

Daniel C. Edelson - Curriculum Vitae

Work:

BSCS

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Professional Experience:

BSCS, Colorado Springs, CO Executive Director and President	1/15-present
National Geographic Society, Washington, DC Vice President, Education Executive Director, National Geographic Education Foundation	12/07-9/14
Université René Descartes (Paris 5), Paris, France Visiting Professor, Faculté des Sciences Humaines et Sociales-Sorbonne	10/07
Northwestern University, Evanston, IL School of Education and Social Policy and McCormick School of Engineering and Applied Sciences	7/89-11/07
Associate Professor, Learning Sciences and Computer Science	9/01-11/07
Coordinator, Ph.D. Program in the Learning Sciences	9/01-8/04
Assistant Professor, Learning Sciences and Computer Science	9/94-8/01
Institute for the Learning Sciences and School of Education and Social Policy	
Research Scientist in the Rank of Assistant Professor	5/93-8/94
Project Manager and Software Scientist	11/92-8/94
Institute for the Learning Sciences and Department of Electrical Engineering and Computer Science	
Graduate Research Assistant	7/89-11/92
Yale University, New Haven, CT Graduate Research Assistant and Teaching Assistant, Computer Science Department	9/88-6/89
Advanced Decision Systems, Mountain View, CA Research Engineer, Image Understanding Division	6/86-6/88

Education:

Northwestern University, Ph.D. Computer Science (Artificial Intelligence), 1993.

Dissertation title: Learning from Stories: Indexing, Reminding and Questioning in a Case-Based Teaching System for Elementary School Biology

Yale University, Ph.D. program in Computer Science, 1988-1989. Transferred to Northwestern University.

Yale University, B.S., Engineering Sciences (Electrical), 1985, *magna cum laude*, distinction in the major.

Funded Research Activities:

Current

National Geographic FieldScope. Daniel Edelson, PI. National Science Foundation, Informal Science Education Program (DRL-1010749) 9/10-8/15. \$2.8M.

Completed

Establishing a Roadmap for Large-Scale Improvement of K-12 Education in the Geographical Sciences. Daniel Edelson, PI. National Science Foundation, Discovery Research K-12 Program (DRL-1049437) 9/10-8/13. \$2.2M.

The Impact of Online Professional Development: An Experimental Study of Professional Development Modalities Linked to Curriculum. Barry Fishman (PI); Daniel Edelson, Spyros Konstantopolous (Co-PI's). National Science Foundation Teacher Professional Continuum Program (Grant no. 045582). 7/05-6/13. \$2.4M.

Student Analysis of Data Driving Learning about the Earth: A Next Generation GLOBE Project. Daniel Edelson (PI); Kemi Jona, David Maidment (co-PI's). National Science Foundation GLOBE Program (GEO-0627923) 8/06-7/12. \$1.2M.

Environmental Investigation: My World GIS and Road Salt. Daniel Edelson, PI. BP. 9/06-8/07. \$50,000.

Meaningful Science: Preparing Chicago's High School Students for their Future. Daniel Edelson, PI. Chicago Public Schools. 2/06-6/09. \$3M.

Collaborative Research: Developing the Next Generation of Middle School Science Materials--Investigating and Questioning Our World through Science and Technology. Brian Reiser (PI); Daniel Edelson, Barbara Hug, Ann Rivet (Co-PI's). National Science Foundation Program in Instructional Materials Development, (Grant no. ESI-0439493). 9/04-8/09. \$1.6M. (Collaborative grant with University of Michigan, Joe Krajcik, PI)

My World: A Geographic Information System for Learners, Daniel C. Edelson (PI). National Science Foundation Program in Instructional Materials Development (IMD), ESI-0352478; 3/1/04-3/30/08. \$1.1M.

Middle School Science Curriculum Materials: Meeting Standards and Fostering Inquiry through Project-based Inquiry Science Units, Brian Reiser (PI); Daniel Edelson (co-PI). Subcontract to Georgia Institute of Technology (Janet Kolodner, PI) under National Science Foundation Instructional Materials Development Program (ESI-0137807). 12/02-11/07.

Center for Curriculum Materials in Science (CCMS). Brian Reiser (PI); Daniel Edelson, Bruce Sherin (co-PI's). Subcontract to Association for the Advancement of Science (Jo Ellen Roseman, PI) under National Science Foundation Centers for Learning and Teaching (CLT) Program. 10/02-9/07. \$2.5M.

Collaborative Research: THREDDS Second Generation. Daniel C. Edelson (PI). National Science Foundation, National STEM Education Digital Library (NSDL) Program, 10/1/03-9/30/06. \$95,454. (Collaborative grant with University Corporation for Atmospheric Research, Ben Domenico, PI; John Caron, Co-PI).

Professional Development and Support for a Technology-Supported Inquiry-Based High School Environmental Science Curriculum. Daniel C. Edelson (PI). Toyota USA Foundation, 1/1/03-12/31/05. \$259,000.

Middle School Science Curriculum Materials: Meeting Standards and Fostering Inquiry through Learning Technologies. Brian Reiser (PI); Daniel Edelson (Co-PI). Subcontract to University of Michigan (Joe Krajcik, PI) under National Science Foundation Program in Instructional Materials Development (IMD). 8/01-7/04. \$591,652.00

Technology-supported Performance Assessment for Inquiry-based Science Learning. Daniel Edelson (PI); Brian Reiser, Louis Gomez (co-PI's). National Science Foundation Program in Research on Learning and Education (ROLE), 11/15/00-10/31/02. \$316,986.

Learning-Centered Design Methodology: Meeting the Nation's Need for Computational Tools for K-12 Science Education (Engineering Scaffolded Work Environments). Elliot Soloway (PI); Mark Guzdial, Andrew Johnson, Daniel Edelson, Joseph Krajcik (co-PI's). National Science Foundation Program in Information Technology Research (ITR), 9/15/00-8/31/04. \$2,999,998.

Concrete, Rationalized, Situated Design Guidelines for Software to Promote Teaching and Learning, Daniel Edelson (PI); Brian Reiser, Louis Gomez, (co-PI's). Subcontract to University of Michigan (Elliot Soloway, PI) under National Science Foundation, Program in Knowledge and Distributed Intelligence (KDI), 10/99-9/03, \$384,000.

Developing Teacher Leaders in Science and Technology, Louis Gomez, Brian Reiser, Daniel Edelson, Project Directors. Lucent Technologies Foundation, 9/99- 8/06, \$445,000.

The WorldWatcher Curriculum: Integrating Visualization into Inquiry-Based Science Learning, Daniel Edelson (PI) Louis Gomez, co-PI. National Science Foundation Program in Instructional Materials Development (IMD) , 4/1/98-9/1/04, \$1,874,834.

Learning Science through Design, Daniel Edelson (PI), National Science Foundation CAREER Program (Research in Educational Policy and Practice), 7/15/98-6/30/04, \$447,000.

Center for Learning Technologies in Urban Schools (LeTUS), Louis Gomez (PI); Ron Marx, Clifton Burgess, Juanita Clay-Chambers (co-PI's). National Science Foundation Program in Collaborative Research in Learning Technologies (CRLT), 10/1/97-12/30/03. Faculty Affiliate.

The Living Curriculum Project, Louis M. Gomez, Daniel C. Edelson, James Spillane, Principal Investigators. National Science Foundation Program in Research in Educational Policy and Practice (REPP), 10/1/97-9/30/00, \$496,000.

Promoting Reflective Inquiry in Knowledge-Rich Investigation Environments, Brian Reiser (PI); Daniel Edelson, Louis Gomez (co-PI's). National Science Foundation Program In Learning and Intelligent Systems (LIS). 9/1/97-8/31/00, \$950,000.

Postdoctoral Fellowship in Science, Math, Engineering, and Technology Education (PFSMETE), Duane Griffin, Fellow. Daniel Edelson, Advisor. National Science Foundation, 9/1/97-8/31/99, \$100,000.

Second International Conference on the Learning Sciences to be held July 25-27, 1996 in Evanston, IL, Daniel Edelson (PI); Eric Domeshek, (co-PI), National Science Foundation Program in Advanced Applications of Technology (AAT), 7/96-1/97, \$14,900.

Support for Learning and Teaching Through Collaborative and Dynamic Guided Learning Environments, Louis Gomez, Daniel Edelson, Brian Reiser, Roy Pea, Principal Investigators. Advanced Research Projects Agency, Computer Aided Education and Training Initiative, 8/95-7/97, \$200,000.

Toward a General Scientific Visualization Architecture for Education. Daniel Edelson (PI) and Roy Pea (co-PI). National Science Foundation, Program in Advanced Applications of Technology (AAT), \$560,000, 4/95-3/99.
CoVis: A National Science Education Collaboratory, Roy Pea (PI) and Louis Gomez (co-PI). National Science Foundation, Program in Networking Infrastructures for Education, 8/94-7/97. Senior Researcher.

