington  
April 10, 2001

**Plant Growth and the Web-based Science Environment**

American Education Research Association (AERA)  
Seattle, Washington  
April 10, 2001

**WISE Professional Development: Researching Adoption of Inquiry and Technology**

American Education Research Association (AERA)  
Seattle, Washington  
April 10, 2001

**WISE Technology Education**

Industrial Advisory Board Meeting  
University of California, Berkeley  
March 14, 2001

**Designing Computer Learning Environments**

Japanese Cognitive Science  
Japan  
February 2001

**Knowing when, where, and how to study classroom learning**

Commemoration of the Contributions of Ann Brown to Children's Learning  
University of California, Berkeley  
January 20, 2001

**2000 PRESENTATIONS****Bridging the digital divide: Can technology make science accessible?**

California Public Affairs Forum  
Stanford University  
Stanford, California  
December 9, 2000

**Future directions for visual modeling**

Center for Innovative Learning Technologies (CILT)  
Washington, D.C.  
October 24, 2000

**Learning environments: Establishing a research base for learning instructional design**

9th Autumn School on Cognition  
Freiburg, Germany  
September 11, 2000



**Technology and gender equality: What works?**

Invited symposium; Keynote speaker  
American Psychological Association Conference  
Washington, D.C.  
August 4, 2000

**Making science learning accessible and effective**

Science Controversies On-Line: Partnerships in Education (SCOPE)  
Seattle, Washington  
July 30, 2000

**Controversy and the epistemology of science**

Kings College  
London, England  
July 10, 2000

**Using learning environments to teach undergraduate and pre-college courses: Issues in design**

International Technology-based Higher Education and Training (ITHET)  
Istanbul Turkey  
July 3-5, 2000

**Building an effective community: The Center for Innovative Learning Technologies**

Facing the Challenges of Complex, Real-World Settings  
Ann Arbor, Michigan  
June 17, 2000

**New technologies: Challenges and opportunities for educational settings**

NKUL Conference at the Norwegian University of Science and Technology  
Trondheim, Norway  
May 12, 2000

**The WISE Professional Developmental Model**

National Association of Research in Science Teaching (NARST)  
New Orleans, Louisiana  
April 29, 2000

**Using computers, teachers, and peers as science learning partners**

National Association of Research in Science Teaching (NARST)  
New Orleans, Louisiana  
April 29, 2000

**The changing culture of assessment: Designing curriculum that connects to students epistemological beliefs**

American Education Research Association (AERA)  
New Orleans, Louisiana  
April 28, 2000

**Great books of the 20th century: Influencing science educators**

National Association of Research in Science Teaching (NARST)  
New Orleans, Louisiana  
April 28, 2000

**Web-based science learning and outdoor inquiry using Palm Computers**

American Education Research Association (AERA)

New Orleans, Louisiana

April 27, 2000

**Enabling technologies for the enhancement of students' construction of meaning**

Discussant

American Education Research Association (AERA)

New Orleans, Louisiana

April 27, 2000

**The Center for Innovative Learning Technologies Synergy Project**

American Education Research Association (AERA)

New Orleans, Louisiana

April 26, 2000

**How could scientific controversy contribute to science education?**

American Education Research Association (AERA)

New Orleans, Louisiana

April 26, 2000

**Science controversy, cognition, and the Internet: Can controversy teach science?**

Education, Cognition, and Communication Technology

Lund, Sweden

March 30, 2000

**Contemporary scientific controversy and the Internet**

American Society for Microbiology (ASM)

Philadelphia, Pennsylvania

March 20, 2000

**Can deformed frogs teach science?**

Tech Ed 2000: Technology in Education International Conference & Exposition

Palm Springs, California

March 8, 2000

**Design Studies: A new approach to educational research**

National Science Foundation

Washington, D.C.

February 28-29, 2000

**Science Instruction: Designed, not decreed**

American Association for the Advancement of Science (AAAS)

Washington, D.C.

February 20, 2000

**Does IT reduce discrimination? Technology and gender**

The IT: Revolution: Women, Work, and Social Change

Mount Holyoke College, Virginia

February 12, 2000

### **Customizing science instruction**

Water Quality Summit  
Ann Arbor, Michigan  
January 15, 2000

## **1999 PRESENTATIONS**

### **Educational issues and workforce needs of the Silicon Valley (Computer Demonstration)**

American Association for the Advancement of Science (AAAS)  
San Jose, California  
December 17, 1999

### **Educational outreach efforts (Panelist Discussant)**

American Association for the Advancement of Science (AAAS)  
San Jose, California  
December 17, 1999

### **Controversy in education: When, where, and how to use the Internet?**

Lawrence Hall of Science, University of California, Berkeley  
Berkeley, California  
December 10, 1999

### **Can computers, teachers, and peers become science learning partners?**

California Science Teachers Association (CSTA) Annual Conference  
Long Beach, California  
October 9, 1999

### **Science education; Knowledge for improving environments for learning: Recent issues in cognition**

European Association for Research on Learning and Instruction (EARLI);  
Gothenburg, Sweden  
August 26, 1999

### **When is small beautiful?; In 2024 will the large metropolitan and campus universities have been replaced by a small number of massive virtual universities?**

European Association for Research on Learning and Instruction (EARLI);  
Gothenburg, Sweden  
August 25, 1999

### **Computer learning environments and science education**

Technical University of Berlin  
Berlin, Germany  
August 19, 1999

### **Current issues in technology and education**

Kings College  
London, England  
August 13, 1999

### **What are the principles underlying the effective use of technology?**

National Science Foundation (NSF) TechEd 99 Workshop  
Arlington, Virginia  
July 21, 1999

**Toward a framework for instruction with technology**

EdMedia National Conference  
Seattle, Washington  
June 24, 1999

**Web-Based Integrated Science Environment (WISE)**

Milken National Educational  
Los Angeles, California  
June 17, 1999

**Technology in the classroom: A research reality check**

Corporation for Public Broadcasting  
San Francisco, California  
June 8, 1999

**Design experiments: An emerging methodology**

National Science Foundation (NSF) Research on Education, Policy, and Practice  
Arlington, Virginia  
June 3, 1999

**Web-based Integrated Science Environment (WISE): Implementations for science policy**

National Science Foundation (NSF) Research on Education, Policy, and Practice  
Arlington, Virginia  
June 3, 1999

**Synergy projects and the Center for Innovative Learning Technologies (CILT)**

National Science Foundation (NSF) Research on Education, Policy, and Practice  
Arlington, Virginia  
June 3, 1999

**Science Controversies On-line: Partnerships in Education (SCOPE): Promise and pitfalls**

American Society for Microbiology (ASM)  
Chicago, Illinois  
June 1, 1999

**Deformed frogs at Roosevelt Middle School: Using the Internet for integrated science learning:**

**Transforming learning through technology**

National Governor's Association Conference  
San Francisco, California  
May 17, 1999

**Synergy project to explore innovative technology**

National Science Foundation Learning and Intelligent Systems  
Georgetown University  
Washington, D.C.  
May 3, 1999

**Education driving the design of new VisMod technologies**

Center for Innovative Learning Technologies (CILT)  
San Jose, California  
May 1, 1999

**Representing scientific strategies visually**

Center for Innovative Learning Technologies (CILT)  
San Jose, California  
May 1, 1999

**A Glimpse of the Future: Visualization and modeling**

Center for Innovative Learning Technologies (CILT)  
San Jose, California  
May 1, 1999

**Controversy, the Internet, and deformed frogs: Making science accessible**

National Academy of Sciences Committee on Women in Science and Engineering  
Washington, D.C.  
April 25, 1999

**Partnering to design innovative Internet curriculum on current scientific controversy**

Symposium presentation; Discussant  
American Education Research Association (AERA)  
Montreal, Quebec  
April 23, 1999

**Symposium presentation: Toward a learning technologies knowledge network; Internet science partnerships: Can rats and deformed frogs help students learn?**

American Education Research Association (AERA)  
Montreal, Quebec  
April 22, 1999

**Designing effective integrated science curriculum: Toward a theoretical framework**

American Education Research Association (AERA)  
Montreal, Quebec  
April 21, 1999

**Professional development in Japanese elementary schools: Case studies and discussion**

Symposium Discussant  
American Education Research Association (AERA)  
Montreal, Quebec  
April 20, 1999

**Helping students use the Internet effectively in science activities: The Knowledge Integration Environment (KIE)**

American Education Research Association (AERA)  
Montreal, Quebec  
April 20, 1999

**Implementing a depth curriculum: Scaffolding Knowledge Integration (SKI)**

American Education Research Association (AERA)  
Montreal, Quebec  
April 19, 1999

**Council for Technology and the Individual (CTI) Roundtable (Discussant)**

San Jose, California  
April 14, 1999

**Designing learning environments: What Works?**

Carnegie Mellon University  
Pittsburgh, Pennsylvania  
April 7, 1999

**Patterns and pedagogy**

Special Interest Group on Computer Science Education (SIGCSE) of the Association for Computing Machinery  
New Orleans, Louisiana  
March 25, 1999

**Computers, teachers, peers—Science learning partners**

National Science Teachers Association  
Boston, Massachusetts  
March 26, 1999

**The designed curriculum: Using cognitive research to create effective technology- enhanced instruction**

International Conference on Computer-Assisted Instruction (ICCAI)  
Taichung, Taiwan  
March 19, 1999

**How can new media improve research and instruction?**

New Media Workshop  
Leopold Franz University  
Innsbruck, Austria  
March 4, 1999

**Can scientists' disagreements about deformed frogs help students understand science?**

American Association for the Advancement of Science (AAAS)  
Anaheim, California  
January 25, 1999

**Lessons from the Computer as Learning Partner (CLP) research program**

National Science Foundation Young Scholars and Career Award  
Washington, D.C.  
January 11, 1999

**1998 PRESENTATIONS**

**Center for Research on Learning and Teaching Centers: Grounding the research in teachers' concerns**

International Conference on the Learning Sciences  
Atlanta, Georgia  
December 19, 1998

**Science instruction: Designed, not decreed**

Council for Scientific Society Presidents  
Washington, D.C.  
December 7, 1998

**Lessons learned from research on science learning**

National Science Foundation (NSF) Workshop on Research  
Washington, D.C.  
November 20, 1998

**The Knowledge Integration Environment (KIE): Implications for science instruction**

Weizmann Institute  
Rehovot, Israel  
September 14, 1998

**Trends and opportunities in educational technology**

Center for Educational Technology (CET) Strategy Seminar  
Rothschild Foundation  
Herzlyia, Israel  
September 7, 1998

**Technology and learning: Promises, pitfalls, and prospects**

American Psychological Association  
San Francisco, California  
August 14, 1998

**Visualization and modeling: Using innovative technologies in science and mathematics education**

National Science Foundation  
Washington, D.C.  
August 7, 1998

**The Education in Math, Science, and Technology (EMST) graduate program: Strengthening graduate education in science and engineering**

National Institute for Science Education (NISE) Conference  
Arlington, Virginia  
June 29-30, 1998

**Pedagogical theory and the Knowledge Integration Environment (KIE)**

Technology Seminar Series  
King's College  
London, England  
June 25, 1998

**Welcome Address (Chair and Discussant)**

American Association for the Advancement of Science (AAAS)  
Distinguished Scientists Lecture Series  
Washington, D.C.  
May 12, 1998

**The Scaffolded Knowledge Integration Instructional (SKI) framework**

National Association of Research in Science Teaching (NARST)  
San Diego, California  
April 19, 1998

**Using assessment to improve learning outcomes: Experiences from the Knowledge Integration Environment (KIE) and Computer as a Learning Partner (CLP)**

American Educational Research Association (AERA)  
San Diego, California  
April 15, 1998

**Using design criteria to inform pedagogical theory: The Knowledge Integration Environment (KIE)**

American Educational Research Association (AERA)

San Diego, California

April 13, 1998

**Ubiquitous cognitive supports for learning**

Center for Innovative Learning Technologies

SRI International, Menlo Park, California

March 21, 1998

**Innovative assessment in the Knowledge Integration Environment (KIE)**

Center for Innovative Learning Technologies

Vanderbilt University

Nashville, Tennessee

February 26, 1998

**Evaluating websites: Does the public demand what the Internet pushes?**

American Association for the Advancement of Science (AAAS)

Philadelphia, Pennsylvania

February 16, 1998

**Kill all the mosquitoes or cure malaria?**

American Association for the Advancement of Science (AAAS)

Philadelphia, Pennsylvania

February 15, 1998

**Evaluating the impact of technology on education: KIE/CLP Projects**

Evaluation in Support of Decisions to Develop and/or Use Programs Emphasizing Learning Technologies, RAND-OERI Conference

Washington, D.C.

January 12, 1998

**Partnerships for preparing lifelong science learners (Keynote Address)**

Gordon Research Conference Innovations in College Chemistry Teaching

Ventura, California

January 4, 1998

**1997 PRESENTATIONS**

**Knowledge Integration Environment (KIE) and higher education**

Association of American Colleges & Universities Science Institute

Burlington, Vermont

June 24, 1997

**Assessing scientific reasoning**

Association of American Colleges & Universities Science Institute

Burlington, Vermont

June 22, 1997

**Knowledge Integration Environment (KIE) and multimedia**

8th Roundtable on Multimedia

Marina del Rey, California

April 2-6, 1997



**Collaboration, communication, and computers: What do we think we know about networks and learning? (Discussant)**

American Education Research Association (AERA)  
Chicago, Illinois  
March 27, 1997

**Designing interactive learning environments for gender equity (Discussant)**

American Education Research Association (AERA)  
Chicago, Illinois  
March 27, 1997

**Scientific arguments as learning artifacts: Designing for learning on the web**

American Education Research Association (AERA)  
Chicago, Illinois  
March 26, 1997

**Technology, media, and instruction**

JP Kids Educational Advisory Board Meeting  
New York City, New York  
March 15-17, 1997

**Gender equity and testing**

FAME (ETS) Conference Panelist  
New Orleans, Louisiana  
March 5-8, 1997

**Scaffolded Knowledge Integration (SKI) and assessment**

National Research Council's Board on Testing and Assessment  
Washington, D.C.  
February 22-23, 1997

**Technology and lifelong learning**

National Center for Supercomputer Applications (NCSA)  
University of Illinois  
Champagne, Illinois  
February 26, 1997

**Gender and science careers**

Women in Math, Science, and Engineering  
University of Illinois  
Champagne, Illinois  
February 28, 1997

**Knowledge Integration Environment (KIE) Design Issues**

Collaborative Learning Technologies  
University of Illinois  
Champagne, Illinois  
February 28, 1997

## 1996 PRESENTATIONS

### **Technology and education: International opportunities for adolescents**

Jacobs Foundation Meeting  
Zurich, Switzerland  
November 1, 1996

### **Lifelong science learning: A longitudinal case study**

Cognitive Science Society  
San Diego, California  
July 13, 1996

### **The Internet as lifelong learning partner**

Educational Media  
Boston, Massachusetts  
June 21, 1996

### **Roundtable discussion on equity and access issues in the American Education Research Association**

American Education Research Association  
New York City, New York  
April 12, 1996

### **Views on affirmative action in the 1990's: What works? Technical perspectives**

American Education Research Association  
New York City, New York  
April 9, 1996

### **Technologies for the 21st century: Seventh roundtable in multimedia**

Council for Technology and the Individual  
Marina del Rey, California  
March 27-29, 1996

### **What constitutes lifelong science learning?**

Stanford University  
Stanford, California  
February 14, 1996

### **What makes science hard?**

Center for Advanced Study in the Behavioral Sciences  
Stanford, California  
February 28, 1996

## 1995 PRESENTATIONS

### **Planning for affirmative action in the 1990s**

American Education Research Association (AERA)  
San Francisco, California  
October 25, 1995

### **Progress and opportunities: Cognitive studies in educational practice**

McDonnell Foundation  
Nashville, Tennessee  
September 28, 1995

**Learning and intelligent system design (Panel Chairperson)**

National Science Foundation (NSF) Workshop  
Washington, DC  
September 19, 1995

**“Turn up the heat the baby has a temperature” or How do students learn thermal concepts?**

American Association of Physics Teachers (AAPT)  
Gonzaga University, Spokane, Washington  
August 9, 1995

**Cognition and technology**

Technical Education Research Centers  
Boston, Massachusetts  
July 26, 1995

**How can we increase the participation of females in mathematics and science**

Lawrence Livermore National Laboratory Women’s Association  
Livermore, California  
July 13, 1995

**Technology and instruction: Lessons learned**

King’s College  
London, England  
June 2, 1995

**Success in mathematics: Who persists and Why do students switch to other fields?**

American Mathematical Society  
Hebrew University, Jerusalem, Israel  
May 24, 1995

**Computer as Learning Partner (CLP): A 10-year retrospective**

Weizmann Institute  
Tel Aviv, Israel  
May 23, 1995

**Science education and technology: Current trends, historical antecedents**

Weizmann Institute  
Tel Aviv, Israel  
May 23, 1995

**Longitudinal research: What leads to lifelong learning?**

Tel Aviv University  
Tel Aviv, Israel  
May 18, 1995

**Computer as Learning Partner (CLP): A retrospective, Part II**

National Association for Research of Science Teaching (NARST)  
San Francisco, California  
April 24, 1995

**Computer as Learning Partner (CLP): A retrospective, Part I**

National Association for Research of Science Teaching (NARST)  
San Francisco, California  
April 23, 1995

**Participation in mathematics courses and careers: Climate, grades, and entrance examination scores**

American Educational Research Association (AERA): Gender and Mathematics Performance