Learning Through Collaborative Visualization (CoVis), Roy Pea (PI); Louis Gomez, and Elliot Soloway (co-PI's). National Science Foundation, Program in Advanced Applications of Technology. 7/92-7/95. Project Manager and Software Scientist.

Books and Software

- Edelson, D. C. (2014). *GeoLearning: Thoughts on Geography and Education*. Redlands, CA: Esri.
- Kololdner, J. L., Krajcik, J. S., Edelson, D.C., Reiser, B. J., Starr, M. L. (2009) *Project-Based Inquiry Science*. Armonk, NY: It's About Time.
- Edelson, D. C., Schwille, K., Bruozas, M., Lach, M., Taber, M., Gordin, D. N., Chinsio, K., & Tarnoff, A. (2006). *Investigations in environmental science: A case-based approach to the study of environmental systems*. Armonk, NY: It's About Time.
- Edelson, D. C. & Russell, E. O. (2005) *My World GIS: A Geographic Information System for Inquiry-Based Learning*. Computer Software. Roseville, CA: PASCO Scientific.
- Edelson, D. C., Gordin, D. N., Clark, B. A., Brown, M., Griffin, D. (2005) *WorldWatcher: A Visualization Program for Our World*. Armonk, NY: It's About Time.

Journal Articles and Book Chapters:

- Kubitskey, B., Fishman, B., Johnson, H. Mawyer, K., and Edelson, D. (2014) Curriculum-aligned professional development for geospatial education. In Makinster, J., Trautman, N., and Barnett, M. (eds.) *Teaching Science and Investigating Environmental Issues with Geospatial Technology* (pp. 153-171). New York: Springer.
- Fishman, B., Konstantopoulos, S., Kubitskey, B.W., Vath, R., Park, G., Johnson, H., & Edelson, D.C. (2013) Comparing the Impact of Online and Face-to-Face Professional Development in the Context of Curriculum *Journal of Teacher Education* 64(5), 427 - 439.
- Wertheim, J.A., & Edelson, D.C. A road map for improving geography assessment. *The Geography Teacher*, v.10, 2013, p.15
- Edelson, D.C., Wertheim, J.A., Schell, Emily M., and the Leadership Team of the Road Map for Geography Education Project. Creating a road map for 21st century geography education: Project overview. *The Geography Teacher*, v.10, 2013.
- Switzer, A., Schwille, K., Russell, E., & Edelson, D. (2012) National Geographic FieldScope: A platform for community geography. *Frontiers in Ecology and the Environment*. 10(6), 334-335.
- Edelson, D. C., Smith, D. A., & Brown, M. (2008). Beyond interactive mapping: Bringing data analysis with GIS into the social studies classroom. In A. J. Millson & M. Alibrandi (Eds.), *Digital geography: Geo-spatial technologies in the social studies classroom*. Greenwich, CT: Information Age.
- Edelson, D. C. (2008). Engineering pedagogical reform: A case study of technology-supported inquiry. In R. Duschl & R. Grandy (Eds.), *Teaching Scientific Inquiry: Recommendations for Research and Application* (pp. 164-181). Rotterdam: Sense Press.
- Edelson, D. C. (2007). Environmental Science for All? Considering Environmental Science for Inclusion in the High School Core Curriculum. *Science Educator*, 17(1), 42-56.
- Edelson, D. C. (2006). What we learn when we engage in design: Assessing design research. In J. van den Akker, K. Gravemeijer, S. McKenney, N. Nieveen (Eds.) *Educational Design Research*. London: Routledge.
- Edelson, D. C., Pitts, V., Salierno, C., & Sherin, B. (2006). Learning-for-Use in Earth Science: Curriculum Design and Evaluation. In C. Manduca & D. Mogk (Eds.), *Earth and Mind: How Geologists Think and Learn about the Earth* (pp. 131-144). Boulder, CO: Geological Society of America.

- Edelson, D. C., & Reiser, B. J. (2006). Making authentic practices accessible to learners: Design challenges and strategies. In R. K. Sawyer (Ed.), *Cambridge Handbook of the Learning Sciences* (pp. 335-354). New York: Cambridge University Press.
- Edelson, D. C., Tarnoff, A., Schwille, K., Bruozas, M., & Switzer, A. (2006). Learning to make systematic decisions. *The Science Teacher*, 73(4), 40-45.
- Kyza, E. A., & Edelson, D. C. (2005). Scaffolding middle-school students' coordination of theory and evidence. *Educational Research and Evaluation*, 11(6), 545-560.
- Salierno, C., Edelson, D. C., & Sherin, B. (2005). The development of student conceptions of the earth-sun relationship in an inquiry-based curriculum. *Journal of Geoscience Education*, 53(4), 422-431.
- Sherin, B., Brown, M., & Edelson, D. C. (2005). On the content of task-structured science curricula. In L. B. Flick & N. Lederman (Eds.), *Scientific Inquiry and Nature of Science: Implications for Teaching, Learning, and Teacher Education*. Dordrecht, NL: Kluwer.
- Edelson, D. C. (2004, May-June). The parallel universes of the learning sciences and instructional design: A historical perspective. *Educational Technology*, XLIV, 27-30.
- Quintana, C., Reiser, B. J., Davis, E. A., Krajcik, J., Fretz, E., Duncan, R. G., Kyza, E., Edelson, D. C., & Soloway, E.. (2004). A scaffolding design framework for software to support science inquiry. *Journal of the Learning Sciences*, 13(3), 387-421.
- Sherin, B., Reiser, B. J., & Edelson, D. C. (2004). Scaffolding Analysis: Extending the Scaffolding Metaphor to Learning Artifacts. *Journal of the Learning Sciences*, 13(3), 337-386.
- Johnson, A., Moher, T., Cho, Y.-J., Edelson, D., & Russell, E. (2004). Learning science inquiry skills in a virtual field,. *Computers & Graphics*, 28(3), 409-416.
- Edelson, D. C. (2002). Design research: What we learn when we engage in design. *Journal of the Learning Sciences*, 11(1), 105-122.
- Edelson, D. C. (2001). Learning-For-Use: A Framework for the Design of Technology-Supported Inquiry Activities. *Journal of Research in Science Teaching*, 38 (3), 355-385.
- Loh, B., Reiser, B. J., Radinsky, J., Edelson, D. C., Gomez, L. M., & Marshall, S. (2001). Developing reflective inquiry practices: A case study of software, the teacher, and students. In K. Crowley, C. Schunn, & T. Okada (Eds.), *Designing for Science: Implications from Everyday, Classroom, and Professional Settings*, . Mahwah, NJ: Erlbaum.
- Edelson, D. C., Gordin, D. N., & Pea, R. D. (1999). Addressing the challenges of inquiry-based learning through technology and curriculum design. *Journal of the Learning Sciences*, 8(3/4), 391-450.
- Edelson, D. C., & Gordin, D. (1998). Visualization for learners: A framework for adapting scientists' tools. *Computers and Geosciences*, 24(7), 607-616.
- Edelson, D. C. (1998). Realising authentic science learning through the adaptation of science practice. In B. J. Fraser & K. Tobin (Eds.), *International Handbook of Science Education* (pp. 317-331). Dordrecht, The Netherlands: Kluwer.
- Edelson, D. C. (1998). The Socratic Case-Based Teaching Architecture: Learning from Questions and Cases. In R. C. Schank (Ed.), *Inside Multi-Media Case Based Instruction*, (pp. 103-174). Hillsdale, NJ: Erlbaum.

Pea, R. D., Gomez, L. M., Edelson, D. C., Fishman, B. J., Gordin, D. N., & O'Neill, D. K. (1997). Science education as driver of cyberspace technology development. In K. C. Cohen (Ed.), Internet Links for Science Education, (pp. 189-220). New York: Plenum Press.

Edelson, D. C. (1996). Learning from cases and questions: The Socratic case-based teaching architecture. Journal of the Learning Sciences, 5(4), 357-410.

Edelson, D. C., Pea, R. D., & Gomez, L. M. (1996, April). The Collaboratory Notebook: Support for collaborative inquiry. Communications of the ACM, 39, 32-33.

Edelson, D. C., Pea, R. D., & Gomez, L. M. (1996). Constructivism in the collaboratory. In B. G. Wilson (Ed.), Constructivist learning environments: Case studies in instructional design, (pp. 151-164). Englewood Cliffs, NJ: Educational Technology Publications.

Edelson, D. C. (1993). Socrates, Aesops, and the computer: Questioning and storytelling with multimedia. Journal of Educational Multimedia and Hypermedia, 2(4).

Schank, R. C., & Edelson, D. C. (1990). A role for AI in education: Using technology to reshape education. The Journal of Artificial Intelligence and Education, 1(2).