San Francisco, California

April 21, 1995

**1994 PRESENTATIONS**

**Evaluation and instructional technology (Panelist Discussant)**

EduTech: The Roles of Technology in Education

Georgia Tech University

Atlanta, Georgia

December 9, 1994

**Toward a framework for technological innovation (Keynote Address)**

EduTech: The Roles of Technology in Education

Georgia Tech University

Atlanta, California

December 8, 1994

**Influencing educational policy: A personal perspective (Panelist Discussant)**

School of Education Colloquium

University of California

Berkeley, California

October 31, 1994

**Understanding women and mathematics: The next step**

Women and Education, SIG-RWE

St. Paul, Minnesota

October 28, 1994

**How can assessment practices foster problem solving?**

Science Education Future Meeting

Montana State University

Bozeman, Montana

September 23, 1994

**Research on women in mathematics, science and technology**

Teacher Education Equity Project

Minneapolis, Minnesota

August 5-7, 1994

**Instructional technology: Current and future trends**

Beyond the Infrastructure: Building Quality Computing Services

University of California Academic Computing

Berkeley, California

July 25, 1994

**Computer as Learning Partner (CLP): A model for educational reform**

NSF- supported Workshop on Cognitive Science and Science Education

Philadelphia, Pennsylvania

May 5-8, 1994

**Next-generation computing and communications environments for learning and teaching**

Chair; Discussant  
American Educational Research Association (AERA)  
New Orleans, Louisiana  
April 6, 1994

**Separate and unequal: Pros and cons of same-sex educational programs**

American Educational Research Association (AERA)  
New Orleans, Louisiana  
April 6, 1994

**Enhancing thinking skills: Domain general strategies—A dilemma for science education**

National Association for Research in Science Teaching (NARST)  
Anaheim, California  
March 29, 1994

**Distinguished contribution awardee's perspective on career decision-making: Questions and answers**

National Association for Research in Science Teaching (NARST)  
Anaheim, California  
March 28, 1994

**Research and theory in the use of technology in science education**

National Association for Research in Science Teaching (NARST)  
Anaheim, California  
March 27, 1994

**Electronic dialogue and science knowledge integration (Keynote Address)**

Use of Technology: National Association for Research in Science Teaching (NARST)  
Anaheim, California  
March 27, 1994

**Science education reform: What is the role of research?**

National Association for Research in Science Teaching (NARST)  
Anaheim, California  
March 26, 1994

**The role of technology in calculus (Panelist)**

Mathematical Sciences Research Institute  
University of California, Berkeley  
Berkeley, California  
February 25, 1994

**The Computer as Learning Partner (CLP): Science achievement**

Society for Research on Adolescence  
San Diego, California  
February 13, 1994

**PUBLICATIONS**

**IN PRESS**

Gerard, L., Holtmann, M., Riordan, B., & Linn, M. C. Impact of an Adaptive Dialog that Uses Natural Language Processing to Detect Students' Ideas and Guide Knowledge Integration. *Journal of Educational Psychology*.

Gerard, L., & Linn, M. C. (in press). Impacts of Web-based Inquiry Learning Environments Aligned with Knowledge Integration Pedagogy. In I. Kollar & I. Gegenfurtner (Eds.), *New Perspectives on Learning and Instruction Series*. EARLI.

Linn, M.C. & Gerard, L. (in press). Assessing and Guiding Student Science Learning with Pedagogically Informed Natural Language Processing (NLP). X. Zhai and J. Krajcik (Eds.), *Uses of Artificial Intelligence in STEM Education*. Oxford University Press.

## 2024 PUBLICATIONS

Bradford, A., Gerard, L., Li, W., & Linn, M. C. (2024). Comparing Expert and ChatGPT-authored Guidance Prompts. Learning at Scale Work in Progress. In *Proceedings of ACM Learning@Scale conference (L@S'24)*. Atlanta, Georgia: ACM. <https://doi.org/10.1145/3657604.3664669>

Li, W., Liao, Y., Steimel, K., Bradford, A., Gerard, L., & Linn, M. C. (2024). Teacher-informed expansion of an idea detection model for a Knowledge Integration assessment. In *Proceedings of the Eleventh ACM Conference on Learning @ Scale (L@S '24)*. Atlanta, Georgia: ACM. <https://doi.org/10.1145/3657604.3664687>

Wiley, K., Dimitriadis, Y., & Linn, M. (2024). A human-centred learning analytics approach for developing contextually scalable K-12 teacher dashboards. *British Journal of Educational Technology*, 55(3), 845-885. <https://doi.org/10.1111/bjet.13383>

## 2023 PUBLICATIONS

Bradford, A., Gerard, L., Tate, E., Li, R., & Linn, M. C. (2023). Incorporating investigations of environmental racism into middle school science. *Science Education* 107(6), 1628-1654. <https://doi.org/10.1002/sce.21824>

de Jong, T., Lazonder, A. W., Chinn, C. A., Fischer, F., Gobert, J., Hmelo-Silver, C. E., ... Zacharia, Z. C. (2023). Let's talk evidence – The case for combining inquiry-based and direct instruction. *Educational Research Review*, 39, 100536. <https://doi.org/10.1016/j.edurev.2023.100536>

Holtman, M., Gerard, L., Li, W., Linn, M. C., Steimel, K., & Riordan, B. (2023). How Does an Adaptive Dialog Based on Natural Language Processing Impact Students from Distinct Language Backgrounds? In *Proceedings of the International Society of the Learning Sciences (ISLS)*. Montreal, Canada: International Society of the Learning Sciences.

Li, W., Gerard, L., Lim-Breitbart, J., Bradford, A., Riordan, B., Steimel, K. & Linn, M. C. (2023) Explaining Thermodynamics: Impact of an Adaptive Dialog based on a Natural Language Processing Idea Detection Model. In *Proceedings of the International Society of the Learning Sciences*. Montreal, Canada: International Society of the Learning Sciences.

Linn, M. C., Donnelly-Hermosillo, D., & Gerard, L. F. (2023). Synergies between learning technologies and learning sciences: Promoting equitable secondary science education. In N. Lederman, D. Zeidler, & J. Lederman (Eds.), *Handbook of Research on Science Education: Vol. III* (1st ed., pp. 447–498). UK: Routledge Press. Retrieved from <https://www.taylorfrancis.com/chapters/edit/10.4324/9780367855758-19/synergies-learning-technologies-learning-sciences-marcia-linn-dermot-donnelly-hermosillo-libby-gerard>

Linn, M. C., Gerard, L., & Bichler, S. (2023). Impacts of Web-based Inquiry Learning Environments Aligned with Knowledge Integration Pedagogy. Paper presented in the symposium "Designing effective digital learning environments: Reviewing the evidence" at the annual meeting of the European Association for Research on Learning and Instruction (EARLI). Thessaloniki, Greece.

- Matuk, C., & Linn, M. C. (2023). Students' perceptions of the impacts of peer ideas in inquiry learning. *Instructional Science*, 51(1), 65–102. <https://doi.org/10.1007/s11251-022-09607-3>
- Obaid, T., Aghajani, H., & Linn, M. C. (2023). Using optimized clustering to identify students' science learning paths to knowledge integration | STEM Education Review. *STEM Education Review*, 1. <https://doi.org/10.54844/stemer.2023.0354>
- Wiley, K., Dimitriadis, Y., & Linn, M. (2023). A human-centered learning analytics approach for developing contextually scalable K-12 teacher dashboards. *British Journal of Educational Technology*. <https://doi.org/10.1111/bjet.13383>
- Wiley, K., Gerard, L., Bradford, A., & Linn, M. C. (2023). Teaching With Technology: Empowering Teachers and Promoting Equity in Science. In A. M. O'Donnell, J. Reeve, & N. Barnes (Eds.), *Oxford Handbook of Educational Psychology* (p. C52S1-C52S34). Oxford University Press. Retrieved from <https://doi.org/10.1093/oxfordhb/9780199841332.013.52>

## 2022 PUBLICATIONS

- Bichler, S., Bradford, A., Riordan, B., & Linn, M. C. (2022). How do middle school students think about climate change? In C. Chinn, E. Tan, C. Chan, & Y. Kali (Eds.), *Proceedings of the 16th International Conference of the Learning Sciences—ICLS 2022* (pp. 2198–2199). Hiroshima, Japan: International Society of the Learning Sciences.
- Bradford, A., Gerard, L., Lim-Breitbart, J., Miller, J., & Linn, M. C. (2022). Computational Thinking in Middle School Science. In C. Chinn, E. Tan, C. Chan, & Y. Kali (Eds.), *Proceedings of the 16th International Conference of the Learning Sciences—ICLS 2022* (pp. 839–846). Hiroshima, Japan: International Society of the Learning Sciences.
- Condor, A., Pardos, Z., & Linn, M. (2022). Representing Scoring Rubrics as Graphs for Automatic Short Answer Grading. In M. M. Rodrigo, N. Matsuda, A. I. Cristea, & V. Dimitrova (Eds.), *Artificial Intelligence in Education (AIED 2022)* (pp. 354–365). Springer International Publishing. [https://doi.org/10.1007/978-3-031-11644-5\\_29](https://doi.org/10.1007/978-3-031-11644-5_29)
- Gerard, L., Bradford, A., & Linn, M. C. (2022). Supporting Teachers to Customize Curriculum for Self-Directed Learning. *Journal of Science Education and Technology*. <https://doi.org/10.1007/s10956-022-09985-w>
- Gerard, L., & Linn, M. C. (2022). Computer-based guidance to support students' revision of their science explanations. *Computers & Education*, 176, 104351. <https://doi.org/10.1016/j.compedu.2021.104351>
- Gerard, L., Bichler, S., Bradford, A., Linn, M. C., Steimel, K., & Riordan, B. (2022). Designing an Adaptive Dialogue to Promote Science Understanding. In C. Chinn, E. Tan, C. Chan, & Y. Kali (Eds.), *Proceedings of the 16th International Conference of the Learning Sciences—ICLS 2022* (pp. 1653–1656). Hiroshima, Japan: International Society of the Learning Sciences.
- Gerard, L., Bradford, A., DeBarger, A., Wiley, K., & Linn, M. C. (2022). Cultivating Teacher Efficacy for Social Justice in Science. *Science Scope*, 45(5), 40–48.
- Gerard, L., Wiley, K., DeBarger, A. H., Bichler, S., Bradford, A., & Linn, M. C. (2022). Self-directed Science Learning During COVID-19 and Beyond. *Journal of Science Education and Technology*, 31(2), 258–271. <https://doi.org/10.1007/s10956-021-09953-w>
- Helix, M. R., Coté, L. E., Stachl, C. N., Linn, M. C., Stone, E. M., & Baranger, A. M. (2022). Measuring integrated understanding of undergraduate chemistry research experiences: Assessing oral and

written research artifacts. *Chemistry Education Research and Practice*, 23(2), 313–334.  
<https://doi.org/10.1039/D1RP00104C>

Li, W., & Linn, M. C. (2022). Responses of rural Chinese teachers to workshops on culturally relevant constructivist pedagogy. In C. Chinn, E. Tan, C. Chan, & Y. Kali (Eds.), *Proceedings of the 16th International Conference of the Learning Sciences—ICLS 2022* (pp. 1253–1256). Hiroshima, Japan: International Society of the Learning Sciences.

## 2021 PUBLICATIONS

Bichler, S., Gerard, L., Bradford, A., & Linn, M. C. (2021). Designing a Remote Professional Development Course to Support Teacher Customization in Science. *Computers in Human Behavior*.  
<https://doi.org/10.1016/j.chb.2021.106814>

Bichler, S., Gerard, L., Riordan, B., Lim-Breitbart, J., Bradford, A., Billings, K., & Linn, M. (2021, July 14). Using Learning Analytics to Assess Students' Ideas and Generate Reports for Real Time Use and Curriculum Customization [Poster presentation]. *2021 National Science Foundation DRK-12 PI Meeting*. <https://doi.org/10.13140/RG.2.2.12710.24649>

Bichler, S., King-Chen, J., Gerard, L., Riordan, B., Lim-Breitbart, J., Bradford, A., Billings, K., & Linn, M. (2021, July 14). Supporting Teachers in Responsive Instruction to Develop Expertise in Science (STRIDES) [Poster presentation]. *2021 National Science Foundation DRK-12 PI Meeting*.  
<https://doi.org/10.13140/RG.2.2.19421.13285>

Billings, K., Gerard, L., & Linn, M. C. (2021). Improving Teacher Noticing of Students' Science Ideas with a Dashboard. In E. de Vries, Y. Hod, & J. Ahn (Eds.), *Proceedings of the 15th International Conference of the Learning Sciences (ICLS)* (pp. 1027–1028). International Society of the Learning Sciences.

Boda, P. A., Bathia, S., & Linn, M. C. (2021). Longitudinal impact of interactive science activities: Developing, implementing, and validating a graphing integration inventory. *Journal of Research in Science Teaching*, 58(2), 225–248.

Bradford, A., Bichler, S., & Linn, M. C. (2021). Designing a Workshop to Support Teacher Customization of Curricula. In E. de Vries, J. Ahn, & Y. Hod (Eds.), *Proceedings of the 15th International Conference of the Learning Sciences – ICLS 2021* (pp. 100–115). International Society of the Learning Sciences.

Brondfield, S., Blum, A. M., Lee, K., Linn, M. C., & O'Sullivan, P. S. (2021). The Cognitive Load of Inpatient Consults: Development of the Consult Cognitive Load Instrument and Initial Validity Evidence. *Academic Medicine*, 96(12), 1732–1741.  
<https://doi.org/10.1097/ACM.0000000000004178>

Kucirkova, N., Gerard, L., & Linn, M. C. (2021). Designing personalised instruction: A research and design framework. *British Journal of Educational Technology*. <https://doi.org/10.1111/bjet.13119>

Linn, M. C. (2021). Science Learning with Virtual Experiment (Symposium Discussant). In E. de Vries, Y. Hod, & J. Ahn (Eds.), *Proceedings of the 15th International Conference of the Learning Sciences (ICLS)* (pp. 811-818). International Society of the Learning Sciences.

Linn, M. C., McBride, E., Gerard, L., & Kidron, A. (2021, February 9). For The Future of Education—Technology Matters. *In Focus — Magazine of the UNESCO International Bureau of Education*.  
<http://ibe-infocus.org/articles/for-the-future-of-education/>



- Omarchevska, Y., Wörner, S., Pavlou, Y., Papaevripidou, M., Zacharia, Z., Puntambekar, S., ... & Linn, M. C. (2021). Science Learning with Virtual Experiments. In *Proceedings of the 15th International Conference of the Learning Sciences (ICLS)*. International Society of the Learning Sciences.
- Riordan, B., Bichler, S., Bradford, A., King Chen, J., Wiley, K., Gerard, L., & Linn, M. (2020). An empirical investigation of neural methods for content scoring of science explanations. *Proceedings of the Fifteenth Workshop on Innovative Use of NLP for Building Educational Applications* (pp. 135–144). <https://www.aclweb.org/anthology/2020.bea-1.13>
- Wiese, E. S., & Linn, M. C. (2021). "It Must Include Rules": Middle School Students' Computational Thinking with Computer Models in Science. *ACM Transactions on Computer-Human Interaction*, 28(2), 1–41. <https://doi.org/10.1145/3415582>

## 2020 PUBLICATIONS

- Chen, J. K., Bradford, A., & Linn, M. (2020). Examining the Impact of Student Choice in Online Science Investigations. In M. Gresalfi & I. S. Horn (Eds.), *The Interdisciplinarity of the Learning Sciences, 14th International Conference of the Learning Sciences (ICLS) 2020* (Vol. 3, pp. 1705–1708). International Society of the Learning Sciences. <https://repository.isls.org//handle/1/6404>
- Donnelly, D., Gerard, E., & Linn, M. C. (2020). Impact of graph technologies in K-12 science and mathematics education. *Computers & Education*, 146. <https://doi.org/10.1016/j.compedu.2019.103748>
- Gerard, L., Wiley, K., Bradford, A., King Chen, J., Breitbart, J., & Linn, M. C. (2020). Impact of a Teacher Action Planner Capturing Student Ideas on Customization Decisions. In M. Gresalfi & I. S. Horn (Eds.), *The Interdisciplinarity of the Learning Sciences, 14th International Conference of the Learning Sciences (ICLS) 2020* (Vol. 4, pp. 2077–2084). International Society of the Learning Sciences
- McBride, E., Linn, M. C., & Vitale, J. (2020). Interpreting Graphs to Distinguish Factors that Impact Climate Change. In M. Gresalfi & I. S. Horn (Eds.), *The Interdisciplinarity of the Learning Sciences, 14th International Conference of the Learning Sciences (ICLS) 2020* (Vol. 3, pp. 1653–1656). International Society of the Learning Sciences.
- Pea, R., & Linn, M. C. (2020). Personal perspectives on the emergence of the learning sciences: 1970's-2005. *Frontiers in Education*, 5 (130). <https://doi.org/https://www.frontiersin.org/articles/10.3389/feduc.2020.00130/full>
- Riordan, B., Bichler, S., Bradford, A., Chen, J. K., Wiley, K., Gerard, L., & Linn, M. C. (2020). An empirical investigation of neural methods for content scoring of science explanations. In *Proceedings of the Fifteenth Workshop on Innovative Use of NLP for Building Educational Applications* (pp. 135-144). Association for Computational Linguistics. <https://doi.org/10.18653/v1/2020.bea-1.13>
- Riordan, B., Bichler, S., Bradford, A., & Linn, M. C. (2020). Probing Saliency in Short Answer Scoring Models for Science Explanations [Poster presentation]. *New York Academy of Sciences Natural Language, Dialog and Speech Symposium*. <https://par.nsf.gov/biblio/10286230-probing-saliency-short-answer-scoring-models-science-explanations>
- Wiley, K. J., Dimitriadis, Y., Bradford, A., & Linn, M. C. (2020). From theory to action: developing and evaluating learning analytics for learning design. In *Proceedings of the Tenth International Conference on Learning Analytics & Knowledge (LAK '20)* (pp. 569–578). ACM. <https://doi.org/10.1145/3375462.3375540>