Edited Volumes:

Kolvoord, R. & Edelson, D. C. (2013) *Investigating Your World with My World GIS*. National Geographic Society: Washington, DC. Available from: <http://education.nationalgeographic.com/education/my-world-gis/>

Edelson, D. C., & Domeshek, E. A. (1996). International Conference on the Learning Sciences, July 1996, Evanston, IL. Charlottesville, VA: Association for the Advancement of Computers in Education.

Articles in Periodicals:

Edelson, D. (2012, Winter/Spring) GIS, Education, and Citizen Science. Global Dialogue 14 (1).

Edelson, D. C., Brown, M., Gordin, D. N., & Griffin, D. A. (1999, February). Making visualization accessible to students. GSA Today, 9(2), 8-10.

Edelson, D. C., & Gordin, D. N. (1996, September). Adapting digital libraries for learners: Accessibility vs. availability. D-Lib Magazine, September 1996, <http://www.dlib.org/dlib/september96/09contents.html>.

Reports, Unpublished Manuscripts, and Dissertation:

Edelson, D. C., Shavelson, R. J., & Wertheim, J. A. (Eds.). (2013). *A Road Map for 21st Century Geography Education: Assessment*. Washington, DC: National Geographic Society.

Edelson, D. C. and Brown, M. (2006) *Designing GIS Software for Education: A Workshop Report for the GIS Community*. Technical report, Geographic Data in Education Initiative, Northwestern University.

Edelson, D. C. & Joseph, D. M. (2004). *Motivating active learning: A design framework for interest-driven learning*. Unpublished manuscript.

Brown, M. and Edelson, D. C. (2003) *Teaching As Design: Can we better understand the ways in which teachers use materials so we can better design materials to support their changes in practice?* Technical Report (RS-03), Center for Learning Technologies in Urban Schools, Northwestern University.

Edelson, D. C. (1993). *Learning from stories: Indexing and reminding in a case-based teaching system for elementary school biology*. Unpublished doctoral dissertation, Northwestern University.

Schank, R. C., Osgood, R., Brand, M., Burke, R., Domeshek, E., Edelson, D., Ferguson, W., Freed, M., Jona, M., Krulwich, B., Ohmaye, E., & Pryor, L. (1990). A Content Theory of Memory Indexing. Technical Report (2), Institute for the Learning Sciences, Northwestern University.

Papers in Refereed Conference Proceedings

- Pitts, V. M., & Edelson, D. C. (2006). The role-goal-activity framework revisited: Examining student buy-in in a project-based learning environment. In *Proceedings Of The Seventh International Conference On The Learning Sciences, Bloomington, In, June 27-July 1, 2006*. Mahwah, NJ: Erlbaum.
- Pitts, V. M., & Edelson, D. C. (2004). Role, Goal, and Activity: A Framework for Characterizing Participation and Engagement in Project-Based Learning Environments. In Y. B. Kafai, W. A. Sandoval, N. Enyedy, A. S. Nixon & F. Herrera (Eds.), *Proceedings of the Sixth International Conference of the Learning Sciences, Santa Monica, CA, June 23-26, 2004* (pp. 420-426). Mahwah, NJ: Erlbaum.
- Edelson, D. C., & Joseph, D. M. (2004). The interest-driven learning design framework: Motivating learning through usefulness. In Y. B. Kafai, W. A. Sandoval, N. Enyedy, A. S. Nixon & F. Herrera (Eds.), *Proceedings of the Sixth International Conference of the Learning Sciences, Santa Monica, CA, June 22-26, 2004* (pp. 166-173). Mahwah, NJ: Erlbaum.
- Johnson, A., Moher, T., Cho, Y., Edelson, D., Russell, E. (2003). 'Field' Work. *Educators program from the 30th annual conference on Computer graphics and interactive techniques, San Diego, California July 27 - 31, 2003*. New York: ACM Press (pp. 1-5).
- Joseph, D. M., & Edelson, D. C. (2002). Engineering motivation: Using research knowledge about motivation in the design of learning environments. In P. Bell, R. Stevens & T. Satwicz (Eds.), *Keeping Learning Complex: The Proceedings of the Fifth International Conference of the Learning Sciences (ICLS)*. Mahwah, NJ: Erlbaum.
- Quintana, C., Reiser, B., Davis, E. A., Krajcik, J., Golan, R., Kyza, E., et al. (2002). Evolving a scaffolding design framework for designing educational software. In P. Bell, R. Stevens & T. Satwicz (Eds.), *Keeping Learning Complex: The Proceedings of the Fifth International Conference of the Learning Sciences (ICLS)*. Mahwah, NJ: Erlbaum.
- Matese, G., Sherin, M. G., & Edelson, D. C. (2002). Design principles for scaffolding inquiry-based science assessment. In P. Bell, R. Stevens & T. Satwicz (Eds.), *Keeping Learning Complex: The Proceedings of the Fifth International Conference of the Learning Sciences (ICLS)*. Mahwah, NJ: Erlbaum.
- Kyza, E. A., Reiser, B. J., & Edelson, D. C. (2002). The role of computer-based cognitive artifacts in scaffolding reflective inquiry. In P. Bell, R. Stevens & T. Satwicz (Eds.), *Keeping Learning Complex: The Proceedings of the Fifth International Conference of the Learning Sciences (ICLS)*. Mahwah, NJ: Erlbaum.
- Johnson, A., Moher T., Cho, Y., Edelson, D., & Reiser, B. (2002). 6th Graders "doin' science" - Collecting Data and Looking for Patterns in a Virtual Field. In Proceedings of IEEE Virtual Reality Conference 2002, Orlando FL, March 2002. Washington, DC: IEEE Computer Society.
- Kyza, E. A., Golan, R., Reiser, B. J., & Edelson, D. C. (2002). Reflective Inquiry: Enabling group self-regulation in inquiry-based science using the Progress Portfolio tool. In G. Stahl (Ed.), Computer Support for Collaborative Learning: Foundations for a CSCL Community, Proceedings of CSCL 2002, Boulder, Colorado, January 7 – 11, 2002. Hillsdale, NJ: Erlbaum.

- Matese, G., Marshall, S., & Edelson, D. (2000). Understanding Adoption of Software Tools: Comparative Case Studies of Teacher Beliefs About and Use of Inquiry-Support Software. In B. Fishman & S. O'Connor-Divelbiss (Eds.), *Proceedings of the Fourth International Conference of the Learning Sciences* (pp. 33-38). Mahwah, NJ: Erlbaum.
- Sherin, B., Edelson, D.C., & Brown, M. (2000). Learning in Task-Structured Curricula. In B. Fishman & S. O'Connor-Divelbiss (Eds.), *Proceedings of the Fourth International Conference of the Learning Sciences* (pp. 266-272). Mahwah, NJ: Erlbaum.
- Wolfe, M., Edelson, D., Kass, A., & Davies, B. (2000). Goin' Up?: Using a Design Task to Teach About Force and Motion. In B. Fishman & S. O'Connor-Divelbiss (Eds.), *Proceedings of the Fourth International Conference of the Learning Sciences* (pp. 297-298). Mahwah, NJ: Erlbaum.
- Brown, M., & Edelson, D. C. (1999). A lab by any other name: Integrating traditional labs and computer-supported collaborative investigations in science classrooms, *Proceedings of Computer-Support for Collaborative Learning (CSCL 1999), Stanford, CA, December 1999*, (pp. 73-80).
- Reimer, T. C., & Edelson, D. C. (1999). Using a CSCL tool to support a legislative role-playing simulation: Hopes, fears, and challenges, *Proceedings of Computer-Support for Collaborative Learning (CSCL 1999), Stanford, CA, December 1999*, (pp. 466-474).
- Edelson, D. C. (1998). Matching the Design of Activities to the Affordances of Software to Support Inquiry-Based Learning. In A. S. Bruckman, M. Guzdial, J. L. Kolodner, & A. Ram (Eds.), *Proceedings of ICLS 98: International Conference on the Learning Sciences, Atlanta, GA, December 1998*, (pp. 77-83). Charlottesville, VA: AACE.
- Brown, M., & Edelson, D. C. (1998). Software in context: Designing for students, teachers, and classroom enactment. In A. S. Bruckman, M. Guzdial, J. L. Kolodner, & A. Ram (Eds.), *Proceedings of ICLS 98: International Conference on the Learning Sciences, Atlanta, GA, December 1998*, (pp. 63-69). Charlottesville, VA: AACE.
- Loh, B., Radinsky, J., Eric Russell, Gomez, L. M., Reiser, B. J., & Edelson, D. C. (1998). The Progress Portfolio: Designing Reflective Tools for a Classroom Context, *Human Factors in Computing Systems: CHI '98 Conference Proceedings, Los Angeles, CA, April 98*, (pp. 627-634). New York: ACM Press.
- Reimer, T. C., & Edelson, D. C. (1998). Addressing the Challenges of a Social Simulation with Computer Supported Collaborative Learning (CSCL) Tools. In A. S. Bruckman, M. Guzdial, J. L. Kolodner, & A. Ram (Eds.), *Proceedings of ICLS 98: International Conference on the Learning Sciences, Atlanta, GA, December 1998*, (pp. 345-347). Charlottesville, VA: AACE.
- Loh, B., Radinsky, J., Reiser, B. J., Gomez, L. M., Edelson, D. C., & Russell, E. (1997). The Progress Portfolio: Promoting reflective inquiry in complex investigation environments, *Proceedings of CSCL 97: Computer Support for Collaborative Learning, Toronto, December 1997*.
- Gordin, D. N., Edelson, D. C., & Gomez, L. M. (1996). Scientific Visualization as an Interpretive and Expressive Medium. In D. C. Edelson & E. A. Domeshek (Eds.), *Proceedings of the International Conference on the Learning Sciences, July 1996, Evanston, IL*, (pp. 409-414). Charlottesville, VA: AACE.
- Gordin, D. N., Edelson, D. C., Gomez, L. M., Lento, M., & Pea, R. D. (1996). Student conference on global warming: A collaborative network-supported ecologically hierarchic geosciences curriculum, *Proceedings of the Fifth American Meteorological Society Education Symposium, January 1996*.