## 2019 PUBLICATIONS

- Bichler, S., Richards, S., Hasenbein, L., Linn, M. C., & Fischer, F. (2019). Understanding Climate Change Through Collaborative Versus Individual Inquiry With Constructive or Example-Based Scaffolds. In K. Lund, G. P. Niccolai, E. Lavoué, C. E. Hmelo-Silver, G. Gweon, & M. Baker (Eds.), *International Society for the Learning Sciences, Computer-Supported Collaborative Learning (CSCL) annual meeting* (Vol. 2, pp. 668-671). Lyon, France: International Society of the Learning Sciences.
- Gerard, L. F., Kidron, A., & Linn, M. C. (2019). Guiding collaborative revision of science explanations. *International Journal of Computer Supported Collaborative Learning, 14*, 291-324. doi: <https://link.springer.com/article/10.1007%2Fs11412-019-09298-y>
- Harrison, E., Gerard, L. F., & Linn, M. C. (2019). Supporting meaningful revision of scientific ideas in an online Genetics unit. In K. Lund, G. P. Niccolai, E. Lavoué, C. E. Hmelo-Silver, G. Gweon, & M. Baker (Eds.), *International Society for the Learning Sciences, Computer-Supported Collaborative Learning (CSCL) annual meeting* (Vol. 2, pp. 885-886). Lyon, France: International Society of the Learning Sciences.
- Harrison, E., McBride, B., & Linn, M. C. (2019). Revision Analysis of Students' Position-Time Graphs. In K. Lund, G. P. Niccolai, E. Lavoué, C. E. Hmelo-Silver, G. Gweon, & M. Baker (Eds.), *International Society for the Learning Sciences, Computer-Supported Collaborative Learning (CSCL) annual meeting* (Vol. 2, pp. 927-928). Lyon, France: International Society of the Learning Sciences.
- King Chen, J. Y., & Linn, M. C. (2019). Impact of choice on students' use of an experimentation model for investigating ideas about thermodynamics. In K. Lund, G. P. Niccolai, E. Lavoué, C. E. Hmelo-Silver, G. Gweon, & M. Baker (Eds.), *International Society for the Learning Sciences, Computer-Supported Collaborative Learning (CSCL) annual meeting* (Vol. 2, pp. 708-711). Lyon, France: International Society of the Learning Sciences.
- Lee, H.-S., McNamara, D., Bracey, Z. B., Wilson, C., Osborne, J., Haudek, K. C., Liu, O. L., Pallant, A., Gerard, L., Linn, M. C., & Sherin, B. (2019). Computerized Text Analysis: Assessment and Research Potentials for Promoting Learning. In K. Lund, G. P. Niccolai, E. Lavoué, C. E. Hmelo-Silver, G. Gweon, & M. Baker (Eds.), *A Wide Lens: Combining Embodied, Enactive, Extended, and Embedded Learning in Collaborative Settings* (pp. 743-750). International Society of the Learning Sciences.
- Matuk, C., Ma, W. A., Sharma, G., & Linn, M. C. (2019). The Lifespan and Impact of Students' Ideas Shared During Classroom Science Inquiry. In K. Lund, G. P. Niccolai, E. Lavoué, C. E. Hmelo-Silver, G. Gweon, & M. Baker (Eds.), *A Wide Lens: Combining Embodied, Enactive, Extended, and Embedded Learning in Collaborative Settings, 13th International Conference on Computer Supported Collaborative Learning (CSCL) 2019* (Vol. 1, pp. 49-56). Lyon, France: International Society of the Learning Sciences.
- Matuk, C., Zhang, J., Uk, I., & Linn, M. C. (2019). Qualitative graphing in an authentic inquiry context: How construction and critique help middle school students to reason about cancer. *Journal of Research in Science Teaching, 1*(32). doi:10.1002/tea.21533
- Teasley, S. D., Chan, C., Goldman, S. R., Gomez, K., Kolodner, J. L., Linn, M. C., . . . Rummel, N. (2019). Mid-Career Workshop: Empowering Women in the Learning Sciences. In K. Lund, G. P. Niccolai, E. Lavoué, C. E. Hmelo-Silver, G. Gweon, & M. Baker (Eds.), *International Society for the Learning Sciences, Computer-Supported Collaborative Learning (CSCL) annual meeting* (Vol. 2, pp. 1048-1050). Lyon, France: International Society of the Learning Sciences.

- Vitale, J. M., Applebaum, L., & Linn, M. C. (2019). Coordinating between Graphs and Science Concepts: Density and Buoyancy. *Cognition and Instruction*, 37(1), 38-72. doi: <https://doi.org/10.1080/07370008.2018.1539736>
- Wiley, K. J., Bradford, A., Pardos, Z., & Linn, M. C. (2019). Beyond Autoscoring: Extracting Conceptual Connections from Essays for Classroom Instruction. In C. F. Lynch, A. Merceron, M. Desmarais, & R. Nkambou (Eds.), *Proceedings of the 12th International Conference on Educational Data Mining (EDM 2019)* (pp. 675–678).
- Wiley, K., Bradford, A., & Linn, M. C. (2019). Supporting Collaborative Curriculum Customizations Using the Knowledge Integration Framework. In K. Lund, G. P. Niccolai, E. Lavoué, C. E. Hmelo-Silver, G. Gweon, & M. Baker (Eds.), *International Society for the Learning Sciences, Computer-Supported Collaborative Learning (CSCL) annual meeting* (Vol. 1, pp. 480-487). Lyon, France: International Society of the Learning Sciences.

## 2018 PUBLICATIONS

- Harrison, E., Gerard, E., & Linn, M.C. (2018). Encouraging Revision of Scientific Ideas with Critique in an Online Genetics Unit. In Kay, J. and Luckin, R. (Eds.). (2018). *Rethinking Learning in the Digital Age: Making the Learning Sciences Count, 13th International Conference of the Learning of the Learning Sciences (ICLS) 2018, volume 2*. London, UK: International Society of the Learning Sciences. 816-823.
- Linn, M. C., Eylon, B-S, Kidron, A., Gerard, L. F., Toutkoushian, E. Ryoo, K., Bedell, K. . . Laurillard, D. (2018). Knowledge Integration in the Digital Age: Trajectories, Opportunities and Future Directions. In Kay, J. and Luckin, R. (Eds.). (2018). *Rethinking Learning in the Digital Age: Making the Learning Sciences Count, 13th International Conference of the Learning of the Learning Sciences (ICLS) 2018, volume 2*. London, UK: International Society of the Learning Sciences. 1259-1266.
- Linn, M. C., McElhaney, K. W., Gerard, L. F., Matuk, C. (2018). Inquiry Learning and Opportunities for Technology. *International Handbook of the Learning Sciences*. Frank Fischer, Susan R. Goldman, Cindy E. Hmelo-Silver, and Peter Reimann (Eds.). Routledge/Taylor & Francis, New York. 221-233.
- Matuk, C., & Linn, M. C. (2018). Why and how do middle school students exchange ideas during science inquiry. *International Journal of Computer-Supported Collaborative Learning*, 1-37. doi.org/10.1007/s11412-018-9282-1
- McBride, E. A., Vitale, J., & Linn, M. (2018). Learning Design Through Science vs. Science Through Design. In Kay, J. and Luckin, R. (Eds.). (2018). *Rethinking Learning in the Digital Age: Making the Learning Sciences Count, 13th International Conference of the Learning of the Learning Sciences (ICLS) 2018, volume 1*. London, UK: International Society of the Learning Sciences. 17-24.
- McBride, E. A., Linn, M. C & Vitale, J. M. (2018). Middle School Student Ideas on the Relative Affordances of Physical and Virtual Models. In Kay, J. and Luckin, R. (Eds.). (2018). *Rethinking Learning in the Digital Age: Making the Learning Sciences Count, 13th International Conference of the Learning of the Learning Sciences (ICLS) 2018, volume 3*. London, UK: International Society of the Learning Sciences. 1393-1394.
- Vitale, J. M., & Linn, M. C. (2018). Designing Virtual Laboratories to Foster Knowledge Integration: Buoyancy and Density. In M. E. Auer, A. K. M. Azad, A. Edwards, & T. d. Jong (Eds.), *Cyber-*

*Physical Laboratories in Engineering and Science Education* (pp. 163-189). New York, NY: Springer, Cham, Switzerland.

Svihla, V., Wester, M. J., & Linn, M. C. (2018). Distributed practice in classroom inquiry science learning. *Learning: Research and Practice*, 4(2), 180–202. <https://doi.org/10.1080/23735082.2017.1371321>

## 2017 PUBLICATIONS

Applebaum, L. R., Fricke, K. W., Vitale, J. M., & Linn, M. C. (2017). Learning About Climate Change Through Cooperation. In B. K. Smith, M. Borge, E. Mercier, & K.-Y. Lim (Eds.), *Making a Difference: Prioritizing Equity and Access in CSCL, 12th International Conference on Computer Supported Collaborative Learning (CSCL)* (Vol. 1, pp. 664-667). Philadelphia, PA: International Society of the Learning Sciences.

Applebaum, L. R., Vitale, J. M., Gerard, L. F., & Linn, M. C. (2017). Comparing Design Constraints to Support Learning in Technology-guided Inquiry Projects. *Educational Technology & Society*, 20(4), 179-190.

Fauville, G., Vitale, J., Martinez, M. M., & Linn, M. C. (2017). *When to collaborate during inquiry activities: While predicting or after making individual predictions?* Paper presented at the 12th Conference of the European Science Education Research Association (ESERA), Dublin, Ireland.

Gerard, L. F., Vitale, J., & Linn, M. C. (2017). Argument construction to drive inquiry. Paper presented at the 12th Conference of the European Science Education Research Association (ESERA), Dublin, Ireland.

Linn, M. C. (2017). Educational reforms in the United States: what have we learned? In N. Straus (Ed.), *Insights from Past Initiatives to Promote Science Education in Israel -- Learning from Selected Issues, Project Report* (pp. 15-17). Jerusalem: Israel Academy of Science and Humanities.

Matuk, C., Zhang, J., Linn, M. C. (2017). How Middle School Students Construct and Critique Graphs to Explain Cancer Treatment. In B. K. Smith, M. Borge, E. Mercier, & K.-Y. Lim (Eds.), *Making a Difference: Prioritizing Equity and Access in CSCL, 12th International Conference on Computer Supported Collaborative Learning (CSCL) 2017* (Vol. 1, pp. 375-382). Philadelphia, PA: International Society of the Learning Sciences.

McBride, E. A., Vitale, J. M., Applebaum, L. R. & Linn, M. C. (2017). Examining the Flow of Ideas During Critique Activities in a Design Project. In B. K. Smith, M. Borge, E. Mercier, & K.-Y. Lim (Eds.), *Making a Difference: Prioritizing Equity and Access in CSCL, 12th International Conference on Computer Supported Collaborative Learning (CSCL) 2017* (Vol. 1, pp. 41-48). Philadelphia, PA: International Society of the Learning Sciences.

McBride, E. A., Vitale, J. M., & Linn, M. C. (2017). Student Use of Scaffolded Inquiry Simulations in Middle School Science. *Proceedings of the 10th International Conference on Educational Data Mining (EDM)* X. Hu, T. Barnes, A. Hershkovitz, & L. Paquette. International Educational Data Mining Society. Wuhan, China. 344-345.

Tansomboon, C., Gerard, L. F., Vitale, J. M., & Linn, M. C. (2017). Designing automated guidance to promote productive revision of science explanations. *International Journal of Artificial Intelligence in Education*, 27(4), 729-757. doi:10.1007/s40593-017-0145-0

Wiese, E. S., Rafferty, A.N., & Linn, M.C. (2017) Eliciting Middle School Students' Ideas about Graphs Supports Their Learning from a Computer Model. In Gunzelmann, G., Howes, A., Tenbrink, T., & Davelaar, E. (Eds.), *Proceedings of the 39th Annual Conference of the Cognitive Science Society* (3522-3527). Austin, TX: Cognitive Science Society.

## 2016 PUBLICATIONS

- Donnelly, D. F., Namdar, B., Vitale, J. M., Lai, K., & Linn, M. C. (2016). Enhancing Student Explanations of Evolution: Comparing Elaborating and Competing Theory Prompts. *Journal of Research in Science Teaching*, 53(9), 1341-1363. doi:10.1002/tea.21331
- Gerard, L. F., & Linn, M. C. (2016). Using automated scores of student essays to support teacher guidance in classroom inquiry. *Journal of Science Teacher Education*, 27(1), 111-129. doi:10.1007/s10972-016-9455-6
- Gerard, L. F., Linn, M. C., & Madhok, J. J. (2016). Examining the Impacts of Annotation and Automated Guidance on Essay Revision and Science Learning. In C.-K. Looi, J. Polman, U. Cress, & P. Reimann (Eds.), *International Conference of the Learning Sciences* (Vol. 1, pp. 394-401). Singapore: International Society of the Learning Sciences.
- Gerard, L. F., Matuk, C., & Linn, M.C. (2016). Technology as inquiry teaching partner (Special Issue Editorial). *Journal of Science Teacher Education*, 27(1), 1-9.
- Lai, K., Cabrera, J., Vitale, J. M., Madhok, J., Tinker, R., & Linn, M. C. (2016). Measuring Graph Comprehension, Critique, and Construction in Science. *Journal of Science Education and Technology*, 25(4), 665-681. doi:10.1007/s10956-016-9621-9
- Linn, M. C., Gerard, L. F., Matuk, C., & McElhaney, K. W. (2016). Science Education: From Separation to Integration. *Review of Research in Education*, 40(1), 529-587. doi:http://journals.sagepub.com/doi/full/10.3102/0091732X16680788
- Liu, O. L., Rios, J. A., Heilman, M., Gerard, L. F., & Linn, M. C. (2016). Validation of Automated Scoring of Science Assessments. *Journal of Research in Science Teaching*, 53(2), 215-233. doi:10.1002/tea.21299
- Matuk, C., Cocco, F., Linn, M. C. (2016, June 20-24). A teacher-centered approach to designing a real-time display of classroom activity. In Dillenbourg, P. (discussant), M. Tissenbaum & C. Matuk & (co-organizers). *Real-Time Visualization of Student Activities to Support Classroom Orchestration* (Vol. 2, pp. 1120-1127). Symposium conducted at the International Conference for the Learning Sciences, Singapore [participant].
- Matuk, C., Gerard, L. F., Lim-Breitbart, J. M., & Linn, M. C. (2016). Gathering design requirements for teacher tools: Strategies for empowering teachers through co-design. *Journal of Science Teacher Education*, 27(1), 79-110. doi:10.1007/s10972-016-9459-2
- Matuk, C., McElhaney, K. W., King Chen, J., Lim-Breitbart, J., Kirkpatrick, D., & Linn, M. C. (2016). Iteratively refining a science explanation tool through classroom implementation and stakeholder partnership. *International Journal of Designs for Learning*, 7(2), 93-110.
- McBride, E. A., Vitale, J. M., Applebaum, L., & Linn, M. C. (2016). Use of Interactive Computer Models to Promote Integration of Science Concepts Through the Engineering Design Process. In C.-K. Looi, J. Polman, U. Cress, & P. Reimann (Eds.), *Transforming Learning, Empowering Learners: The International Conference of the Learning Sciences (ICLS) 2016* (Vol. 2, pp. 799-802). National Institute of Education, Nanyang Technological University, Singapore: International Society of the Learning Sciences.
- Petra, S. F., Jaidin, J. H., Perera, J. Q., & Linn, M. (2016). Supporting students to become autonomous learners: the role of web-based learning. *The International Journal of Information and Learning Technology*, 33(4), 263-275. doi:http://dx.doi.org/10.1108/IJILT-05-2016-0017

- Ryoo, K. L., & Linn, M. C. (2016). Designing automated guidance for concept diagrams in inquiry instruction. *Journal of Research in Science Teaching*, 53(7), 1003-1035. doi:10.1002/tea.21321
- Tansomboon, C., Gerard, L. F., Vitale, J. M., & Linn, M. C. (2016). Designing Automated Guidance to Promote Productive Revision of Science Explanations. *International Journal of Artificial Intelligence in Education*, 27(4), 729-757. doi:10.1007/s40593-017-0145-0
- Vitale, J. M., McBride, E. A., & Linn, M. C. (2016). Distinguishing complex ideas about climate change: knowledge integration vs. specific guidance. *International Journal of Science Education*, 38(9), 1548-1569. doi:10.1080/09500693.2016.1198969

## 2015 PUBLICATIONS

- Donnelly, D. F., Vitale, J. M., & Linn, M. C. (2015). Automated Guidance for Thermodynamics Essays: Critiquing Versus Revisiting. *Journal of Science Education and Technology*, 24(6), 861-874. doi:10.1007/s10956-015-9569-1
- Gerard, L. F., Matuk, C., McElhaney, K. W., & Linn, M. C. (2015). Automated, Adaptive Guidance for K-12 Education. *Educational Research Review*, 15, 41-58. doi:http://dx.doi.org/doi:10.1016/j.edurev.2015.04.001
- Gerard, L. F., Ryoo, K., McElhaney, K., Liu, L., Rafferty, A. N., & Linn, M. C. (2015). Automated Guidance for Student Inquiry. *Journal of Educational Psychology*, 108(1), 60-81. doi:10.1037/edu0000052
- Linn, M. C. (2015). Naomi Miyake: Friend, Pioneer, Community Builder. *Cognitive Studies*, 22(4), 529-531.
- Linn, M. C. (2015). A Tribute to Barbara White, Scholar, Mentor, Colleague, and Friend. *Journal of the Learning Sciences*, 24(1), 196-200. doi:10.1080/10508406.2014.997144
- Linn, M. C., & Eylon, B.-S. (2015). *Science and teaching science: using technology to promote knowledge integration*. [Chinese translation of *Science Learning and Instruction: Taking Advantage of Technology to Promote Knowledge Integration* published in 2011 by Routledge]. Shanghai, China: East China Normal University Press.
- Linn, M. C., Eylon, B.-S., & Rafferty, A. N. & Vitale, J. M. (2015). Designing Instruction to Improve Lifelong Inquiry Learning. *Eurasia Journal of Mathematics Science and Technology Education*, 11(2), 217-225. doi: 10.12973/eurasia.2015.1317a
- Linn, M. C., Palmer, E. S., Baranger, A.M., Gerard, L. F., Stone, E. M. (2015). Undergraduate research experiences: Impacts and opportunities. *Science*, 347. doi:10.1126/science.1261757
- Liu, O. L., Ryoo, K., Linn, M. C., Sato, E., & Svihla, V. (2015). Measuring Knowledge Integration Learning of Energy Topics: A two-year longitudinal study. *International Journal of Science Education*, 37(7), 1044-1066. doi: 10.1080/09500693.2015.1016470
- Matuk, C., & Linn, M. C. (2015). Examining the real and perceived impacts of a public idea repository on literacy and science inquiry. In O. Lindwall, P. Hakkinen, T. Koschmann, P. Tchounikine & S. Ludvigsen (Eds.), *Exploring the Material Conditions of Learning: The Computer Supported Collaborative Learning (CSCL) Conference* (Vol. 1, pp. 150-157). Gothenburg, Sweden: International Society of the Learning Sciences.
- Matuk, C., Linn, M. C., Gerard, L. (2015). Supporting the WISE design process: Authoring tools that enable insights into technology-enhanced learning. In R. Sottolare, A. Graesser, X. Hu & H. Holden (Eds.), *Design Recommendations for Adaptive Intelligent Tutoring Systems: Authoring Tools* (Volume 3). Orlando, FL: U.S. Army Research Laboratory.

- Matuk, C., Linn, M. C., & Eylon, B.-S. (2015). Technology to support teachers to using evidence from student work to customize technology-enhanced inquiry units. *Instructional Science*, *43*(2), 229-257. doi: 10.1007/s11251-014-9338-1
- Ryoo, K. L., & Linn, M. C. (2015). Designing and Validating Assessments of Complex Thinking in Science. *Theory into Practice*, *54*(3). doi: 10.1080/00405841.2015.1044374
- Schwendimann, B. A., & Linn, M. C. (2015). Comparing two forms of concept map critique activities to facilitate knowledge integration processes in evolution education. *Journal of Research in Science Teaching*, *53*(1), 70-94. doi:10.1002/tea.21244
- Svihla, V., Wester, M. J., & Linn, M. C. (2015). Distributed Revisiting: An Analytic for Retention of Coherent Science Learning. *Journal of Learning Analytics*, *2*(2), 75-101. <https://doi.org/10.18608/jla.2015.22.7>
- Visintainer, T., & Linn, M. C. (2015). Sixth-Grade Students' Progress in Understanding the Mechanisms of Global Climate Change. *Journal of Science Education and Technology*, *24*(2-3). doi: 10.1007/s10956-014-9538-0
- Vitale, J. M., Lai, K., & Linn, M. C. (2015). Taking advantage of automated assessment of student-constructed graphs in science. *Journal of Research in Science Teaching*. doi: 10.1002/tea.21241

## 2014 PUBLICATIONS

- Chiu, J. L., & Linn, M. C. (2014). Supporting Knowledge Integration in Chemistry with a Visualization-Enhanced Inquiry Unit. *Journal of Science Education and Technology*, *23*(1), 37-58 doi: 10.1007/s10956-013-9449-5
- Donnelly, D. F., Linn, M. C., & Ludvigsen, S. (2014). Impacts and Characteristics of Computer-Based Science Inquiry Learning Environments for Precollege Students. *Review of Educational Research*, *20*(10), 1-37. doi: 10.3102/0034654314546954
- Linn, M. C., Gerard, L. F., Ryoo, K., McElhaney, K., & Rafferty, A. N. (2014). Computer-guided inquiry to Improve Science Learning. *Science*, *344*, 155-156. doi: 10.1126/science.1245980
- Liu, L. O., Brew, C., Blackmore, J., Gerard, L. F., Madhok, J. J., & Linn, M. C. (2014). Automated Scoring of Constructed-Response Science Items: Prospects and Obstacles. *Educational Measurement: Issues and Practice*, *33*(2), 19-28. doi:10.1111/emip.12028
- Matuk, C., & Linn, M. C. (2014). Exploring a digital tool for exchanging ideas during science inquiry. In J. L. Polman, E. A. Kyza, D. K. O'Neill, I. Tabak, W. R. Penuel, A. S. Jurow, K. O'Connor, T. Lee & L. D'Amico (Eds.), *Learning and becoming in practice: The International Conference of the Learning Sciences (ICLS) 2014, Volume 2* (Vol. 2, pp. 895-902). Boulder, CO: International Society of the Learning Sciences.
- McElhaney, K. W., Chang, H.-Y., Chiu, J. L., & Linn, M. C. (2014). Evidence for effective uses of dynamic visualisations in science curriculum materials. *Studies in Science Education*, *51*(1), 49-85. doi: 10.1080/03057267.2014.984506
- Miller, D. I., Eagly, A. H., Linn, M. C. (2014). Women's Representation in Science Predicts National Gender-Science Stereotypes: Evidence From 66 Nations. *Journal of Educational Psychology*, *107*(3), 631-644. doi: <http://dx.doi.org/10.1037/edu0000005>
- Rafferty, A. N., Gerard, L. F., McElhaney, K. W., & Linn, M. C. (2014). Promoting Student Learning through Automated Formative Guidance on Chemistry Drawings. In J. L. Polman, E. A. Kyza, D. K. O'Neill, I. Tabak, W. R. Penuel, A. S. Jurow, K. O'Connor, T. Lee & L. D'Amico (Eds.), *Learning and*

*becoming in practice: The International Conference of the Learning Sciences (ICLS) 2014, Volume 1* (Vol. 1, pp. 385-393). Boulder, CO: International Society of the Learning Sciences.

- Ryoo, K. L., & Linn, M. C. (2014). Designing guidance for interpreting dynamic visualizations: Generating versus reading explanations. *Journal of Research in Science Teaching, 51*(2), 147-174. doi: 10.1002/tea.21128
- Ryoo, K. L., & Linn, M.C. (2014). Comparison of Specific and Knowledge Integration Automated Guidance for Concept Diagrams in Inquiry Instruction. Polman, J. L., Kyza, E. A., O'Neill, D. K., Tabak, I., Penuel, W. R., Jurow, A. S., O'Connor, K., Lee, T., & D'Amico, L. (Eds.), *Learning and becoming in practice, proceedings of the 11th International Conference of the Learning Sciences* (Vol. 3, pp. 1585-1586). Boulder, CO: International Society of the Learning Sciences.
- Sato, E., & Linn, M. C. (2014). Designing Critique to Improve Conceptual Understanding. In J. L. Polman, E. A. Keewyza, D. K. O'Neill, I. Tabak, W. R. Penuel, A. S. Jurow, K. O'Connor, T. Lee & L. D'Amico (Eds.), *Learning and becoming in practice: The International Conference of the Learning Sciences (ICLS) 2014, Volume 1* (Vol. 1, pp. 385-393). Boulder, CO: International Society of the Learning Sciences.
- Vitale, J. M., Lai, K., & Linn, M. C. (2014). Dynamic visualization of motion for student-generated graphs. In J. L. Polman, E. A. Kyza, D. K. O'Neill, I. Tabak, W. R. Penuel, A. S. Jurow, K. O'Connor, T. Lee & L. D'Amico (Eds.), *Learning and becoming in practice: The International Conference of the Learning Sciences (ICLS) 2014, Volume 2* (pp. 769-776). Boulder, CO: International Society of the Learning Sciences. doi: 10.1002/tea.21241
- Voogt, J. M., McKenney, S. E., Kali, Y., Breleux, A., Cover, R., Slotta, J. D., . . . Matuk, C. (2014). Teachers as Designers. In J. L. Polman, E. A. Kyza, D. K. O'Neill, I. Tabak, W. R. Penuel, A. S. Jurow, K. O'Connor, T. Lee & L. D'Amico (Eds.), *Learning and becoming in practice: The International Conference of the Learning Sciences (ICLS) 2014, Volume 1* (Vol. 1, pp. 14-20). Boulder, CO: International Society of the Learning Sciences.

## 2013 PUBLICATIONS

- Chang, H.-Y., & Linn, M. C. (2013). Scaffolding learning from molecular visualizations. *Journal of Research in Science Teaching, 50*(7), 858-886. doi: 10.1002/tea.21089
- De jong, T., Linn, M. C., & Zacharia, Z. C. (2013). Physical and Virtual Laboratories in Science and Engineering Education. *Science, 340*(6130), 305-308
- Gerard, L. F., Liu, O.L., Corliss, S., Varma, K., Spitulnik, M. & Linn, M.C. (2013). Teaching with visualizations: A comparison study. In C. Mouza & N. Lavigne (Eds.) *Emerging Technologies for the Classroom: A Learning Sciences Perspective*. New York: Springer. pp.63-78.
- Matuk, C., McElhaney, K. W., Miller, D. I., King Chen, J. Y., Lim-Breitbart, J. M., Terashima, H., . . . Linn, M. (2013). Reflectively prototyping a tool for exchanging ideas. In N. Rummel, M. Kapur, M. Nathan & S. Puntambekar (Eds.), *To See the World and a Grain of Sand: Learning across Levels of Space, Time, and Scale: CSCL 2013 Conference Proceedings Volume 2 — Short Papers, Panels, Posters, Demos & Community Events* (Vol. 101-104). Madison, WI: International Society of the Learning Sciences.
- Miller, D. I., & Linn, M. C. (2013). *How Does Traditional Science Education Assess Visual and Spatial Thinking?* Paper presented at the American Educational Research Association Annual Meeting 2013, San Francisco, CA.



Rafferty, A. N., Gerard, L. F., McElhaney, K., & Linn, M. C. (2013). Automating Guidance for Students Chemistry Drawings. In *Proceedings of the Workshops at the 16th International Conference on Artificial Intelligence in Education*, vol. 8, E. Walker, C.-K. Looi, Eds., Memphis, TN, 13 Jul 2013 (AIED, 2013), pp. 612–619

Zhang, Z. H., & Linn, M. C. (2013). Learning from Chemical Visualizations: Comparing generation and selection. *International Journal of Science Education*, 35(13), 2174-2197. doi: 10.1080/09500693.2013.792971

## 2012 PUBLICATIONS

Chiu, J. L., King Chen, J. Y., & Linn, M. C. (2012). Overcoming deceptive clarity by encouraging metacognition in the Web-based Inquiry Science Environment. In R. Azevedo & V. Aleven (Eds.), *International Handbook of Metacognition and Learning Technologies* (pp. 517-531). New York: Springer.

Chiu, J. L., & Linn, M. C. (2012). The Role of Self-Monitoring in Learning Chemistry with Dynamic Visualization. In A. Zohar & Y. J. Dori (Eds.), *Metacognition and Science Education: Trends in Current Research* (pp. 133-163). London, UK: Springer-Verlag.

Gerard, L. F., Liu, O. L., Corliss, S., Varma, K., Spitulnik, M., & Linn, M. C. (2012). Professional Development Programs for Teaching with Visualizations. In C. Mouza & N. Lavigne (Eds.), *Emerging Technologies for the Classroom: A Learning Sciences Perspective* (pp. 63-78). New York: Springer.

Gerard, L. F., Zertuche, A., & Linn, M. C. (2012). Learning to Graph: A Comparison Study of Using Probe or Draw Tools in a Web-Based Learning Environment. In J. van Aalst, K. Thompson, M. J. Jacobson & P. Reimann (Eds.), *The Future of Learning: Proceedings of the 10th International Conference of the Learning Sciences* (Vol. 2, Short Papers, Symposia, and Abstracts, pp. 569-570). Sydney, NSW, Australia: International Society of the Learning Sciences.

Linn, M. C. (2012). Insights for Teaching and Learning Science. In C. Dede & J. Richards (Eds.), *Digital Teaching Platforms: Customizing Classroom Learning for Each Student* (pp. 55-70). New York: Teachers College Press.

Linn, M. C., Gerard, L.F., Sato, M.E. (2012). Open-Source Online Science Inquiry Materials: Building a Community. *Revista Contrapontos*, 12(1), 7-26. 10.14210/contrapontos.v12n1.p7-26

Matuk, C., McElhaney, K. W., King Chen, J., Miller, D., Lim-Breitbart, J., & Linn, M. C. (2012). The Idea Manager: A tool to scaffold students in documenting, sorting, and distinguishing ideas during science inquiry. In *The Future of Learning: Proceedings of the 10th international conference for the learning sciences*. Sydney, Australia: International Society of the Learning Sciences.

McElhaney, K. W. & Linn, M.C. (2012). Orchestrating Inquiry Instruction Using the Knowledge Integration Framework. In K. Littleton, E. Scanlon, & M. Sharples (Eds.), *Orchestrating Inquiry Learning* (pp. 48-68). New York: Routledge.

McElhaney, K. W., Matuk, C., Miller, D. I., & Linn, M. C. (2012). Using the Idea Manager to Promote Coherent Understanding of Inquiry Investigations. In J. van Aalst, K. Thompson, M. J. Jacobson & P. Reimann (Eds.), *The Future of Learning: Proceedings of the 10th International Conference of the Learning Sciences* (Vol. 1, Full papers, pp. 323-330). Sydney, NSW, Australia: International Society of the Learning Sciences.

- Ryoo, K. L., Linn, M. C. (2012). Can dynamic visualizations improve middle school students' understanding of energy in photosynthesis? *Journal of Research in Science Teaching*, 49(2), 218-243. doi: 10.1002/tea.21003
- Svihla, V., Linn, M. C. (2012). A Design-based approach to fostering understanding of global climate change. *International Journal of Science Education*, 34(5), 651-676. doi:10.1080/09500693.2011.597453
- Svihla, V., & Linn, M. C. (2012). Distributing Practice: Challenges and Opportunities for Inquiry Learning. In J. van Aalst, K. Thompson, M. J. Jacobson & P. Reimann (Eds.), *The Future of Learning: Proceedings of the 10th International Conference of the Learning Sciences* (Vol. 1, Full papers, pp. 323-330). Sydney, NSW, Australia: International Society of the Learning Sciences.
- Varma, K., & Linn, M. C. (2012). "Using Interactive Technology to Support Students' Understanding of the Greenhouse Effect and Global Warming." *Journal of Science Education and Technology*. 27(4) DOI: 10.1007/s10956-011-9337-9
- Zertuche, A., Gerard, L. F., Linn, M. C. (2012). "How do Openers Contribute to Student Learning?" *International Electronic Journal of Elementary Education*, 5(1), 79-92. Available at [http://www.iejee.com/5\\_1\\_2012/IEJEE\\_5\\_1\\_79\\_92.pdf](http://www.iejee.com/5_1_2012/IEJEE_5_1_79_92.pdf)

## 2011 PUBLICATIONS

- Chiu, J. & Linn, M. C. (2011). Knowledge Integration and WISE Engineering. *Journal of Pre-college Engineering Education*, 1(1), 1-14.
- Corliss, S., & Linn, M. C. (2011). Assessing Learning from Inquiry Science Instruction. In G. Schraw & D. H. Robinson (Eds.), *Assessment of Higher Order Thinking Skills* (pp. 219-244). Charlotte, NC: Information Age Publishing, Inc. Available at <https://tinyurl.com/y7wucmrp>
- Gerard, L. F., Varma, K., Corliss, S. C., & Linn, M. C. (2011). Professional Development for Technology-Enhanced Inquiry Science. *Review of Educational Research*, 81(3), 408-448. DOI: 10.3102/0034654311415121
- Lee, H.-S., Liu, O. L., & Linn, M. C. (2011). Validating Measurement of Knowledge Integration in Science Using Multiple-Choice and Explanation Items. *Applied Measurement in Education*, 24(2), 115-136
- Linn, M. C., & Chiu, J. (2011). Combining learning and assessment to improve science education. *Research and Practice in Assessment*, 5(Winter 2011), 5-14
- Linn, M. C., & Eylon, B.-S. (2011). *Science Learning and Instruction: Taking Advantage of Technology to Promote Knowledge Integration*. New York: Routledge
- Liu, O.L., Lee, H.S., & Linn, M.C. (2011). Measuring knowledge integration: Validation of four-year assessments. *Journal of Research in Science Teaching*, 48(9), 1079-1107
- Liu, O. L., Lee, H.S. & Linn, M.C. (2011). A comparison among multiple-choice, constructed- response and explanation multiple-choice items. *Educational Assessment*, 16, 164-184
- McElhaney, K.W. & Linn, M.C. (2011). Investigations of a Complex, Realistic Task: Intentional, Unsystematic, and Exhaustive Experimenters. *Journal of Research in Science Teaching*, 48(7), 745-770.