- Edelson, D. C., O'Neill, D. K., Gomez, L. M., & D'Amico, L. (1995). A Design for Effective Support of Inquiry and Collaboration. In J. L. Schnase & E. L. Cunniss (Eds.), Proceedings of CSCL '95: The First International Conference on Computer Support for Collaborative Learning, October 17-20, 1995, Bloomington Indiana, . Hillsdale, NJ: Erlbaum. [Electronic Document URL: <http://www-cscl95.indiana.edu/cscl95/edelson.html>]
- O'Neill, D. K., Edelson, D. C., Gomez, L. M., & D'Amico, L. (1995). Learning to Weave Collaborative Hypermedia into Classroom Practice. In J. L. Schnase & E. L. Cunniss (Eds.), Proceedings of CSCL '95: The First International Conference on Computer Support for Collaborative Learning, October 17-20, 1995, Bloomington Indiana, . Hillsdale, NJ: Erlbaum. [Electronic Document URL: <http://www-cscl95.indiana.edu/cscl95/oneill.html>]
- Pea, R., Gomez, L., & Edelson, D. (1995). Science Education as a Driver of Cyberspace Technology Development. Proceedings of the Annual Meeting of the Internet Society, Honolulu, HI, June 27-30. [Electronic Document URL: <http://inet.nttam.com/HMP/PAPER/210/html/paper.html>].
- Ramamurthy, R. K., B.Wilhelmson, R., Pea, R. D., Gomez, L. M., & Edelson, D. C. (1995). CoVis: A national science education collaboratory. Proceedings of the American Meteorological Society 4th Conference on Education Joint with the 11th Conference on Interactive Information and Processing Systems for Meteorology, Oceanography, and Hydrology, Dallas, TX, January 15-20, 1995.
- Gordin, D. N., Edelson, D. C., & Pea, R. D. (1995). The Greenhouse Effect Visualizer: A tool for the science classroom, Proceedings of the American Meteorological Society 4th Conference on Education Joint with the 11th Conference on Interactive Information and Processing Systems for Meteorology, Oceanography, and Hydrology, Dallas, TX, January 15-20, 1995, (pp. (J6)47-(J6)52).
- O'Neill, D. K., Gomez, L. M., & Edelson, D. C. (1994). Collaborative hypermedia for the classroom and beyond: A year's experiences with the Collaboratory Notebook. In J. M. Haake (Ed.), Proceedings of the CSCW '94 Workshop on Collaborative Hypermedia Systems, Chapel Hill, NC, Oct. 22, 1994. Also appears in Haake, J. M. (1994) GMD Studien 1994, 239. Sankt Augustin, Germany: Gesellschaft fur Mathematik und Datenverarbeitung.
- Edelson, D. C., & O'Neill, D. K. (1994). The CoVis Collaboratory Notebook: Supporting collaborative scientific inquiry, Proceedings of the National Educational Computing Conference, Boston, MA, June 1994. Eugene, OR: ISTE.
- Edelson, D. C. (1993). Socrates, Aesops, and the computer: Questioning and storytelling with multimedia, Educational Multimedia and Hypermedia Annual, 1993: Proceedings of ED-MEDIA 93—World Conference on Educational Multimedia and Hypermedia, Orlando, FL, Charlottesville, VA: Association for the Advancement of Computers in Education. Also appears in Journal of Educational Multimedia and Hypermedia, 2(4).
- Edelson, D. C., Collins, A., Bareiss, R., & Kass., A. (1993). Incorporating AI into effective learning environments, Proceedings of the Tenth International Conference on Technology in Education, Cambridge, MA, March 1993.
- Edelson, D. C. (1992). When should a cheetah remind you of a bat? Reminding in case-based teaching, Proceedings of the Tenth National Conference on Artificial Intelligence, San Jose, CA, July 1992, .
- Edelson, D. C. (1991). Why do cheetahs run fast: Responsive questioning in a case-based teaching system, Proceedings of the International Conference on the Learning Sciences, Evanston, IL, August 1991, . Hillsdale, NJ: Erlbaum.
- Edelson, D. C. (1991). Oh, the stories I could tell: Managing an Aesopic teaching dialogue, Proceedings of the DARPA Case-Based Reasoning Workshop, Washington, D.C., May 1991, (pp. 280-291).

Refereed Conference Papers (Unpublished)

- Edelson, D. C., Smith, D. A., Brown, M., & Russell, E. (2006). *Designing GIS tools to address the needs of educational users*. Paper presented at the ESRI Education User Conference, San Diego, CA, August 5-8.
- Switzer, A. C., & Edelson, D. C. (2006). Decision making in high-school environmental science: Introducing a method of assessment. Paper presented at the Annual Meeting of the National Association for Research in Science Teaching, San Francisco, CA, April 4.
- Kyza, E. A., & Edelson, D. C. (2004). *Scaffolding Middle School Students' Coordination of Theory and Evidence*. Paper presented at the American Educational Research Association 2004 Annual Meeting, San Diego, CA, April 2004.
- Pitts, V. M., & Edelson, D. C. (2004). *Role, Goal, and Activity: How Context Influences Student Engagement in Scenario-Based Learning Environments*. Paper presented at the American Educational Research Association 2004 Annual Meeting, San Diego, CA, April 2004.
- Edelson, D. C. & Bang, M. (2003) Integrating technology-supported activities and non-technology activities in support of conceptual learning: A design survey. Paper presented at the Annual Meeting of the American Educational Research Association: Chicago, IL.
- Kyza, E. A., & Edelson, D. C. (2003). *Reflective inquiry: What it is and how can software scaffolds help*. Paper presented at the Annual Meeting of the American Educational Research Association: Chicago, IL.
- McGee, S., Edelson, D. C., Schwille, K. (2003). Development of a cognitive assessment model in environmental science. Paper presented at the Annual Meeting of the American Educational Research Association: Chicago, IL.
- Edelson, D. C., Salierno, C., Matese, G., Pitts, V., & Sherin, B. (2002). Learning-for-Use in Earth science: Kids as climate modelers. Paper presented at the Annual Meeting of the National Association for Research in Science Teaching, New Orleans, LA, April 2002.
- Matese, G., Jacqueline Griesdorn, & Daniel C. Edelson. (2002). Professional development in support of assessing inquiry-based science: A design research approach. Paper presented as part of a symposium entitled "Challenges and Strategies for Practice-Based Professional Development in a Systemic Reform Initiative" at the Annual Meeting of the American Educational Research Association, New Orleans, LA, April 2002.
- Kyza, E., Golan, R., Reiser, B. J., & Edelson, D. C. (2002). Scaffolding complex, computer-based inquiries in science: managing data-driven investigations using the Progress Portfolio tool. Paper presented as part of a symposium entitled "Characterizing and Evaluating Software Scaffolds" at the Annual Meeting of the American Educational Researchers Association, New Orleans, LA, April 2002.
- Brown, M., & Edelson, D. C. (2001) Applying Teacher Narratives to Curriculum Design. Paper presented as part of a symposium entitled "Opening a window on practice: Residual insights from collaborative design research" at the Annual Meeting of the American Educational Research Association, Seattle, WA, April 2001.
- Reimer, T., & Edelson, D. C. (2001). Examining the Benefits of Membership in a Political Community of Learners. Paper presented at the Annual Meeting of the American Educational Research Association, Seattle, WA, April 2001.
- Golan, R., Kyza, E., Reiser, B. J., & Edelson, D. C. (2001). Structuring the role of behavior analysis with software scaffolds. Paper presented at the Annual Meeting of the National Association of Research in Science Education. St. Louis, MO: March 2001.