Shen, J., & Linn, M. C. (2011). A Technology-Enhanced Unit of Modeling Static Electricity: Integrating scientific explanations and everyday observations. *International Journal of Science Education*, 33(12), 1597-1623.

Zhang, Z., & Linn, M. C. (2011). Can Generating Representations Enhance Learning with Dynamic Visualizations? *Journal of Research in Science Teaching*, 48(10), 1177-1198.

## 2010 PUBLICATIONS

Else-Quest, N. M., Hyde, J. S., & Linn, M. C. (2010). Cross-National Patterns of Gender Differences in Mathematics: A Meta-Analysis. *Psychological Bulletin*, 136(1), 103-127.

Gerard, L. F., Bowyer, J. B., & Linn, M. C. (2010). How Does a Community of Principals Develop Leadership for Technology-Enhanced Science? *Journal of School Leadership*, 20(2), 145-183.

Gerard, L.F., Spitulnik, M., & Linn, M.C. (2010). Teacher use of evidence to customize inquiry science instruction, *Journal of Research in Science Teaching*, 47(9), 1037-1063.

Kali, Y., & Linn, M. C. (2010). Curriculum Design as Subject Matter: Science. In E. Baker, B. McGaw & P. Peterson (Eds.), *International Encyclopedia of Education* (3rd ed., Vol. 1, pp. 468-474): Elsevier.

Lee, H.-S., Linn, M. C., Varma, K., & Liu, O. L. (2010). How do technology-enhanced inquiry science units impact classroom learning? *Journal of Research in Science Teaching*, 47(1), 71-90.

Lindberg, S. M., Hyde, J. S., Petersen, J., & Linn, M. C. (2010). New trends in gender and mathematics performance: A meta-analysis. *Psychological Bulletin*, 136(6), 1123-1135.

Linn, M. C. (2010). Designing Standards for Lifelong Science Learning. *Journal of Engineering Education*, 99(2), 103-105.

Linn, M. C. (2010). Trasformare L'Insegnamento Delle Scienze Con La Tecnologia: Uno Studio Di Caso. In N. Bottani, A. M. Poggi, & C. Mandrile (Ed.), *Un Giorno Di Scuola* (pp. 143-173). Bologna, Italy: Società Editrice Il Mulino.

Linn, M. C., Chang, H.-Y., Chiu, J., Zhang, H., & McElhaney, K. (2010). Can desirable difficulties overcome deceptive clarity in scientific visualizations? In A. Benjamin (Ed.), *Successful remembering and successful forgetting: a Festschrift in honor of Robert A. Bjork* (pp. 239-262). New York: Routledge.

Linn, M. C., Slotta, J. D., Terashima, H., Stone, E., & Madhok, J. (2010). "Designing Science Instruction using the Web-based Inquiry Science Environment (WISE)." *Asia-Pacific Forum on Science Learning and Teaching* 11(2), 1-23. Available at: [http://www.ied.edu.hk/apfslt/v11\\_issue2/foreword/index.htm#con](http://www.ied.edu.hk/apfslt/v11_issue2/foreword/index.htm#con).

Liu, O. L., Lee, H.-S., & Linn, M. C. (2010). An Investigation of Teacher Impact on Student Inquiry Science Performance Using a Hierarchical Linear Model. *Journal of Research in Science Teaching*, 47(7), 807-819.

Liu, O. L., Lee, H.-S., & Linn, M. C. (2010). Multifaceted Assessment of Inquiry-Based Science Learning. *Educational Assessment*, 15(2), 69-86.

McElhaney, K., & Linn, M. C. (2010). Helping Students Make Controlled Experiments More Informative. In K. Gomez, L. Lyons & J. Radinsky (Eds.), *Learning in the Disciplines, proceedings of the 9th International Conference of the Learning Sciences* (Vol. 1, pp. 786-793). Chicago, IL: International Society of the Learning Sciences.

- Ryoo, K., & Linn, M.C. (2010). Student progress in understanding energy concepts in photosynthesis using visualizations. In K. Gomez, L. Lyons & J. Radinsky (Eds.), *Learning in the Disciplines, proceedings of the 9th International Conference of the Learning Sciences* (Vol. 2, pp. 480-481). Chicago, IL: International Society of the Learning Sciences.
- Svihla, V., Linn, M. C., Ryoo, K., Gerard, L. F., Liu, O., Lee, H.-S., Visintainer, T., Sato, M., Swanson, H., & Dorsey, C. (2010). Energy Across the Curriculum: Cumulative Learning Using Embedded Assessment Results. In K. Gomez, L. Lyons, & J. Radinsky (Eds.), *Learning in the Disciplines, proceedings of the 9th International Conference of the Learning Sciences* (Vol. 1, pp. 257-259). Chicago, IL: International Society of the Learning Sciences.
- Zhang, Z., & Linn, M. C. (2010). How can selection and drawing support learning from dynamic visualizations? In K. Gomez, L. Lyons & J. Radinsky (Eds.), *Learning in the Disciplines, proceedings of the 9th International Conference of the Learning Sciences* (Vol. 2, pp. 165-166). Chicago, IL: International Society of the Learning Sciences.

## 2009 PUBLICATIONS

- Clark, D., & Linn, M. C. (2009). Designing for Knowledge Integration: The Impact of Instructional Time. [Reprinted from *The Journal of the Learning Sciences*, 12(4), 451-494 (2003)]. *Journal of Education*, 189(1-2), 139-158.
- Gerard, L. F., Tate, E., Chiu, J., Corliss, S. B., & Linn, M. C. (2009). Computer Support for Collaborative Learning. In C. O'Malley, D. Suthers, P. Reimann & A. Dimitracopoulou (Eds.), *Proceedings of the 8th international conference on Computer Supported Collaborative Learning* (Vol. 1, pp. 188-193). Rhodes, Greece: International Society of the Learning Sciences, Inc.
- Kali, Y., & Linn, M. C. (2009). Designing Effective Visualizations for Elementary School Science. *Elementary School Journal*, 109(5), 181-198.
- Lee, H.-S., Linn, M. C., Varma, K., & Liu, O. L. (2009). How do technology-enhanced inquiry science units impact classroom learning? *Journal of Research in Science Teaching*, 47(1), 71-90. doi: 10.1002/tea.20304
- Newcombe, N. S., Ambady, N., Eccles, J., Gomez, L., Klahr, D., Linn, M. C., et al. (2009). Psychology's role in mathematics and science education. *American Psychologist*, 64(6), 538-550.
- Slotta, J. D., & Linn, M. C. (2009) *WISE Science*. New York: Teachers College Press.

## 2008 PUBLICATIONS

- Chiu, J., & Linn, M. C. (2008). Self-Assessment and Self-Explanation for Learning Chemistry Using Dynamic Molecular Visualizations. In *International Perspectives in the Learning Sciences: Creating a Learning World. Proceedings of the 8th International Conference of the Learning Sciences* (Vol. 3, pp. 16-17). Utrecht, The Netherlands: International Society of the Learning Sciences, Inc.
- Gerard, L. F., Bowyer, J. B. & Linn, M. C. (2008) Principal Leadership for Technology-Enhanced Science. *Journal of Science Education and Technology*, 17(1), 1-18.
- Gerard, L. F., Bowyer, J., & Linn, M. C. (2008). Scaling Technology-Enhanced Science Curriculum: Leadership Development in a Community of Principals. In *International Perspectives in the Learning Sciences: Creating a Learning World. Proceedings of the 8th International Conference of the Learning Sciences* (Vol. 3, pp. 35-36). Utrecht, The Netherlands: International Society of the Learning Sciences, Inc.

- Hyde, J. S., Lindberg, S. M., Linn, M. C., Ellis, A. B., & Williams, C. C. (2008). Gender Similarities Characterize Math Performance. *Science*, *321*(5888), 494-495.
- Kali, Y., & Linn, M. C. (2008). Technology-Enhanced Support Strategies for Inquiry Learning. In J. M. Spector, M. D. Merrill, J. J. G. Van Merriënboer, & M. P. Driscoll (Eds.), *Handbook of Research on Educational Communications and Technology* (3<sup>rd</sup> Edition, pp. 145-161). New York: Lawrence Erlbaum Associates.
- Kali, Y., Linn, M. C., & Roseman, J. E. (Eds.) (2008). *Designing Coherent Science Education*. New York: Teachers College Press.
- Kali, Y., Roseman, J. E., Linn, M. C., & Koppal, M. (2008). Preface. In Y. Kali, M. C. Linn, & J. E. Roseman (Eds.), *Designing Coherent Science Education* (pp. xi-xxi). New York: Teachers College Press.
- Linn, M. C. (2008). Teaching for Conceptual Change: Distinguish or Extinguish Ideas. In S. Vosniadou (Ed.), *International Handbook of Research on Conceptual Change* (pp. 694-718). New York: Routledge.
- Linn, M. C., Kali, Y., Davis, E. A., Horwitz, P. (2008). Policies to Promote Coherence. In Y. Kali, M. C. Linn, & J. E. Roseman (Eds.), *Designing Coherent Science Education* (pp. 201-210). New York: Teachers College Press.
- Liu, O. L., Lee, H.-S., Hofstetter, C., & Linn, M. C. (2008). Assessing Knowledge Integration in Science: Construct, Measures and Evidence. *Educational Assessment*, *13*(1), 33-55.  
DOI: 10.1080/10627190801968224
- McElhaney, K. W., & Linn, M. C. (2008). Impacts of students' experimentation using a dynamic visualization on their understanding of motion. In *International Perspectives in the Learning Sciences: Creating a Learning World. Proceedings of the 8th International Conference of the Learning Sciences* (Vol. 2, pp. 51-58). Utrecht, The Netherlands: International Society of the Learning Sciences, Inc.
- Roseman, J. E., Linn, M. C., & Koppal, M. (2008). Characterizing Curriculum Coherence. In Y. Kali, M. C. Linn, & J. E. Roseman (Eds.), *Designing Coherent Science Education* (pp. 13-38). New York: Teachers College Press.
- Varma, K., Husic, F., & Linn, M. (2008). Targeted support for using technology-enhanced science inquiry modules. *Journal of Science Education and Technology*, *17*(4), 341-356.
- Williams, M., Hollowell, G., & Linn, M. C. (2008). Making Mitosis Visible. *Science Scope*, *31*(7), 42-49.
- Zhang, Z., & Linn, M. C. (2008). Using Drawings to Support Learning from Dynamic Visualizations. In *International Perspectives in the Learning Sciences: Creating a Learning World. Proceedings of the 8th International Conference of the Learning Sciences* (Vol. 3, pp. 161-162). Utrecht, The Netherlands: International Society of the Learning Sciences, Inc.

## 2007 PUBLICATIONS

- Linn, M. C. (2007). Can evidence inform the debate? (Review of *Why Aren't More Women in Science?* S. J. Ceci & W. M. Williams, Eds.). *Science*, *317*, 199-200.
- Linn, M. C. (2007). Knowing when, where, and how to study student learning. In J. C. Campione, K. E. Metz, & A. S. Palincsar (Eds.), *Children's learning in the laboratory classroom contexts: Essays in honor of Ann Brown* (pp. 137-162). New York: Lawrence Erlbaum Associates.

- Linn, M. C., & Kessel, C. (2007). Differences or similarities in mathematics? Finding an integrating focus (Review of *Gender Differences in Mathematics*, A. M. Gallagher & J. C. Kaufman, Eds.). *Psychology of Women Quarterly*, 31(3), 323-324.
- Richland, L. E., Linn, M. C., & Bjork, R. A. (2007). Chapter 21: Instruction. In F.T. Durso (Ed.), *Handbook of Applied Cognition, Second Edition* (pp. 555-583). West Sussex, England: John Wiley & Sons, Ltd.
- Varma, K., Husic, F., & Linn, M. (2007). Applying a cognitive theory of learning to teachers' knowledge development. In D.S. McNamara & J. G. Trafton (Eds.), *Proceedings of the 29th Annual Cognitive Science Society* (pg. 201). Austin, TX: Cognitive Science Society.

## 2006 PUBLICATIONS

- Bjork, R. A., & Linn, M. C. (2006). The Science of Learning and the Learning of Science: Introducing Desirable Difficulties. *The APS Observer*, 19(3). Available online at: <http://www.psychologicalscience.org/observer/getArticle.cfm?id=1952>.
- Casperson, J. M., & Linn, M. C. (2006). Using visualizations to teach electrostatics. *American Journal of Physics*, 74(4), 316-323.
- Cherniavsky, J. C., Earle, J., Narayanan, H., Pea, R., Bransford, J., Linn, M. (2006). Whither Education Research? Science Policy Implications of NSF Research Support. In S.A. Barab, K.E. Hay, & D.T. Hickey (Eds.), *Proceedings of the 7<sup>th</sup> International Conference of the Learning Sciences: "Making a Difference"* (pp. 1043-1047). Bloomington, IN: International Society of the Learning Sciences, Inc.
- Hyde, J. S., & Linn, M. C. (2006). Gender similarities in mathematics and science. *Science*, 314(5799), 599-600. doi: 10.1126/science.1132154
- Linn, M. C. (2006). The Knowledge Integration Perspective on Learning and Instruction. In R. K. Sawyer (Ed.), *The Cambridge Handbook of the Learning Sciences* (pp. 243-264). New York: Cambridge University Press.
- Linn, M.C. (2006). Tribute to Giyoo Hatano: Mentor, Friend, Restaurant Expert, and Intellectual Leader. *Cognitive Studies*, 13(2), 157-158.
- Linn, M. C. (2006). Virtual Communities: When Do They Succeed? Review of *Designing for Virtual Communities in the Service of Learning* (S. A. Barab, R. Kling, & J. H. Gray, Eds.). *The American Journal of Psychology*, 119(4), 679-685.
- Linn, M. C. (2006). WISE teachers: Using technology and inquiry for science instruction. In E.A. Ashburn & R.E. Floden (Eds.) *Meaningful Learning Using Technology: What Educators Need to Know* (pp. 45-69). New York: Teachers College Press.
- Linn, M. C., & Eylon, B.-S. (2006). Science Education: Integrating Views of Learning and Instruction. In P. A. Alexander & P. H. Winne (Eds.), *Handbook of Educational Psychology* (2<sup>nd</sup> Ed., pp. 511-544). Mahwah, NJ: Lawrence Erlbaum Associates.
- Linn, M. C., Husic, F., Slotta, J., & Tinker, R. (2006). Technology Enhanced Learning in Science (TELS): Research Programs. *Educational Technology*, 46(3), 54-68.
- Linn, M. C., & Kessel, C. (2006). Assessment and Gender. In J. Worell & C.D. Goodheart (Eds.) *Handbook of Girls' and Women's Psychological Health: Gender and Well-Being Across the Life Span* (pp. 40-50). New York: Oxford University Press.

Linn, M. C., Lee, H.-S., Tinker, R., Husic, F., & Chiu, J.L. (2006). Teaching and Assessing Knowledge Integration in Science. *Science*, 313, 1049-1050.

Linn, M. C. & Slotta, J. D. (2006). Enabling Participants in Online Forums to Learn from Each Other. In A. O'Donnell, C. E. Hmelo-Silver, & G. Erkens (Eds.), *Collaborative Learning, Reasoning, and Technology* (pp. 61-98). Mahwah, NJ: Lawrence Erlbaum Associates.

## 2005 PUBLICATIONS

Linn, M. C. (2005). WISE design for lifelong learning—Pivotal Cases. In P. Gärdenfors and P. Johansson (Eds.), *Cognition, Education, and Communication Technology* (pp. 223-256). Mahwah, NJ: Lawrence Erlbaum Associates.

Richland, L. E., Bjork, R. A., Finley, J.R., Linn, M.C. (2005). Linking Cognitive Science to Education: Generation and Interleaving Effects. In B. G. Bara, L. Barsalou, & M. Bucciarelli (Eds). *Proceedings of the Twenty-Seventh Annual Conference of the Cognitive Science Society* (pp. 1850-1855). Mahwah, NJ: Lawrence Erlbaum Associates.

Tate, E. D. & Linn, M.C. (2005). How Does Identity Shape the Experiences of Women of Color Engineering Students? *Journal of Science Education and Technology*, 14(5/6), 483-493.

## 2004 PUBLICATIONS

Bell, P., Hoadley, C. M., & Linn, M. C. (2004). Design-Based Research in Education. In M.C. Linn, E.A. Davis, & P. Bell (Eds.), *Internet Environments for Science Education* (pp. 73-88). Mahwah, NJ: Lawrence Erlbaum Associates.

Kali, Y., Spitulnik, M., & Linn, M. (2004). Building Community Using the Design Principles Database. In P. Gerjets, P.A. Kirschner, P.A. Allen, J. Elen, & R. Joiner (Eds.), *Instructional Design for effective and enjoyable computer-supported learning. Proceedings of the first joint meeting of the EARLI SIGs Instructional Design and Learning and Instruction with Computers* (pp. 294-305). Tuebingen: Knowledge Media Research Center.

Linn, M. (2004). Using ICT to teach and learn science. In R. Holliman & E. Scanlon (Eds.), *Mediating Science Learning through Information and Communications Technology* (pp. 9-26). New York: Taylor & Francis.

Linn, M. C., Davis, E. A., & Bell, P. Eds. (2004). *Internet Environments for Science Education*. Mahwah, NJ, Lawrence Erlbaum Associates.

Linn, M. C., Bell, P. & Davis, E. A. (2004). Specific Design Principles: Elaborating the Scaffolded Knowledge Integration Framework. In M.C. Linn, E.A. Davis, & P. Bell (Eds.), *Internet Environments for Science Education* (pp.315-340). Mahwah, NJ: Lawrence Erlbaum Associates.

Linn, M. C., Davis, E. A., & Eylon, B.-S. (2004). The Scaffolded Knowledge Integration Framework for Instruction. In M.C. Linn, E.A. Davis, & P. Bell (Eds.), *Internet Environments for Science Education* (pp. 47-72). Mahwah, NJ: Lawrence Erlbaum Associates.

Linn, M. C., Davis, E. A., & Bell, P. (2004). Inquiry and Technology. In M.C. Linn, E.A. Davis, & P. Bell (Eds.), *Internet Environments for Science Education* (pp. 3-28). Mahwah, NJ: Lawrence Erlbaum Associates.

Linn, M. C., Eylon, B.-S., & Davis, E.A. (2004). The Knowledge Integration Perspective on Learning. In M.C. Linn, E.A. Davis, & P. Bell (Eds.), *Internet Environments for Science Education* (pp. 29-46). Mahwah, NJ: Lawrence Erlbaum Associates.

Seethaler, S., & Linn, M.C. (2004). Genetically modified food in perspective: An inquiry-based curriculum to help middle school students make sense of tradeoffs. *International Journal of Science Education*, 26(14), 1765-1785.

Shear, L., Bell, P., & Linn, M. C. (2004). Partnership Models: The Case of the Deformed Frogs. In M.C. Linn, E.A. Davis, & P. Bell (Eds.), *Internet Environments for Science Education*. Mahwah, NJ: Lawrence Erlbaum Associates.

Williams, M., Linn, M., Ammon, P., & Gearhart, M. (2004). Learning to Teach Inquiry Science in a Technology-Based Environment: A Case Study. *Journal of Science Education and Technology*, 13(2), 189-206.

## 2003 PUBLICATIONS

Clancy, M., Titterton, N., Ryan, C., Slotta, J., & Linn, M. (2003). New roles for students, instructors, and computers in a lab-based introductory programming course. *ACM SIGCSE Bulletin*, 35(1), 132 - 136.

Clark, D., & Linn, M. C. (2003). Designing for Knowledge Integration: The Impact of Instructional Time. *The Journal of the Learning Sciences*, 12(4), 451-493.

Lewis, E., & Linn, M. (2003). Heat energy and temperature concepts of adolescents, adults, and experts: implications for curricular improvements. In W. Holliday (Ed.), *Journal of Research in Science Teaching*, 40 (Supplement 2003), S155-S175.

Linn, M. C. (2003). Network Science—The True Story. (Book review of A. Feldman, C. Konold, & B. Coulter (2000). *Network Science, A Decade Later: The Internet and Classroom Learning*. Mahwah, NJ: Lawrence Erlbaum Associates.). *Science Education*, 87(1), 148-151.

Linn, M. C. (2003). Technology and Science Education: starting points, research programs, and trends. *International Journal of Science Education*, 25 (6), 727-758.

Linn, M. C. (2003). WISE Research – Promoting International Collaboration. In D. Psillos, P. Kariotoglou, V. Tselfes, E. Hatzikraniotis, G. Fassoulopoulos, & M. Kallery (Eds.), *Science Education Research in the Knowledge-Based Society* (297-308). Boston: Kluwer Academic Publishers.

Linn, M. C., Clark, D.B. & Slotta, J.D. (2003). WISE Design for Knowledge Integration. In S. Barab (Ed.), *Building Sustainable Science Curriculum: Acknowledge and Accommodating Local Adaptation* [Special Issue] *Science Education*, 87, 517-538.

Linn, M. C., & Kessel, C. (2003). Gender differences in cognition and educational performance. In L. Nadel (Ed.), *The Encyclopedia of Cognitive Science* (Vol. 2, pp. 261-267). New York: Macmillan.

Williams, M., & Linn, M.C. (2003). Collaborating with WISE Scientists. *Science & Children*, 41(1), 31-35.

## 2002 PUBLICATIONS

Bell, P., & Linn, M. C. (2002). Beliefs about science: How does science instruction contribute? B. K. Hofer & P. R. Pintrich (Eds.), *Personal epistemology: The psychology of beliefs about knowledge and knowing*. Mahwah, NJ: Erlbaum.

Cuthbert, A. J., Clark, D. B. & Linn, M. C. (2002). WISE learning communities: Design considerations. K.A. Renninger & W. Shumar (Eds.), *Building Virtual Communities: Learning and Change in Cyberspace* (pp. 215-246). Cambridge, UK, Cambridge University Press.



Kali, Y., Bos, N., Linn, M., Underwood, J., & Hewitt, J. (2002). Design Principles for Educational Software. Proceedings of the Computer Support for Collaborative Learning (CSCL) conference: *Foundations for a CSCL community*, Boulder, Colorado.

Linn, M. C. (2002). Promover la educación científica a través de las tecnologías de la información y comunicación. *Enseñanza de las ciencias*, 20(3), 347-355.

Spitulnik, M., & Linn, M. C. (2002). Technological Tools to Support Inquiry-based Science Learning. In J. Guthrie (Ed.), *Encyclopedia of Education*. New York, Macmillian.

Williams, M. & Linn, M. C. (2002) WISE Inquiry in Fifth Grade Biology. *Research in Science Education*, 32 (4), 415-436.

## 2001 PUBLICATIONS

Linn, M. C. (2001). Can technology help us design science education for a knowledge-based society? Proceedings of the Third International Conference on Science Education Research in the Knowledge Based Society. European Science Education Research Association (ESERA) conference proceedings. Thessaloniki, Greece.

Linn, M. C. (2001). Science education: Preparing lifelong learners. N.J. Smelser & P.B. Baltes (Eds.), *International Encyclopedia of the Social and Behavioral Sciences* (Vol. 3). New York: Pergamon. 13668-13673.

Linn, M. C., & Kessel, C. (2001). Test Bias. In *Encyclopedia of Women and Gender*. 2: 1129-1140.

## 2000 PUBLICATIONS

Bell, P., & Linn, M. C. (2000). Scientific arguments as learning artifacts: Designing for learning from the web with KIE. *International Journal of Science Education* [Special Issue], 22(8), 797-817.

Davis, E., & Linn, M. C. (2000). Scaffolding students' knowledge integration: Prompts for reflection in KIE. *International Journal of Science Education* [Special Issue], 22(8), 819-837.

Hoadley, C. M. & Linn, M. C. (2000). Teaching science through on-line, peer discussions: SpeakEasy in the Knowledge Integration Environment. *International Journal of Science Education* [Special Issue], 22(8), 839-857.

Linn, M. C. (2000). Controversy, the Internet, and deformed frogs: Making science accessible. *Who Will Do the Science of the Future? A Symposium on Careers of Women in Science* (pp. 16-27). Washington, D.C.: National Academy Press. Available: <http://books.nap.edu/books/0309071852/html/index.html>

Linn, M. C. (2000). Designing the Knowledge Integration Environment: The partnership inquiry process. *International Journal of Science Education* [Special Issue], 22(8), 781-796. DOI: 10.1080/095006900412275

Linn, M. C. (2000). How can new media improve university research and instruction? G. Anker, U. Hugi, & S. Laske (Eds.), *Universitätsentwicklung und neue Medien* (pp. 1-26). Deutscher Universitäts-Verlag, Germany: Gabler.

Linn, M. C. (2000). Technology and Educational Opportunity. *Log on or lose out: Technology in twenty-first century teacher education* (pp. 9-12). Washington, D. C.:AACTE.

Linn, M.C. (2000). Using learning environments to teach undergraduate and pre-college courses: Issues in design. *Proceedings of Information Technology-based Higher Education and Training (ITHET) Conference in Istanbul, Turkey, July 3-5, 2000* (pp. 45-50).

- Linn, M. C., Bell, P., Davis, E., Clark, D., Cuthbert, A., Hoadley, C. & Slotta, J. (2000). "The Knowledge Integration Environment." In M.J. Jacobson & R. Kozma (Eds.), *Innovations in Science Education: Advanced Designs for Technologies of Learning* (pg. 193-226). Mahwah, NJ: Lawrence Erlbaum Associates.
- Linn, M. C., & Eylon, B.S. (2000). Knowledge integration and displaced volume. *Journal of Science Education and Technology*, 9, 287-310.
- Linn, M. C., & Hsi, S. (2000). *Computers, Teachers, and Peers: Science Learning Partners*. Mahwah, NJ: Erlbaum.
- Linn, M. C., Lewis, C., Tsuchida, I., & Songer, N. B. (2000). Beyond Fourth-Grade Science: Why do U.S. and Japanese students diverge? *Educational Researcher*, 29(3), 4-14.
- Linn, M.C., & Slotta, J.D. (2000, October) WISE science. *Educational Leadership*, 58(2), 29-32.
- Slotta, J. D., & Linn, M. C. (2000). The Knowledge Integration Environment: Helping students use the Internet effectively. M. J. Jacobson & R. Kozma (Eds.), *Innovations in Science and Mathematics Education*, (pp. 193-226). Mahwah, NJ: Lawrence Erlbaum Associates.

### 1999 PUBLICATIONS

- Clancy, M. J., and Linn, M.C. (1999). Patterns and pedagogy. *SIGCSE Bulletin*, 31(1), 37-42.
- Linn, M. C., Shear, L., Bell, P., & Slotta, J. D. (1999). Organizing principles for science education partnerships: Case studies of students' learning about "rats in space" and "deformed frogs." *Educational Technology Research and Development*, 47(2), 61-85.
- Pea, R.D., Tinker, R., Linn, M.C., Means, B., Bransford, J., Roschelle, J., Hsi, S., Brophy, S., & Songer, N. (1999). Toward a learning technologies knowledge network. *Educational Technology Research and Development* [Special Issue], 47(2), 19-38.
- Snyder, L., Aho, A.V., Linn, M.C., et al. (1999). *Be FIT! Being fluent with information technology*. Washington, D.C.: National Academy Press.

### 1998 PUBLICATIONS

- Linn, M. C. (1998). Affirmative Action in the 1990s: Next steps. *Educational Researcher*, 27(9), 20.
- Linn, M. C. (1998). Equity and knowledge integration. S. Niyogi, *Proceedings of the conference: New Directions in Assessment for Higher Education: Fairness, Access, Multiculturalism, and Equity (FAME)* (Vol. 2, pp. 21-24). Princeton, NJ: Educational Testing Service.
- Linn, M. C. (1998). The impact of technology on science instruction: Historical trends and current opportunities. K. G. Tobin & B. J. Fraser (Eds.), *International Handbook of Science Education* (Vol.1, pp. 265-294). The Netherlands: Kluwer.
- Linn, M. C. (1998). Perspectives from Willystine Goodsell Award Winner on affirmative action in the 1990s. *Educational Researcher*, 27(9), 4-5.
- Linn, M. C. (1998). When good intentions and subtle stereotypes clash: The complexity of selection decisions. *Educational Researcher*, 27(9), 15-17.
- Linn, M. C., Bell, P., & Hsi, S. (1998). Using the Internet to enhance student understanding of science: The Knowledge Integration Environment. *Interactive Learning Environments*, 6(1-2), 4-38.

## 1997 PUBLICATIONS

- Hsi, S., Linn, M.C., & Bell, J.E. (1997). The role of spatial reasoning in engineering and the design of spatial instruction. *Journal of Engineering Education*, 86 (2), 151-158.
- Jasanoff, S., Colwell, R., Dresselhaus, M. S., Golden, W.T., Goldman, R. D., Greenwood, N.R.C., Huang, A.S., Lester, W., Levin, S.A., Linn, M. C., et al. (1997). Conversations with the community: AAAS at the millennium. *Science*, 278, 2066-2067. Available: <http://www.sciencemag.org/cgi/content/full/278/5346/2066>
- Linn, M.C. (1997). Finding patterns in international assessments. *Science*, 277, 1743.
- Linn, M.C. (1997). The role of the laboratory in science learning. *Elementary School Journal*, 97, 401-417.
- Linn, M.C., & Clark, H. (1997). When are science projects learning opportunities? *Research Matters – To the Science Teacher* [On-line], National Association for Research in Science Teaching. Available: <http://www2.educ.sfu.ca/narstsite/publications/research/projects.htm>

## 1996 PUBLICATIONS

- Clancy, M. J., & Linn, M. C. (1996). *Designing Pascal solutions: Case studies with data structures* (1st ed.). New York: W.H. Freeman.
- Hoadley, C. M., Mann, L.M., Linn, M.C., & Clancy, M.J. (1996). When, why and how do novice programmers reuse code? W. Gray & D. Boehm-Davis (Eds.), *Empirical Studies of Programmers, Sixth Workshop* (pp. 109-130). Norwood, NJ: Ablex.
- Kessel, C., & Linn, M. C. (1996). Grades or scores: Predicting college mathematics performance. *Educational Measurement: Issues and Practices*, 15 (4), 10-14.
- Lewis, E. L., & Linn, M. C. (1996). Where is the heat?: A response to David Pushkin. *Journal of Research in Science Teaching*, 33, 335-337.
- Linn, M. C. (1996). Cognition and distance learning. *Journal for the American Society for Information Science*, 47, 826-842.
- Linn, M. C. (1996). Computer and Systems Science. R. F. Tinker (Chair), *Microcomputer-based labs: Educational research and standards*. Symposium conducted at the NATO Advanced Workshop on Microcomputer-Based Labs, Heidelberg, Germany.
- Linn, M. C. (1996). From separation to partnership in science education: Students, laboratories, and the curriculum. R. F. Tinker (Ed.) *Microcomputer Based Labs: Educational Research and Standards* (Vol. 156, pp. 13-46). Berlin: Springer-Verlag.
- Linn, M. C. (1996). Key to the information highway. *Communications of the Association of Computing Machinery*, 39 (4), 34-35.
- Linn, M. C., & Eylon, B.-S. (1996). Lifelong science learning: A longitudinal case study. G. Cottrell, *Proceedings of CogSci96* (pp. 597-600). Mahwah, NJ: Erlbaum.
- Linn, M. C., & Kessel, C. (1996). Success in mathematics: Increasing talent and gender diversity among college majors. J. Kaput, A. Schoenfeld, & E. Dubinsky (Eds.), *Research in Collegiate Mathematics Education* (Vol 2., pp. 101-144). Providence, RI: American Mathematical Society.
- Linn, M. C., & Muilenburg, L. (1996). Creating lifelong science learners: What models form a firm foundation? *Educational Researcher*, 25 (5), 18-24.

Linn, M. C., Resnick, M., Kay, A., Narodick, S., & Carlston, D. (1996). Education – Still the great challenge. M. Greenberger (Ed.), *Technologies for the 21st Century: Scaling Up* (1st ed., Vol.7, pp. 55-81). Santa Monica: Council for Technology and the Individual.

Linn, M. C., Songer, N. B., & Eylon, B. S. (1996). Shifts and convergences in science learning and instruction. R. Calfee & D. Berliner (Eds.), *Handbook of Educational Psychology* (pp. 438-490). Riverside, NJ: Macmillan.

### 1995 PUBLICATIONS

Bell, P., Davis, E. A., & Linn, M. C. (1995). The Knowledge Integration Environment: Theory and design. *Proceedings of the Computer Supported Collaborative Learning Conference (CSCL '95: Bloomington, IN)* (pp. 14-21). Mahwah, NJ: Erlbaum.

Davis, E. A., Linn, M. C., & Clancy, M. J. (1995). Students' off-line and on-line experiences. *Journal of Educational Computing Research*, 12(2), 109-134.

Linn, M. C. (1995). A fair test? Illusion or reality [Review article]. *Assessment in Education*, 2, 345-351.

Linn, M. C. (1995). Designing computer learning environments for engineering and computer science: The Scaffolded Knowledge Integration framework. *Journal of Science Education and Technology*, 4 (2), 103-126.

Linn, M. C. & Clark, H. C. (1995). How can assessment practices foster problem solving? [Monograph]. D. R. Lavoie (Ed.), *Towards a cognitive-science perspective for scientific problem solving* (Vol. 6, pp. 142-180). Manhattan, KS: National Association for Research in Science Teaching.

Linn, M. C., Davis, E.A., Clancy, M. (1995). Learning to use parentheses and quotes in LISP. K. Barker (Ed.), *Computer Science Education*, 6 (1), 15-31. Norwood, NJ: Ablex.

Hsi, S., Hoadley, C. M., & Linn, M. C. (1995). Lessons for the future of electronic collaboration from the Multimedia Forum Kiosk. *Speculations in Science and Technology (Special issue on education)*, 18 (4), 265-277.

### 1994 PUBLICATIONS

Bell, J. E., Linn, M. C., & Clancy, M. J. (1994). Knowledge integration in introductory programming: CodeProbe and interactive case studies. *Interactive learning environments*, 4 (1), 75-95.