- Loh, B., Radinsky, J., Reiser, B. J., Edelson, D. C., & Gomez, L. M. (1998). The Progress Portfolio: Designing Reflective Supports for Different Phases of Classroom Investigations. Paper presented at the Annual Meeting of the American Educational Research Association, San Diego, CA, April 1998.
- Radinsky, J., Loh, B., Reiser, B., Gomez, L., Edelson, D., & Brown, M. (1998). Strategic design dimensions for promoting reflection in complex inquiry projects. Paper presented at the Annual Meeting of the American Educational Research Association, San Diego, CA, April 1998.
- Edelson, D. C., Gordin, D. N., & Pea, R. D. (1997). Creating science learning tools from experts' investigation tools: A design framework. Paper presented at the Annual Meeting of the National Association for Research in Science Teaching, Oak Brook, IL, March 20-24, 1997.
- Edelson, D. C., & Lento, E. M. (1996). Teachers as Seekers of Understanding: Technological Support for a Partnership between Teachers and Students. Paper presented as part of a symposium entitled "The Teacher as Seeker of Understanding: Implications for Student Learning and Teacher Preparation" at the Annual meeting of the American Educational Research Association, New York, April 8-12, 1996.
- Gordin, D. N., Edelson, D. C., & Pea, R. D. (1996). Supporting Students' Science Inquiry through Scientific Visualization Activities. Paper presented as part of an interactive symposium entitled "Scientific Visualization Tools in Science Classrooms" at the Annual meeting of the American Educational Research Association, New York, April 8-12, 1996.
- Edelson, D. C., & O'Neill, D. K. (1994). The CoVis Collaboratory Notebook: Computer support for scientific inquiry. Paper presented at the Annual Meeting of the American Educational Research Association, New Orleans, LA.
- Edelson, D. C., Gordin, D., Polman, J., & Fishman, B. (1994). Scaffolding student inquiry with collaborative visualization tools. Paper presented at the Annual Meeting of the American Educational Research Association, New Orleans, LA.
- Pea, R. D., Edelson, D. C., Gomez, L., D'Amico, L., Fishman, B., Gordin, D., McGee, S., O'Neill, D. K., & Polman, J. (1994). The CoVis Collaboratory: High school science learning supported by a broadband educational network with scientific visualization, videoconferencing, and collaborative computing. Paper presented at the symposium entitled "Issues in computer-networking in K-12 classrooms: A progress report of four NSF testbeds" at the Annual Meeting of the American Educational Research Association, New Orleans, LA.
- Pea, R. D., Edelson, D., & Gomez, L. (1994). Distributed collaborative science learning using scientific visualization and wideband telecommunications. Paper presented at the symposium entitled "Multimedia information systems for science and engineering education: Harnessing technologies." at the 160th Meeting of the American Association for the Advancement of Science (AAAS), San Francisco.
- Cleave, J. B., Edelson, D. C., & Beckwith, R. (1993). A matter of style: An analysis of student interaction with a computer-based learning environment. Paper presented at the Annual Meeting of the American Educational Research Association, Atlanta, GA.
- Schank, R. C., Osgood, R., Brand, M., Burke, R., Domeshek, E., Edelson, D., Ferguson, W., Freed, M., Jona, M., Krulwich, B., Ohmaye, E., & Pryor, L. (1990, March). Beyond Process: A Universal Content Theory for Indexing. Paper presented at the AAAI Spring Symposium Series, Symposium on Case-Based Reasoning, Stanford, CA.

Refereed Conference Presentations (without full papers):

- Edelson, D. C. & Bruozas, M. B. (2006) GIS to Support Case-Based Environmental Science Education. Presented at the ESRI Education User Conference, San Diego, CA, August 5-8.

- Edelson, D. C. (2002) Making Global Climate Processes Accessible through the Integration of Data Visualization and Hands-On Activities. Presented at the Fall Meeting of the American Geophysical Union, San Francisco, CA, December 2002.
- Edelson, D. C., & Reiser, B. J. (2002). Thoughtful integration of technology into curricula for science inquiry. Paper presented as part of a symposium entitled "Integrating Project-Based Inquiry Initiatives into a Middle-Grades Science Curriculum: Essentials and Challenges" at the Annual Meeting of the American Educational Researchers Association, New Orleans, LA, April 2002.
- Edelson, D. C., Lach, M., Schwille, K., Tarnoff, A. (2001) Environmental Science with GIS: Integrating Science, Geography, and Technology Standards. Presented at the National Educational Computing Conference (NECC), Chicago, IL, June 2001.
- Edelson, D. C. (2001). Making Geospatial Data Visualization and Analysis Accesible to Learners. Presented as part of a symposium entitled "Geographic Information Technologies for Learning: Research to Support the Next Generation of Design" at the Annual Meeting of the American Educational Research Association, Seattle, WA, April 2001.
- Reiser, B. J., Edelson, D. C., Kyza, E. A., & Golan, R. (2001). Supporting novices in scientific investigations with scaffolded data analysis tools. Presented as part of a symposium entitled "Finding Common Ground for Scaffolding in Science: Informing Theory and Design" at the Annual Meeting of the American Educational Research Association, Seattle, WA, April 2001.
- Edelson, D. C., Taber, M. R., Gordin, D. N. (2000). WorldWatcher: Making Geographic Visualization and Data Analysis Accessible to Learners. Presented at The International Conference on Geographic Information Systems in Education, San Bernadino, CA, July 2000.
- Edelson, D. C., Taber, M. R., Gordin, D. N. (2000). Looking at the Environment: Investigations in Environmental Science Using Geographic Information Systems. Presented at The International Conference on Geographic Information Systems in Education, San Bernadino, CA, July 2000.
- Taber, M. R., Edelson, D. C., Griffin, D., & Brown, M. (1999). Scientific visualization of data as a tool for assisting students in developing meaningful relationships among complex variables. Paper presented at the annual meeting of the Geological Society of America, Denver, CO, October 1999. Abstract appears in GSA Abstracts with Programs, Vol. 31, No. 7, October 1999.
- Pritikin, G., Edelson, D., Brown, M., & Williams, K. (1999). Global Warming. Presented as part of a symposium entitled "At the Nexus of Challenging Curriculum Design, Learning Technologies, and School Transformation: The First Year of the Center for Learning Technologies in Urban Schools" at the Annual Meeting of the American Educational Research Association, Montreal, Canada, April 1999.
- Griffin, D. A., & Edelson, D. C. (1998). Scientific Visualization for Inquiry-Based Learning. Presented at the American Geophysical Union, May 26-29, 1998, Boston, Massachusetts.
- Edelson, D. C. (1998). Putting Scientific Data in the Hands of Students. Presented as part of a panel entitled "Telecollaboration Projects—Interactive Data Designs in Support of Student Inquiry" at the National Science Teachers Association (NSTA) National Convention, Las Vegas, April 16-19, 1998.
- Gordin, D. N., & Edelson, D. C. (1997). Using visualization to study global warming. Presented at the Annual Meeting of the Geological Society of America, Salt Lake City, UT, October 20-23, 1997. Abstract appears in GSA Abstracts with Programs, Vol. 29, No. 6, October, 1997

Edelson, D. C., & Gordin, D. N. (1997). Designing supportive scientific visualization for learners: Adapting scientists' tools. Presented at the Second International Conference on Geoscience Education, July 28-31, 1997, Hilo, HI. Abstract appears in proceedings.

Altman, M., Walther, J. B., Edelson, D. C. & O'Neill, D. K. (1997). Electronic collaboration and problem-based learning. Presented at the Computers in Healthcare Education Symposium, Health Sciences Libraries Consortium, Philadelphia, April 23-26. Abstract appears in proceedings.

Fishman, B., Gomez, L., Pea, R., Edelson, D., Lento, E., D'Amico, L., Gordin, D., Kwon, S., O'Neill, K., Polman, J., Shrader, G., & Wagner, R. (1997). The CoVis Project: A national testbed for science learning reform. Interactive poster session at NARST 97: The Annual Meeting of the National Association for Research on Science Teaching, March 1997, Oak Brook, IL.

Edelson, D. C. (1996). Digital studios, laboratories, or playgrounds, but not libraries. Presented as part of a panel entitled "Digital Libraries: Creating Effective Designs for the K-12 Community" at Tel*Ed/Multimedia 96, Tampa, FL. December 5-8, 1996. (Abstract appears as Honey, M., Edelson, D., Gomez, L., Soloway, E., & Dexter, M. (1996). Digital Libraries: Creating Effective Designs for the K-12 Community, Proceedings of Tel*Ed/Multimedia 96, . Eugene, OR: International Society for Technology in Education.)