Lewis, E. L., & Linn, M. C. (1994). Heat energy and temperature concepts of adolescents, adults, and experts: Implications for curricular improvements. *Journal of Research in Science Teaching*, 31, 657-677.

Linn, M. C. (1994). Distance learning in the information age. *Berkeley Computing and Communications*, 4 (8), 9-11.

Linn, M. C. (1994). Gender and school learning: Science. T. Husén & T. N. Postlethwaite (Eds.), *The International Encyclopedia of Education* (2nd ed., Vol. 8, 2436-2440). New York: Pergamon.

Linn, M. C. (1994). A research base for science education: Historical perspectives. H. Behrendt (Ed.), *Zur Didaktik der Physik und Chemie- Probleme und Perspektiven* (pp. 26-59). Keil, Germany: GDGP.

Linn, M. C. (1994). The tyranny of the mean: Gender and expectations. *Notices of the American Mathematical Society*, 41, 766-769.

- Linn, M. C., diSessa, A., Pea, R. D., & Songer, N. B. (1994). Can research on science learning and instruction inform standards for science education? *Journal of Science Education and Technology*, 3 (1), 7-15.
- Linn, M. C., & Eylon, B. S. (1994). Curriculum and the psychology of learning and instruction. T. Husén & T. N. Postlethwaite (Eds.), *The International Encyclopedia of Education* (2nd ed., Vol. 8, pp. 5338-5342). New York: Pergamon.
- Linn, M. C., & Pea, R. (1994). Discussion of Judah Schwartz's chapter. A. H. Schoenfeld (Ed.), *Mathematical thinking and problem solving*. Hillsdale, NJ: Erlbaum.
- Linn, M. C., & Petersen, A. C. (1994). Emergence and characterization of sex differences in spatial ability: A meta-analysis. [Reprinted from *Child Development*, 56, 1479 (1985).] L. Komatsu (Ed.), *Experimenting with the mind: Readings in cognitive psychology*. Pacific Grove, CA: Brooks/Cole.
- Mann, L. M., Linn, M. C., & Clancy, M. J. (1994). Can tracing tools contribute to programming proficiency? The LISP Evaluation Modeler [Special Issue on Computer Programming Environments]. *Interactive Learning Environments*, 4 (1), 96-113.
- Rusch, J., & Linn, M. C. (1994). The instructional technology program: Models for courseware development. *Berkeley Computing & Communications* (3), 4-6.

## 1993 PUBLICATIONS

- Clancy, M. J., & Linn, M. C. (1993). *La conception d'un programme: Études de cas en Pascal* [Designing Pascal Solutions: Case studies with data structures]. (B. Cupac, Trans.) Paris: Dunod.
- Davis, E. A., Linn, M. C., Mann, L. M., & Clancy, M. J. (1993). Mind your Ps and Qs: Using parentheses and quotes in LISP. C. R. Cook, J. C. Scholtz, & J. C. Spohrer (Eds.), *Empirical Studies of Programmers: Fifth Workshop, Palo Alto, CA* (pp. 62-85). Norwood, NJ: Ablex.
- Lewis, E. L., Stern, J., & Linn, M. C. (1993). The effect of computer simulations on introductory thermodynamics understanding. *Educational Technology*, 33 (1), 45-58.
- Linn, M. C. (1993). Gender, mathematics, and science: Trends and recommendations. *Restructuring learning: 1990 Summer Institute papers and recommendations by the Council of Chief State School Officers* (CCSSO) (pp. 47-67). Washington, D.C.: CCSSO.
- Linn, M. C. (1993). Labs and the development of cognitive skills. E. Shahn (Ed.), *Proceedings of Labs for Liberal Learning: The role of laboratory exercises in general education science courses*. New York: Hunter College.
- Linn, M. C., & Burbules, N. C. (1993). Construction of knowledge and group learning. K. Tobin (Ed.), *The practice of constructivism in science education* (pp. 91-119). Washington, D.C.: American Association for the Advancement of Science.
- Linn, M. C., & Hyde, J. S. (1993). Gender, mathematics, and science (Part 1 of 2) [Reprinted from *Educational Researcher*, 18 (8), 17 (1989)]. *Association for Women in Mathematics Newsletter*, 23 (3), 17-23.
- Linn, M. C., & Hyde, J. S. (1993). Gender, mathematics, and science (Part 2 of 2) [Reprinted from *Educational Researcher*, 18(8), 17 (1989)]. *Association for Women in Mathematics Newsletter*, 23 (4), 14-17.

- Linn, M. C., & Songer, N. B. (1993). Cognitive and conceptual change in adolescence [Reprinted from *American Journal of Education*, 99 (4), 379-417 (1991)]. D. Edwards, E. Scanlon, & D. West (Eds.), *Teaching, learning and assessment in science education* (pp. 139-170). London: Chapman.
- Linn, M. C., & Songer, N. B. (1993). How do students make sense of science? *Merrill-Palmer Quarterly*, 39 (1), 47-73.
- Linn, M. C., Songer, N. B., Lewis, E. L., & Stern, J. (1993). Using technology to teach thermodynamics: Achieving integrated understanding. D. L. Ferguson (Ed.), *Advanced educational technologies for mathematics and science* (Vol. 107, pp. 5-60). Berlin: Springer-Verlag.
- Schank, P. K., Linn, M. C., & Clancy, M. J. (1993). Supporting Pascal programming with an on-line template library and case studies. *International Journal of Man-Machine Studies*, 38, 1031-1048.
- Soloway, E. (1993). Log on education: Should we teach students to program? [With commentary by E. Soloway & M. Guzdial; M. Clancy & M. Linn; A. diSessa; P. Miller; M. Resnick & S. Papert]. *Communications of the Association of Computing Machinery*, 36 (10), 21-24.

## 1992 PUBLICATIONS

- Agogino, A. M., & Linn, M. C. (1992). Retaining female engineering students: Will early design experiences help? [Viewpoint Editorial]. M. Wilson (Ed.), *National Science Foundation Directions*, 5 (2), 8-9.
- Clancy, M. J., & Linn, M. C. (1992). Case studies in the classroom. C. M. White & J. Hartman (Eds.), *Networking for knowledge: SIGCSE Technical Symposium '92* (pp. 220-224). New York: ACM.
- Clancy, M. J., & Linn, M. C. (1992). *Designing Pascal solutions: A case study approach* (1st ed.) [A. V. Aho & J. D. Ullman, Series Eds.]. New York: W. H. Freeman.
- De Corte, E., Linn, M. C., Mandl, H. & Verschaffel, L. (Eds.). (1992). *Computer-based learning environments and problem solving* (NATO ASI Series F: Computer and System Series). Berlin: Springer-Verlag.
- Linn, M. C. (1992). The art of multimedia and the state of education [Book review of Nix, R. & Spiro, R. (Eds.). (1990). *Cognition, education, and multimedia: Exploring ideas in high technology*. Hillsdale, NJ: Lawrence Erlbaum Associates]. *Educational Researcher*, 21 (1), 30-32.
- Linn, M. C. (1992). Barriers to equity [Invited Editorial]. *EDUCOM Review*, 27(4), 8-9.
- Linn, M. C. (1992). The computer as learning partner: Can computer tools teach science? K. Sheingold, L. G. Roberts, & S. M. Malcolm (Eds.), *This year in school science 1991: Technology for teaching and learning* (pp. 31-69). Washington, D.C.: American Association for the Advancement of Science.
- Linn, M. C. (1992). Encouraging knowledge construction. E. De Corte, M. C. Linn, H. Mandl, & L. Verschaffel (Eds.), *Computer-based learning environments and problem solving* (pp. 1-4). Berlin: Springer-Verlag.
- Linn, M. C. (1992). Gender differences in educational achievement. J. Pfleiderer (Ed.), *Sex equity in educational opportunity, achievement, and testing [Proceedings of 1991 Educational Testing Service Invitational Conference]* (pp. 11-50). Princeton, NJ: Educational Testing Service.
- Linn, M. C. (1992). How can hypermedia tools help teach programming? *Learning and Instruction*, 2, 119-139.
- Linn, M. C. (1992). Science education reform: Building on the research base. *Journal of Research in Science Teaching*, 29 (8), 511-551.

- Linn, M. C. (1992). Why are women leaving computing and what can be done? *EDUCOM '92 Conference Proceedings* (100-123). New York: McGraw-Hill.
- Linn, M. C., & Clancy, M. J. (1992). Can experts' explanations help students develop program design skills? *International Journal of Man-Machine Studies*, *36* (4), 511-551.
- Linn, M. C., & Clancy, M. J. (1992) The case for case studies of programming problems, *Communications of the Association of Computing Machinery*, *35* (3), 121-132.
- Linn, M. C., Katz, M., Recker, M. & Clancy, M. J. (1992). How do LISP programmers draw on previous experience to solve novel problems? E. De Corte, M. C. Linn, H. Mandl, & L. Verschaffel (Eds.), *Computer-based learning environments and problem solving* (pp. 67-101). Berlin: Springer-Verlag.
- Songer, N. B., & Linn, M. C. (1992). How do students' views of science influence knowledge integration? [Reprinted from *Journal of Research in Science Teaching*, *28* (9), 761 (1991)]. M. K. Pearsall (Ed.), *Scope, sequence and coordination of secondary school science, Volume II: Relevant research* (pp. 197-219). Washington, D.C.: The National Science Teachers Association.

### 1991 PUBLICATIONS

- Burbules, N. C. & Linn, M. C. (1991). Science education and the philosophy of science: Congruence or contradiction? *International Journal of Science Education*, *13*(3), 227-241.
- Kyle Jr., W. C., Linn, M. C., Bitner, B. L., Mitchener, C. P., & Perry, B. (1991). The role of research in science teaching: An NSTA theme paper. *Science Education*, *75*(4), 413-418.
- Lieberman, D. A., & Linn, M. C. (1991). Learning to learn revisited: Computers and the development of self-directed learning skills [Outstanding Paper Award in the Communication and Technology Division of the International Communications Association, 1989. *Journal of Research on Computing in Education*, *23*, 373-395.
- Linn, M. C. (1991). Adolescent scientific reasoning. R. M. Lerner, A. C. Petersen, & J. Brooks-Gunn (Eds.), *Encyclopedia of Adolescence* (Vol. 2, pp. 981-983). New York: Garland.
- Linn, M. C., & Hyde, J. S. (1991). Trends in cognitive and psychosocial gender differences. R. M. Lerner, A. C. Petersen, & J. Brooks-Gunn (Eds.), *Encyclopedia of Adolescence* (Vol. 1, pp. 139-150). New York: Garland.
- Linn, M. C., & Songer, N. B. (1991). Cognitive and conceptual change in adolescence. *American Journal of Education*, *99*, 379-417.
- Linn, M. C., & Songer N. B. (1991). Teaching thermodynamics to middle school students: What are appropriate cognitive demands? *Journal of Research in Science Teaching*, *28*, 885-918.
- Linn, M. C., Songer, N. B., & Lewis, E. L. (1991). Overview: Students' models and epistemologies of science. *Journal of Research in Science Teaching*, *28*, 729-732.
- Songer, N. B., & Linn, M. C. (1991). How do students' views of science influence knowledge integration? *Journal of Research in Science Teaching*, *28*, 761-784.

### 1990 PUBLICATIONS

- Clancy, M. J., & Linn, M. C. (1990). Functional fun. *SIGCSE Bulletin*, *22* (1), 63-67.
- Friedler, Y., Nachmias, R., & Linn, M. C. (1990). Learning scientific reasoning skills in microcomputer-based laboratories. *Journal of Research in Science Teaching*, *27*(2), 173-191.

- Linn, M. C. (1990). Content, context, and process in reasoning during adolescence [Reprinted from *Journal of Early Adolescence*, 3, 63, (1983)]. R. E. Muuss (Ed.), *Adolescent Behavior and Society* (4th ed., pp. 67-80). New York: McGraw-Hill.
- Linn, M. C. (1990). Establishing a science and engineering base for science education. M. Gardner, J. G. Greeno, F. Reif, A. H. Schoenfeld, A. diSessa & E. Stage (Eds.), *Toward a scientific practice of science education* (pp. 323-341). Hillsdale, NJ: Erlbaum.
- Linn, M. C. (1990). Expert statement on open learning systems. H. Mandl, A. Hron & S. Tergan (Eds.), *Computer-based systems for open learning, PRECISE consortium, Tübingen, Germany* (pp. 228-242). Tübingen, Germany: German Institute of Distance Studies at University of Tübingen, DELTA Programme of European Communities.
- Linn, M. C. (1990). What constitutes scientific thinking? [Book review of Kuhn, et al., *The development of scientific thinking*, San Diego, CA: Academic Press (1988)]. *Contemporary Psychology*, 35(1), 16-17.
- Linn, M. C., & Clancy, M. J. (1990, April). Designing instruction to take advantage of recent advances in understanding cognition. *Academic Computing*, pp. 20-23 & 26-41.
- Linn, M. C., & Eylon, B-S.. (1990). Cognitive consequences of computers in classrooms [Course syllabus]. T. Winograd & B. Friedman (Eds.), *Social implications of computing: A collection of syllabi* (pp. 133-142). Palo Alto, CA: Computer Professionals for Social Responsibility.
- Linn, M. C. & McGrath, O. G. (1990). Using computers for teaching at Berkeley. *Berkeley Computing Quarterly*, 2U (4), 9-11.
- Linn, M. C., Ribet, K., & Schoenfeld, A. H. (1990). *Calculus and computers: Toward a curriculum for the 1990s*. Berkeley, CA: University of California, HyperMedia Case Studies in Computer Science Project.
- Nachmias, R., Friedler, Y., & Linn, M. C., (1990). The role of programming environments in Pascal instruction, *Computers and Education*, 14 (2), 145-158.

## 1989 PUBLICATIONS

- Husic, F., Linn, M. C. & Sloane, K. D. (1989). Adapting instruction to the cognitive demands of learning to program. *Journal of Educational Psychology*, 81, 570-582.
- Linn, M. C. (1989). Evaluation of science laboratory data: The role of computer-presented information [Comment]. *Journal of Research in Science Teaching*, 26, 563.
- Linn, M. C. (1989). Models for computer-based student laboratories [Reprinted from *Instructional Technology Program Newsletter, University of California, Berkeley (1988, Winter)*]. *Technology and Learning*, 2 (2), 11.
- Linn, M. C. (1989). Perspectives for research in science teaching: Using the computer as lab partner. H. Mandl, E. De Corte, N. Bennett, & H. F. Friedrich (Eds.), *Learning and instruction in an international context* (Vols. 2-3, 443-460). Oxford: Pergamon.
- Linn, M. C. (1989). Science education and the challenge of technology. J. Ellis (Ed.), *Information technologies and science education* (pp. 119-144). Washington, D.C.: ERIC Clearinghouse for Science, Math, and Environmental Education.



- Linn, M. C., Clement, C., Pulos, S., & Sullivan, T. (1989). Scientific reasoning during adolescence: The influence of instruction in science knowledge and reasoning strategies. *Journal of Research in Science Teaching*, *26*, 171-187.
- Linn, M. C., & Dalbey (1989). Cognitive consequences of programming instruction: Instruction, access, and ability [Reprinted from *Educational Psychologist*, *20*, 191 (1985)]. E. Soloway & J.C. Spohrer (Eds.), *Studying the novice programmer*. Hillsdale, NJ: Erlbaum.
- Linn, M. C. & Hyde, J. S. (1989). Gender, mathematics, and science. *Educational Researcher*, *18* (8), 17-19 & 22-27.
- Marco, R., & Linn, M. C. (1989, January-April). Tecnología e instrucción: Promesa y problemática. *Revista de Educación*, pp. 391-403.

### 1988 PUBLICATIONS

- Burbules, N. C., & Linn, M. C. (1988). Response to contradiction: Scientific reasoning during adolescence. *Journal of Educational Psychology*, *80* (1), 67-75.
- Eylon, B-S., & Linn, M. C. (1988). Learning and instruction: An examination of four research perspectives in science education. *Review of Educational Research*, *58*, 251-301.
- Hyde, J. S. & Linn, M. C. (1988). Gender differences in verbal ability: A meta-analysis. *Psychological Bulletin*, *104* (1), 53-69.
- Kersteen, Z. A., Linn, M. C., Clancy, M. J., & Hardyck, C. (1988). Previous experience and the learning of computer programming: The computer helps those who help themselves. *Journal of Educational Computing Research*, *4*, 321-333.
- Linn, M. C. (1988). Emerging ideas about educational computing: The Bank Street experience [Book review of R. D. Pea & K. Sheingold, *Mirrors of minds: Patterns of experience in educational computing*. Norwood, NJ: Ablex Publishing (1987)]. *Journal of Educational Computing Research*, *4*, 349-358.
- Linn, M. C. (1988). Mindstorms revisited [Review of R. W. Lawler, B. du Boulay, M. Hughes, & H. Macleod (1986). *Cognition and computers*. West Sussex: Ellis Horwood]. *Contemporary Psychology*, *33*, 714-715.
- Sloane, K., & Linn, M. C. (1988). Instructional conditions in Pascal programming classes. R. E. Mayer (Ed.), *Teaching and learning computer programming: Multiple research perspectives*. Hillsdale, NJ: Erlbaum.

### 1987 PUBLICATIONS

- Gelman, R., & Linn, M. C. (1987, May-June). On the use of hands-on materials in science class. *Continuum: Newsletter of PATHS and the Philadelphia Renaissance in Science and Mathematics*, p.3.
- Linn, M. C. (1987). An apple a day. *Science and Children*, *25* (3), 15-18.
- Linn, M. C. (Ed.) (1987). Cognitive consequences of technology in science education. *Journal of Research in Science Teaching* [Special Issue], *24*, 285-506.
- Linn, M. C. (1987). Education and the challenge of technology. *Proceedings of Apple Computer and University of California, Berkeley, Conference on Technology and Teacher Education, August 1986, Monterey, CA*. Cupertino, CA: Apple Computer.

- Linn, M. C. (1987). Establishing a research base for science education: Challenges, trends, and recommendations [Reprinted from National Science Foundation report of a conference held in 1986, January]. *Journal of Research in Science Teaching*, 24, 191-216.
- Linn, M. C. (1987, October-December). Learning more with computers as lab partners. [Reprinted from *Science and Children*, 25(3), 15 (1987).] *SIGTE Bulletin*.
- Linn, M. C. (Ed.). (1987). The teacher's perspective [Special column]. *Technology and Learning*, 1 (3), 4-5.
- Linn, M. C. (1987). Using technology to improve instruction: The Berkeley perspective. *Academic Computing Newsletter* [Publication of University of California, Berkeley], 10 (1-2), 38-40.
- Linn, M. C., de Benedictis, T., Delucchi, K., Harris, A., & Stage, E. (1987). Gender differences in National Assessment of Educational Progress science items: What does "I don't know" really mean? *Journal of Research in Science Teaching*, 24, 267-278.
- Linn, M. C., Layman, J., & Nachmias, R. (1987). The cognitive consequences of microcomputer-based laboratories: Graphing skills development. *Journal of Contemporary Educational Psychology*, 12, 244-253.
- Linn, M. C., Sloane, K., & Clancy, M. J. (1987). Ideal and actual outcomes from pre-college Pascal instruction. *Journal of Research in Science Teaching*, 24, 467-490.
- Mandinach, E. B., & Linn, M. C. (1987). Cognitive consequences of programming: Achievements of experienced and talented programmers. *Journal of Educational Computing Research*, 3 (1), 53-72.
- Mandinach, E. B., Linn, M. C., Pea, R., & Kurland, M. (Eds.). (1987). Cognitive effects of computer learning environments [Special Issue]. *Journal of Educational Computing Research*, 3 (1).
- Nachmias, R., & Linn, M. C. (1987). Evaluation of science laboratory data: The role of computer-presented information. *Journal of Research in Science Teaching*, 24, 491-506.

## 1986 PUBLICATIONS

- Dalbey, J., & Linn, M. C. (1986). Cognitive consequences of programming: Augmentations to BASIC instruction. *Journal of Educational Computing Research*, 2 (1), 75-93.
- Dalbey, J., Tourniaire, F., & Linn, M. C. (1986). Making programming instruction cognitively demanding: An intervention study. *Journal of Research in Science Teaching*, 23, 427-436.
- Hyde, J. S., & Linn, M. C. (Eds.). (1986). *The psychology of gender: Advances through meta-analysis*. Baltimore: Johns Hopkins University.
- Linn, M. C. (1986, February). Computers and learning: Current progress, future needs. C. Louie (Chair), *Computers and learning: A need for balance*. Symposium conducted at Computers and Learning Institute, Children's Hospital, Oakland, CA.
- Linn, M. C. (1986). Computer as laboratory partner. *Teaching, Thinking, and Problem Solving*, 8 (3), 5 & 12.
- Linn, M. C. (1986). Meta-analysis of studies of gender differences: Implications and future directions. J. S. Hyde & M. C. Linn (Eds.), *The psychology of gender: Advances through meta-analysis* (pp. 210-231). Baltimore: Johns Hopkins University.
- Linn, M. C. (1986). Science. R. Dillon & R. J. Sternberg (Eds.), *Cognition and instruction* (pp. 155-204). New York: Academic Press.

Linn, M. C. (1986). Women and mathematics: Actual and hypothetical concerns. [Review of S. F. Chipman, et al. (Eds.), *Women and mathematics: Balancing the equation*. Hillsdale, NJ: Erlbaum, 1985]. *Contemporary Psychology*, 3 (5), 358-359.

Linn, M. C., & Petersen, A. C. (1986). A meta-analysis of gender differences in spatial ability: Implications for mathematics and science achievement. J. S. Hyde & M. C. Linn (Eds.), *The psychology of gender: Advances through meta-analysis* (pp. 67-101). Baltimore: Johns Hopkins University.

Mandinach, E. B., & Linn, M. C. (1986). Cognitive effects of computer learning environments. *Journal of Educational Computing Research*, 2, 411-427.

Mandinach, E. B., Linn, M. C., Pea, R., & Kurland, M. (Eds.). (1986). Cognitive effects of computer learning environments [Special Issue]. *Journal of Educational Computing Research*, 2 (4).

### 1985 PUBLICATIONS

Dalbey, J. & Linn, M. C. (1985). The demands and requirements of computer programming: A literature review. *Journal of Educational Computing Research*, 1, 253-274.

Linn, M. C. (1985). The cognitive consequences of computer environments for learning: Policy issues in computer education. *Proceedings of COGNITIVA 85, Paris, France, June 5-10* (pp. 88-102).

Linn, M. C. (1985). The cognitive consequences of programming instruction in classrooms. *Educational Researcher*, 14 (5), 14-16 & 25-29.

Linn, M. C. (1985). Fostering equitable consequences from computer learning environments. *Sex Roles*, 13, 229-240.

Linn, M. C. (1985). Gender equity in computer learning environments. *Computers and the Social Sciences*, 1 (1), 19-27.

Linn, M. C. (1985). Who is gifted and how can they be served: One approach. [Review of C. P. Benbow & J. C. Stanley (Eds.), *Academic precocity: Aspects of its development* (Revised, expanded, and updated proceedings of the Tenth Annual Hyman Blumberg Symposium on Research in Early Childhood Education). Baltimore: Johns Hopkins University Press, 1983]. *Contemporary Psychology*, 30 (2), 135-137.

Linn, M. C., & Dalbey (1985). Cognitive consequences of programming instruction: Instruction, access, and ability, *Educational Psychologist*, 20, 191-206.

Linn, M. C., & Petersen, A. C. (1985). Emergence and characterization of sex differences in spatial ability: A meta-analysis. *Child Development*, 56, 1479-1498.

Linn, M. C., & Petersen, A. C. (1985). Facts and assumptions about the nature of sex differences. S. Klein (Ed.), *Handbook for achieving sex equity through education* (pp. 53-77). Baltimore: Johns Hopkins University.

Linn, M. C., & Stein, J. (1985). School computing needs a booster shot. *Tech Trends*, 30 (2), 20-22.

Stein, J. S., & Linn, M. C. (1985). Capitalizing on computer-based interactive feedback: An investigation of "Rocky's Boots." M. Chen & W. Paisley (Eds.), *Children and microcomputers: Research on the newest medium* (pp. 213-227). Beverly Hills, CA: Sage.

## 1984 PUBLICATIONS

- Linn, M. C. (1984). Redesigning science education: What is the role of science education research? R. Bybee (Ed.), *Redesigning science and technology education*. Washington, D.C.: National Science Teachers Association.
- Linn, M. C., Delucchi, K., & de Benedictis, T. (1984). Adolescent reasoning about advertisements: Relevance of product claims. *Journal of Early Adolescence, 4*, 371-385.
- Linn, M. C., & Siegel, H. (1984). Post-formal reasoning: A philosophical model. M. Commons (Ed.), *Beyond formal operations: Late adolescent and adult cognitive development*. New York: Praeger, 239-257.

## 1983 PUBLICATIONS

- Linn, M. C. (1983). Content, context, and process in adolescent reasoning. *Journal of Early Adolescence, 3*, 63-82.
- Linn, M. C. (1983). Evaluation in the museum setting: Focus on expectations. *Educational evaluation and policy analysis, 5*, 119-127.
- Linn, M. C., Clement, C., & Pulos, S. (1983). Is it formal if it's not physics? [Received JRST award for most outstanding paper in Volume 20]. *Journal of Research in Science Teaching, 20*, 755-770.
- Linn, M. C., & Fisher, C. W. (1983). Computer education: The gap between promise and reality. *Proceedings of making our schools more effective: A conference for educators*. San Francisco: Far West Laboratory.
- Linn, M. C., & Pulos, S. (1983). Aptitude and experience influences on proportional reasoning during adolescence: Focus on male-female differences. *Journal for Research in Mathematics Education, 14*, 30-46.
- Linn, M. C., & Pulos, S. (1983). Male-female differences in predicting displaced volume: Strategy usage, aptitude relationships, and experience influences. *Journal of Educational Psychology, 75*, 86-96.

## 1982 PUBLICATIONS

- Linn, M. C. (1982). Theoretical and practical significance of formal reasoning. *Journal of Research in Science Teaching, 19*, 727-742.
- Linn, M. C., de Benedictis, T., & Delucchi, K. (1982). Adolescent reasoning about advertisements: Preliminary investigations. *Child Development, 53*, 1599-1613.
- Miller, M. E., & Linn, M. C. (1982). Evaluating written responses to formal reasoning tasks [Abstract of Renner, J. W. (1979). The relationships between intellectual development and written responses to science questions. *Journal of Research in Science Teaching, 16*(4), 279-299]. *Investigations in Science Education*.
- Pulos, S., de Benedictis, T., Linn, M. C., Sullivan, P., & Clement, C. (1982). Modification of gender differences in the understanding of displaced volume. *Journal of Early Adolescence, 2*, 61-74.

## 1981 PUBLICATIONS

- Linn, M. C. (1981). The role of expectations in complex problem solving. *Problem Solving, 2* (11), 1-8.
- Linn, M. C. (1981). Standards for evaluating out-of-school learning. *Evaluation News, 1*, 171-176.

- Linn, M. C., & Kyllonen, P. (1981). The field dependence-independence construct: Some, one, or none. *Journal of Educational Psychology, 73*, 261-273.
- Linn, M. C., Pulos, S., & Gans, A. (1981). Correlates of formal reasoning: Content and problem effects. *Journal of Research in Science Teaching, 18* (5), 1-13.
- Linn, M. C., & Swiney, Jr., J. (1981). Individual differences in formal thought: Role of expectations and aptitudes. *Journal of Educational Psychology, 73*, 274-286.
- Pulos, S., & Linn, M. C. (1981). Generality of the controlling variables scheme in early adolescence. *Journal of Early Adolescence, 1*, 26-37.

## 1980 PUBLICATIONS

- Levine, D. I., & Linn, M. C. (1980). A response to the analysis of "Research on logical reasoning: Issues in assessing the role of familiarity of variables." *Investigations in Science Education, 6* (3), 57-60.
- Linn, M. C. (1980). Free-choice experiences: How do they help children learn? *Science Education, 64*, 237-247.
- Linn, M. C. (1980) Quasi-experiments: What do they prove? [Review of Cook, T. D., & Campbell, D. T. (1979) *Quasi-experimentation: Design and analysis issues for field settings*. Chicago: Rand McNally College.] *Evaluation Newsletter, 14*.
- Linn, M. C. (1980). Teaching students to control variables: Some investigations using free choice experiences. S. Modgil & C. Modgil (Eds.), *Toward a theory of psychological development within the Piagetian framework*. Windsor, England: National Foundation for Educational Research.
- Linn, M. C. (1980). When do adolescents reason? *European Journal of Science Education, 2*, 429-440.
- Robertson, J., & Linn, M. C. (1980). Advanced organizers: Concept in search of a definition. [Abstract of Kahle, J. B., & Rastovac, J. J. (1976). The effects of a series of advanced organizers in increasing meaningful learning. *Science Education, 60*, 365-371]. *Investigations in Science Education, 6* (4), 39-44
- Yalow, E. S., Strossen, R. J., Jennings, D. L., & Linn, M. C. (1980). Improving museums through evaluation. *Curator, 23*, 275-285

## 1979 PUBLICATIONS

- Linn, M. C., Hadary, D., Rosenburg, R., & Househalter, R. (1979). Science education for the deaf: Comparison of ideal resource and mainstream settings [Also ERIC document ED 154 569]. *Journal of Research in Science Teaching, 16*, 305-316.
- Linn, M. C., & Rice, M. (1979). A measure of scientific reasoning: The springs task. *Journal of Educational Measurement, 16*, 55-58.

## 1978 PUBLICATIONS

- Bowyer, J. B., & Linn, M. C. (1978). Effectiveness of the science curriculum improvement study in teaching scientific literacy. *Journal of Research in Science Teaching, 15*, 209-219.
- Linn, M. C. (1978). Adolescence: Disease, dilemma, or disaster. [Review of Ausubel, D.P., Montemayor, R., & Svaljian, P. (1977). *Theory and problems of adolescent development* (2nd ed.). New York: Grune and Stratton.] *Contemporary Psychology, 23*, 943-945.
- Linn, M. C. (1978). Evaluation of the Science Enrichment Activities (SEA) Program: A decision oriented model. *Studies in Educational Evaluation, 4*, 83-90.

- Linn, M. C. (1978). Formal operations: Construct or conglomerate. *Formal Operator*, 1 (4), 2-4.
- Linn, M. C. (1978). *Future research in adolescent reasoning*. Final Report. National Institute of Education, Contract NIE-P-78-0023.
- Linn, M. C. (1978). Influence of Cognitive Style and Training on Tasks, Requiring the Separation Variables Schema. *Child Development*, 49, 874-877.
- Linn, M. C., & Levine, D. I. (1978). Adolescent reasoning: Influence of question format and type of variables on ability to control variables. *Science Education*, 62, 377-388.
- Linn, M. C., & Thier, H. D. (1978). Traditional versus non-traditional research design. *Journal of Research in Science Teaching*, 15, 92-94.
- Pulos, S., & Linn, M. C. (1978). Formal operations: Fact or artifact. *Proceedings of the Eighth Annual UAP-USC Conference on Piaget and the Helping Professions*, 273-277.
- Pulos, S., & Linn, M. C. (1978). Pitfalls and pendulums. *Formal Operator*, 1 (2), 9-11.
- Rice, M., & Linn, M. C. (1978). Study of student behavior in a free choice environment. *Science Education*, 62, 365-376.

#### **1977 PUBLICATIONS**

- Levine, D. I., & Linn, M. C. (1977). Scientific reasoning ability in adolescence: Theoretical viewpoints and educational implications. *Journal of Research in Science Teaching*, 14, 371-384.
- Linn, M. C. (1977). Scientific reasoning: Influences on task performance and response categorization. *Science Education*, 61, 357-363.
- Linn, M. C. (1977). The springs task. *Formal Operator*, 1 (1), 10.
- Linn, M. C., Chen, B., & Thier, H. D. (1977). Teaching children to control variables: Investigation of a free choice environment. *Journal of Research in Science Teaching*, 14, 249-255.

#### **1976 PUBLICATIONS**

- Eason, L. & Linn, M. C. (1976). Evaluation of the effectiveness of participatory exhibits. *Curator*, 19, 45-62.
- Linn, M. C. (1976). Exhibit evaluation: Informed decision making. *Curator*, 19, 291-302.
- Linn, M. C., Chen, B., & Thier, H. D. (1976). Personalization in science: Preliminary investigation at the middle school level. *Instructional Science*, 5, 227-252.
- Linn, M. C., & Peterson, R. W. (1976). Problems of doing educational research in educational settings [comment]. *Journal of Research in Science Teaching*, 13, 285-286.
- Schatz, S., Franks, F., Thier, H. D., & Linn, M. C. (1976). Hands-on science for the blind. *Science and Children*, 13 (6), 21-23.
- Thier, H. D. & Linn, M. C. (1976). The value of interactive learning experiences in a museum. *Curator*, 19, 233-245.

#### **1975 PUBLICATIONS**

- Falk, J., Malone, L., & Linn, M. C. (1975). Outdoor Biology Instructional Strategies (OBIS): Development and evaluation. *American Biology Teacher*, 37, 162-165.

Linn, M. C. (1975). Providing an experience centered program for the visually impaired child. *The Teacher of the Blind*, 63(4).

Linn, M. C., & Thier, H. D. (1975). Adapting Science Materials for the Blind (ASMB): Expectations for student outcomes. *Science Education*, 59, 237-246.

Linn, M. C., & Thier, H. D. (1975). The effect of experiential science on the development of logical thinking in children [Received JRST award for most significant contribution to Volume 12]. *Journal of Research in Science Teaching*, 12, 49-62.

#### **1974 PUBLICATIONS**

Struve, N. L., Hadary, D., Thier, H. D., & Linn, M. C. (1974). The effect of an experiential science curriculum for the visually impaired on course objectives and manipulative skill. *Education of the Visually Impaired*, 7, 9-14.

Struve, N. L., Hadary, D., Thier, H. D., & Linn, M. C. (1974). Materials centered science and manipulative skill. *Exceptional Children*, 40, 516-517.

#### **1973 PUBLICATIONS**

Linn, M. C. (1973). The role of intelligence in children's response to instruction. *Psychology in the Schools*, 10, 67-75.

Linn, M. C., & Peterson, R. W. (1973). The effect of direct experience with objects on middle class, culturally diverse, and visually impaired young children. *Journal of Research in Science Teaching*, 10, 83-90.

#### **1972 PUBLICATIONS**

Linn, M. C. (1972). An experiential science curriculum for the visually impaired. *Exceptional Children*, 39, 37-43.

#### **1970 PUBLICATIONS**

Linn, M. C. (1970). Effects of a training procedure on matrix performance and on transfer tasks. Ph.D. Dissertation, Stanford University.