Edelson, D. C. (1995). Technological Support for Termless Learning. Presented as part of a panel entitled "Tools for Termless Learning" at NECC '95: National Educational Computing Conference, Baltimore, MD, June 17-19, 1995.

Edelson, D. C. (1995). Making Good Computer Tools into Good Educational Tools. Presented as part of a symposium entitled "Developing Educational Learning Environments: Home Baked or Store Bought" at the Annual Meeting of the American Educational Research Association, San Francisco, April 1995.

O'Neill, D. K., & Edelson, D. C. (1995). The CoVis Collaboratory Notebook: Recording and sharing the inquiry process. Presented as part of a symposium entitled "Using Technology to Realize the Potential of Project-Based Science Learning" at the Annual Meeting of the American Educational Research Association, San Francisco, April 1995.

Gordin, D., Fishman, B., & Edelson, D. C. (1995). Scientific visualization environments for open-ended inquiry. Presented as part of a symposium entitled "Using Technology to Realize the Potential of Project-Based Science Learning" at the Annual Meeting of the American Educational Research Association, San Francisco, April 1995.

Edelson, D. C. (1994). Educational impacts of scientific visualization in the CoVis Project. Presented as part of a symposium entitled "Educational Impacts of Scientific Visualization" at the National Educational Computing Conference, Boston, MA.

Invited Talks:

Educational Citizen Science. Panel presentation, Connecting Youth through Education Panel, America's Summit on National Parks, January 24, 2012.

Opening Eyes: Observing for Environmental Education. Plenary Address, Eye on Earth Summit, Abu Dhabi, UAE, December 15, 2011.

Importance of Geo-Literacy for Conservation and Environmental Education. Invited talk, Association of Fish and Wildlife Agencies Symposium on Conservation and the Environment, November 30, 2011.

Challenges and Opportunities in Climate Change Education. Invited talk. National Research Council Workshop on Climate Change Education in Elementary School through the First Two Years of College, Washington, DC, August 31, 2011.

- Design of Motivated Learning: Bridging the Cognition/Motivation Research Gap.* Invited talk, Centennial Conference on Motivation and Engagement, University of Pittsburgh School of Education, May 5, 2011.
- Cinderella Before the Ball: Geography Education in America.* Plenary, National Conference on Geography Education, Dearborn, MI, October 10, 2008.
- Building a Geographically Literate Society: A Case Study of an Ongoing National Educational Reform Initiative.*, Inaugural Waterbury Lecture, College of Education, Pennsylvania State University. February 4, 2008.
- Utiliser l'intérêt pour motiver les élèves: Une Théorie Pratique (Motivating students through interest: A practical theory).* Séminaire EDA (Laboratoire Education et Apprentissages), Université René Descartes, Paris, France. October 19, 2007.
- Investigations in Environmental Science: A case-study of research-driven curriculum and software design.* Invited talk, Séminaire TEMATICE, Université René Descartes, Paris, France. October 17, 2007.
- Designing Software to Support Inquiry Learning; Designing Activities to Support Learning through Inquiry.* Keynote Address, Technology-integrated Science and Engineering Education II Workshop, National Taiwan Normal University, Taipei, Taiwan. May 17, 2007.
- Learning-for-Use in Earth Science: Fostering Knowledge Students Will Use.* Keynote Address, First Earth Science Education Conference, Taiwan Geosciences Assembly, Taipei, Taiwan, May 15, 2007.
- My World GIS: A Geographic Information System for Students, Novices, and Occasional Users.* Colloquium Presentation, Center for Urban Environmental Research and Policy, Loyola University Chicago, April 20, 2007.
- Teaching Science that Matters.* Featured Speaker, WNET/Thirteen Celebration of Teaching and Learning, New York, NY, March 24, 2007.
- Investigations in Environmental Science: A case-study of research-driven curriculum design.* Invited talk, School of Education and Woods Environmental Institute, Stanford University, March 6, 2007.
- Overcoming the Inert Knowledge Problem: Learning-for-Use.* Invited talk, Chicago Public Schools, Office of Math and Science, Science Content Seminar Series, January 17, 2007.
- Practice-Based Professional Development.* Invited panel presentation, Department of Education Math-Science Partnership Regional Conference, Chicago, IL, November 8-10, 2006.
- Integration and Adaptation of Technology to Support Inquiry Learning.* Invited talk, Lawrence Hall of Science, University of California-Berkeley, April 11, 2006.
- Meaningful Science Instruction,* Keynote address, Illinois Science Education Leadership Association Winter Meeting, February 17, 2006, College of DuPage, Glen Ellyn, IL.
- Incorporating Insights from the Learning Sciences into Geosciences Instruction: Inquiry-Based Learning with Data.* Invited Talk. Earth and Environmental Science Department Seminar Series, University of Illinois-Chicago. February 2, 2006.
- Engineering Pedagogical Reform: A Case Study of Technology-Supported Inquiry.* Invited presentation at The NSF Inquiry Conference on Developing a Consensus Research Agenda, February 16-19, 2005, Rutgers University.
- Incorporating Insights from the Learning Sciences into Geosciences Instruction: Inquiry-Based Learning with Data.* Invited colloquium presentation, Department of Geological Sciences, University of California, Santa Barbara, April 14, 2004.

My World: A GIS designed for use by learners. Brown Bag Seminar in the Geography Department, University of California, Santa Barbara, April 15, 2004.

Implementing Inquiry-Based Learning with Geospatial Data. Invited colloquium presentation, Program in Communication, Computing, and Technology in Education, Teachers College, Columbia University, March 25, 2004.

What We Learn When We Engage in Design: Implications for Assessing Design Research. Invited presentation, Expert Meeting on Design Research, Sponsored by the Programme Council for Educational Research (PROO) of the Netherlands Organisations for Scientific Research (NOW), Amsterdam, December 3-5, 2003.

The Value of Teaching with Data: Insights from the Learning Sciences. Invited keynote. Using Global Data Sets in Teaching Earth Processes Workshop at the Annual Meeting of the American Geophysical Union, San Francisco, CA. December 5, 2002.

Theory Meets Practice in Curriculum Development: Applying the Learning-for-Use Framework. Invited colloquium presentation. Institute for Math and Science Education Colloquium, University of Illinois-Chicago, November 21, 2002

Working with Data: A Learning Sciences Perspective. Invited plenary address. Digital Library for Earth Science Education (DLESE) Annual Community Meeting, Cornell University, Ithaca, New York, June 29 – July 2, 2002.

The Real Opportunity for Technology in Education. Invited keynote address. Strategic Leadership Forum Consortium for Community College Development, Annual Meeting, Bloomington, IL, March 9, 2001.

WorldWatcher: A laboratory for Investigating Fundamental Processes through Scientific Visualization. Invited talk, American Association of Physics Teachers (AAPT) Summer Meeting, San Antonio, TX, August 3-7, 1999.

Adapting Scientists' Investigation Tools for Inquiry Learners: A Case Study of Visualization in Earth Systems Science. Invited talk, Center for Excellence in Space Data and Information Sciences, NASA Goddard Space Flight Center, May 25, 1999.

Teaching Science Content through Inquiry Activities. Invited talk, 1999 Teaching and Learning Spring Colloquium Series. Peabody College of Education, Vanderbilt University, February 12, 1999.

Software for Science Education Reform: What Will Make it Make a Difference? Invited talk, 1998 CELS Spring Seminar Series, Institute for Advanced Computer Studies and School of Education, University of Maryland, March 18, 1998.

Science Learning Through Science Practice: The CoVis and SSciVEE Projects. Keynote address to the Spring Conference of the Utah Geographic Alliance, Salt Lake City, UT, February 28, 1997.

Designing Inquiry Environments for Learners: Bridging Between Learners and 'Authentic' Science. Presentation in the EMST/SESAME Colloquium series at the Graduate School of Education, University of California at Berkeley, November 11, 1996.

The CoVis and SSciVEE Projects: Bringing Science Practice to Science Students. Presentation at the Cooperative University-Based Program in Earth System Science Education Earth Systems Curriculum Workshop, Berkeley Springs, WV, August 12-16, 1996.

Digital Libraries for Learners: Availability vs. Accessibility. Presented as part of a panel entitled "Digital Libraries in Education: Potential Roles and Impact" at ADL '96: Forum on Research & Technology Advances in Digital Libraries, The Library of Congress, Washington, DC. May 13-15, 1996.

Technology as Trojan Horse. Keynote Address at "Going Online," a faculty workshop, DePaul University, Chicago, April 27, 1996.

Building Effective Learning Technologies. Presented as part of a panel entitled "The Development and Use of Learning Technology" at the Committee on Institutional Cooperation (CIC) Symposium on Learning Technology, Urbana, IL, April 1995.

Adapting Scientific Practice for Science Learning. Presentation at the annual meeting of the advisory board of the BioQuest Consortium. Beloit College, Beloit, WI., March 4, 1995.

Adapting science practice for learning: The Learning through Collaborative Visualization Project. Presented at the seminar entitled "Fundamental Issues of Imaging Science" at the Annual Meeting of the American Association for the Advancement of Science (AAAS), Atlanta, GA, February 17, 1995.

The CoVis Project: Collaborative visualization as a strategy for science learning. Presented at the Symposium entitled "Biological Research in a Changing World: Preparing the Teachers, Learners, and Discoverers" at the University of Chicago, Chicago, IL, June 4, 1994.

Computer support for open-ended science learning. The College of Computing, Georgia Institute of Technology, Atlanta, GA. April 18, 1994.

Computer support for open-ended science learning. The School of Education and Social Policy, Northwestern University, Evanston, IL. March 29, 1994.

Media Nets for Learning. The Media Lab, Massachusetts Institute of Technology, Cambridge, MA. February 24, 1994.

Refereed Exhibitions and Demonstrations:

Edelson, D. C. (2004) My World: A Case Study in Adapting Scientists' Tools for Learners. Poster and Demonstration. Abstract appears in Y. B. Kafai, W. A. Sandoval, N. Enyedy, A. S. Nixon & F. Herrera (Eds.), *Proceedings of the Sixth International Conference on the Learning Sciences, Santa Monica, CA, June 22-26, 2004.* Mahwah, NJ: Erlbaum.

Edelson, D. C., Gordin, D. N., & Clark, B. A. (1996). The Global Warming Visualizer: A scientific visualization environment for children. Demonstration. Abstract appears in D. C. Edelson & E. A. Domeshek (Eds.), International Conference on the Learning Sciences, July 1996, Evanston, IL, (pp. 557). Charlottesville, VA: AACE.

Schwartz, D., & Edelson, D. (1992, July). CreANIMate: A case-based teaching system for biology. Interactive exhibition and demonstration at SIGGRAPH '92: 19th Annual International Conference on Computer Graphics and Interactive Techniques, G-Tech Division, Chicago, IL.

Unpublished Software:

Progress Portfolio. Inquiry support environment. With B. Loh, J. Radinsky, E. Russell, B. Reiser, and L. Gomez. Available at <http://www.progressportfolio.northwestern.edu>

Goin' Up? Goal-based scenario for introductory physics concepts. With Michael Wolfe, Alex Kass, Brian Davies, Deborah Brown, Paul Auvil, and David Taylor. Available at <http://www.cs.northwestern.edu/~edelson/physics/pub>

Global Warming Crisis. Goal-based scenario for middle school science. With Alex Kass, Noreen Burke, Steven Feist, Laura Ferguson, Tony Kern, Kiku Steinfeld, and Brad Larrabee.

Collaboratory Notebook. A networked, hypermedia collaboration environment for science education. With D. K. O'Neill and M. J. Gray.

Climate Visualizer (with D.N. Gordin and J. Polman), *Weather Visualizer* (with M. J. Gray and B. Fishman), *Greenhouse Effect Visualizer* (with D.N. Gordin). Scientific visualization tools for atmospheric science education.

CreANIMate. A case-based teaching system for elementary school biology. With R. Schank, R. Mohammed, R. Kaeding, J. Cleave, W. Fitzgerald, D. Schwartz, and K. Greenlee.

Unpublished Curriculum Materials

Earth Structures and Processes. 6-week unit on plate tectonics for 6-8th grades. With J. Leimberer, M. Pardo, and J. Radinsky. Available through the Geographic Data in Education (GEODE) Initiative (http://www.geode.northwestern.edu/PBI/Earth_Structures/curric/overview.html). 2004.

Planetary Forecaster. 8-week unit on physical geography and climate for 6-8th grades. With D. Slusher, L. Owns, V. Pitts, G. Matese, and S. Marshall. Available through the Geographic Data in Education (GEODE) Initiative (http://www.geode.northwestern.edu/PBI/Planetary_Forecaster/index.html) 2004.

Global Warming Project. 8-week unit on global climate change for 8-10th grades. With M. Brown. Available through the Center for Learning Technologies in Urban Schools (<http://www.letus.northwestern.edu/projects/gw>). 1999.

Recognition and Media Coverage:

Young Scientists Hit Road to Learn How Far Salt Travels. Chicago Tribune article, February 22, 2007. [Available online at <http://www.chicagotribune.com/news/local/chi-0702220176feb22,1,7889317.story?coll=chi-newslocal-hed>].

Student-friendly GIS Leads To Real-world Science Inquiry. Science Daily article, February 14, 2006.

Council wants youths to think spatially. UPI article, February 7, 2006. [Available online at <http://www.upi.com/NewsTrack/Science/20060207-032421-3072r/>]

eSchool News Readers Choice Awards, 2005. My World GIS voted one of the top Earth science software applications for high school by readers of *eSchool News* [<http://www.eschoolnews.com/resources/surveys/editorial/rca/>]

NASA Earth Science Enterprise Seal of Approval, 2001. WorldWatcher and *The Global Warming Project* curriculum were recognized for outstanding educational value based on current, accurate NASA Earth science. NASA awards this distinction to products that have passed a rigorous peer review by educators and scientists, including classroom teachers and college faculty, education standards experts, curriculum designers, teacher trainers, and Earth system scientists.

DLESE Resource of Interest, December 2000: The Global Warming Project. [<http://www.dlese.org/highlight/highlight00.html>]

Education World "Best of 99: Top 20" educational site, December 1999: WorldWatcher Project website.

Education World. Reviewed and Rated A+, September 1999: WorldWatcher Project website. [<http://www.education-world.com/awards/past/r0999-20.shtml>]

Science. "Visualizing a changing world" by Andreas Madlung, November 19, 1999, Vol. 286, p. 1497. Review of WorldWatcher.

Environmental News Network. WorldWatcher featured in news article "Technology brings the world to students", August 11, 1999. [http://www.enn.com/news/enn-stories/1999/08/081199/worldwatcher_4913.asp]

Courses Taught:

Learning Sciences

Learning and Understanding: A Cognitive Science Approach, undergraduate
Cognitive Science, Learning, and Education, graduate

Introduction to Design for the Learning Sciences, graduate
Introduction to Design: User-Interface Design for Educational Software, graduate
Design of Learning Environments, graduate
Designing Motivating Learning, graduate seminar
Historical Perspectives on Science Curriculum Design, graduate seminar

Teacher Education

Teaching with Technology, undergraduate and graduate (pre-service)
Teaching Inquiry-Based Science with Technology, graduate (in-service)

Computer Science

Introduction to the Fundamentals of Programming II, undergraduate
Design of Interactive Learning Environments, graduate
Learning Environment Architectures, graduate

Cognitive Science

Introduction to Cognitive Modeling, undergraduate

Advising:

Ph.D. Advisor/Committee Chair:

Virginia Pitts, Learning Sciences, Ph.D. 2006
Gabrielle Matese, Learning Sciences, Ph.D. 2005
Michael Wolfe, Computer Science, Ph.D. 2004
Eleni Kyza, Learning Sciences, Ph.D. 2004
Todd Reimer, Learning Sciences, Ph.D. 2002
Matthew Brown, Learning Sciences, Ph.D. 2002
Douglas Gordin, Learning Sciences, PhD 1997 (co-advisor/co-chair)

Postdoctoral:

Eunmi Lee, postdoctoral fellow, Center for Curriculum Materials in Science (2005-8)
Darlene Slusher, postdoctoral fellow, Center for Curriculum Materials in Science (2003-4)
Colleen Riley, postdoctoral fellow, Center for Curriculum Materials in Science (2003-4)
Ann Rivet, WorldWatcher Curriculum Project (2003)
Duane Griffin, NSF Postdoctoral Fellowship in Science, Math, Engineering, Technology Education (1997-9)

Dissertation Committees

Anne C. Switzer, Science Education (Univ. of Michigan), Ph.D. 2009
Tiffany Simons, Learning Sciences, Ph.D., 2009
Eric O. Russell, Computer Science, M.S., 2008
Moshe Krakowski, Learning Sciences, Ph.D., 2007
Baba Kofi Weusijana, Learning Sciences, Ph.D., 2006
Carrie Tzou, Learning Sciences, Ph.D. 2005
Ravit Golan Duncan, Learning Sciences, Ph.D. 2004
Ben Loh, Learning Sciences, Ph.D. 2003
Brendon Towle, Computer Science, Ph.D. 2000.
Gregory Shrader, Learning Sciences, Ph.D. 2000.
Ann Holum, Learning Sciences, Ph.D. 1997.
Benjamin Bell, Computer Science, Ph.D. 1996.

University Service

Northwestern Office of Science Technology Engineering and Math (STEM) Education Partnerships. Founder, 2006; Co-chair, Steering Committee, 2007-present.
School of Education and Social Policy Executive Committee, 2004-6.

Graduate School Administrative Board, 2004-2006. School of Education and Social Policy representative on the policy committee of the Graduate School.
Provost's Visioning Committee for *The Highest Order of Excellence, 2005-2010: A Planning Framework*. Faculty committee to advise on a 5-year strategic plan for Northwestern. 2003-4.
Copyright Policy Committee, 2002-2005. Ad hoc faculty committee convened by the Provost to research, draft, and negotiate official University copyright policy for works created by faculty, staff, and students.

Other Professional Activities:

Editorial Boards

International Journal on Computers and Mathematical Learning, editorial board 1999-2008.
Journal of the Learning Sciences, 1998-2005.

Journal Review

Science Education
Journal of Research on Science Teaching
Interactive Learning Environments
Computers and Geosciences
Computers and Education
Cognition and Instruction

Conference Organization

Member, Advisory Board, ICLS '14: Eleventh International Conference on the Learning Sciences
Member, program committee, ICLS '08: Eighth International Conference on the Learning Sciences
Member, program committee, ICLS '04: Sixth International Conference on the Learning Sciences
Member, program committee, ICLS '02: Fifth International Conference on the Learning Sciences
Member, program committee, ICLS '00: Fourth International Conference on the Learning Sciences
Member, program committee, CSCL '99: Computer Support for Collaborative Learning
Member, program committee, ICLS '98: Third International Conference on the Learning Sciences
Co-chair, program committee, ICLS '96: Second International Conference on the Learning Sciences

Proposal Review

Review Panel Member, National Science Foundation, Division of Elementary, Secondary, and Informal Education, 1996, 1998, 2000.
Reviewer, National Science Foundation Division of Research in Education and Communication, 1997, 1999, 2001.
Reviewer, NASA Earth Sciences Education Program, 1999.

Advisory Boards

Advisory Board, Center for Innovative Research in Cyberlearning. 2014-present.
Education Advisory Council, NatureBridge, San Francisco, CA. 2008-present
Education Advisory Committee, Museum of Science and Industry, Chicago, IL. 2007-2009.
Educational Advisory Panel, Time4Learning. 2007-present.
Data Sets and Inquiry in Geoscience Education (DIGS) Project, SRI International, Edys Quellmalz, Dan Zalles, Janice Gobert. NSF Program for Research on Learning and Education (ROLE), 2006-2008.
Designing Learning Environments for Teaching Scientific Argumentation and Mathematical Reasoning with Geographic Data, Josh Radinsky, Susan Goldman, James Pelligrino, PI's, University of Illinois-Chicago. NSF Program for Research on Learning and Education (ROLE), 2004-07.
Noble Street Charter School, Chicago Community Trust grant for engineering education, 2003-4.
Antarctic Science And Policy: Interdisciplinary Research Education (Aspire), Paul Berkman, Ohio State University, Principal Investigator. NSF Division of Undergraduate Education. 1997-00.
A Study of Student Investigations in Data-Sharing Projects, Cliff Konold and Alexander Pollatsek, University of Massachusetts, Principal Investigators. NSF Program in Research on Education, Policy, and Practice. 1998-99.
Maryland Virtual High School CoreModels Project, Mary Ellen Verona, Montgomery County (Maryland) Public Schools, Principal Investigator. National Science Foundation. 1997-00.

Scientific and Technical Workshop Presentations and Participation

Long-Term Ecological Research Program All Scientists Meeting, Estes Park, CO, September 2006. Presented *GIS for Learners (and Teachers)* as part of a workshop entitled GIS in Education.

The National Forum for Geoscience Information Technology, Washington, DC, October 6-7, 2005.

NSF Workshop on Observing Systems for Environmental Solutions, Santa Fe, NM, May 23-25, 2005.

Digital Library for Earth Science Education (DLESE) Data Services Workshop, Breckinridge, CO, April 2005.

Digital Library for Earth Science Education (DLESE) Data Services Workshop, University of New Hampshire, May 24-26, 2004. Presented *My World GIS: Data Access Tools for Curriculum Developers and Educators Assessing Student Learning in Technology-Rich Environments*, an extended course at the annual meeting of the American Educational Research Association, San Diego, CA, April 2004. Presented *The Progress Portfolio: A Tool for Assessing Metacognitive Activity in Technology-Rich Inquiry*.

Expert Meeting on Design Research, Sponsored by the Programme Council for Educational Research (PROO) of the Netherlands Organisations for Scientific Research (NOW), Amsterdam, December 3-5, 2003. Presenter.

Digital Library for Earth Science Education (DLESE) Annual Community Meeting, University of Colorado, Boulder, CO, July 2003. Workshop and poster presenter.

Bringing Research on Learning to the Geosciences, sponsored by NSF and Johnson Foundation, Wingspread Conference Center, Racine, WI, July 2002. Participant.

U.S. Department of Commerce Summit on the Use of Advanced Technologies in Education and Training, September 2002. Participant.

Digital Library for Earth Science Education (DLESE) Annual Community Meeting, Cornell University, Ithaca, New York, June 2002. Presenter.

NSF Division of Research, Evaluation, and Communication Annual Principal Investigators' Meeting, Arlington, VA, May 2002. Participant.

Annual NSF K-12 Math, Science Curriculum and Implementation Projects Conference, Herndon, VA, January 2002. Participant.

Annual NSF K-12 Math, Science, and Implementation Project Conference, Arlington, VA, February 2001. Presenter.

National Science Foundation Conference for Developers of Comprehensive K-12 Math and Science Curriculum Programs, Alexandria, Virginia, February 2000. Participant.

NSF Research in Educational Policy and Practice Principal Investigators' Meeting, Alexandria, VA, May 1999. Presenter.

ScienceGate III, Principal Investigators Meeting, NSF Program in Instructional Materials Development (Comprehensive Science Curricula), February 1999. Participant.

Coalition for Earth Science Education Fourth Annual Meeting, Reston, VA, October 3-6, 1998. Presenter.

NSF Workshop on Global Change, Virtual Reality, and Learning, May 30-June 1, 1997, University of Washington, Seattle, WA. Presenter.

DARPA Computer Aided Education and Training Initiative (CAETI) Program community conference, November 1996. Presenter.

Annual Principal Investigators Meeting, National Science Foundation Program in Advanced Applications of Technology, June 1993, July 1994, and June 1996. Presenter.

Dynamic Partnerships: Seeding and Sustaining Education Reform, An NSF Working Conference, June 19-21, 1996, Washington, DC. Participant.

National Design Experiments Consortium (NDEC) workshops, March 1995, April 1996. Participant.

Setting a Research Agenda for Educational Technology, National Science Foundation workshop, Vienna, VA, September 1995. Presenter.

Professional Development Workshops for K-12 and Postsecondary Educators

My World GIS: A Geospatial Data Visualization and Analysis Environment for Learning. Keynote presentation at the 2006 BioQUEST Summer Workshop, "Exploring Complex Data Sets", Beloit College, June 2006.

GIS in Education with My World. Course offered by the Program in Communication, Computing, and Technology in Education, Teachers College, Columbia University, March 25-26, 2004. With Danielle Kaplan.

Using Global Data Sets in Teaching Earth Processes Workshop, sponsored by the National Association for Geoscience Teachers and the Digital Library for Earth Systems Education at the Annual Meeting of the American Geophysical Union, San Francisco, CA. December 5, 2002.

Earth System Data Analysis and Visualization Tools for Classroom Use: A College/University Workshop at the Second International Conference on Geoscience Education, July 28-31, 1997. Hilo, HI.
WorldWatcher Workshop as part of the Earth Systems Science Technology Education Project at the Geological Society of America, July 7 and August 4, 1997 (Two workshops).
Macintosh Computer Applications for Geoscience Education, American Geophysical Union Short Course, December 1996.

Consulting

Columbia University Center for New Media in Teaching and Learning, 2003
Aha! Interactive, 2001-2003.
Andersen Consulting, 1994.

Professional Societies

International Society for the Learning Sciences (ISLS)
Member, Board of Directors, 2003-2007
Co-chair, Conference Committee, 2002-2005
Member, Founding Board of Directors, 2002-2003
Member, American Educational Research Association (AERA), 1990-present
Member, Association for Computing Machinery (ACM), 1992-2006
Member, National Association for Research on Science Teaching (NARST), 1998-2006
Member, American Association for the Advancement of Science (AAAS), 1998-2007
Member, National Science Teachers Association (NSTA), 2003-present
Member, Tau Beta Pi, National Engineering Honor Society, 1984-present

Awards and Honors

President's Award, National Council for Geographic Education, August 2013.
BP Leader Award, September 2006.
National Science Foundation CAREER Award, 1998
Dean's Award for Undergraduate Teaching, School of Education and Social Policy, Northwestern University, June 1996.
Best Paper. ED-MEDIA 93—World Conference on Educational Multimedia and Hypermedia, June 1993.