Curriculum Vitae
Philip Bell
Associate Professor of Education

ADDRESS Cognitive Studies in Education
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EDUCATION

Ph.D., Education in Human Cognition & Development (Mathematics, Science, and Technology emphasis) from the University of California, Berkeley, 1998.
Dissertation: "Designing for Students' Science Learning Using Argumentation and Classroom Debate."
Committee: Marcia C. Linn (chair), Barbara Y. White, Nancy A. Van House.

M.A., Education in Mathematics, Science, and Technology from the University of California, Berkeley, 1996.

B.S., Electrical Engineering and Computer Science, University of Colorado at Boulder, 1989 with a programmatic emphasis on cognitive science and artificial intelligence.

RESEARCH INTERESTS

Science education, research-guided innovative learning technologies, scaffolding disciplinary inquiry in the classroom, influence of pervasive technologies on development, children's epistemologies and understanding of the nature of disciplines, and design-based research methods in education.

PROFESSIONAL POSITIONS

9/04 – present Associate Professor of Cognition & Technology, Cognitive Studies in Education Program, joint appointment between Educational Psychology and Curriculum & Instruction, College of Education, University of Washington.

9/02 – 9/04 Director, Cognitive Studies in Education graduate program, University of Washington. URL - http://depts.washington.edu/cogstudy

9/98 – 9/04 Assistant Professor of Cognition & Technology, University of Washington.

2/97 – 8/98 Project Director for an educational research project funded by the Department of Commerce through the Interactive University Initiative at the University of California, Berkeley, Prof. Marcia C. Linn (Principal Investigator).

11/94 – 8/98 Research Assistant for the Knowledge Integration Environment (KIE) research project, Prof. Marcia C. Linn (Principal Investigator), Graduate School of Education, University of California, Berkeley. URL - http://kie.berkeley.edu/

8/93 – 8/98 Research Assistant for the Computer as Learning Partner (CLP) research project, Prof. Marcia C. Linn (Principal Investigator), Graduate School of Education, University of California, Berkeley. URL - http://clp.berkeley.edu/

10/90-10/92 Research Associate and Chief Software Engineer for Architectural Energy Corporation (Boulder, Colorado), worked on the Earth Explorer educational research project funded by the National Science Foundation SBIR program.

PEER REVIEWED PUBLICATIONS

Bell, P. (in press). On the theoretical breadth of design-based research in education. *Educational Psychologist*.

Sandoval, W. A. & Bell, P. (in press). Design-based research methods for studying learning in context: Introduction and Special Issue. *Educational Psychologist*.

Fischer-Fortier, D., & Bell, P. (in press). Mediating interdisciplinary scientific communication online. *Science Communication*.

Stevens, R., Wineburg, S., Herrenkohl, L. R., & Bell, P. (in press). The comparative understanding of school subjects: Past, Present, and Future Research Agenda. *Review of Educational Research*.

Baumgartner, E., Bell, P., Brophy, S., Hoadley, C., Hsi, S., Joseph, D., Orrill, C., Puntambekar, S., Sandoval, W., & Tabak, I. (Design-based Research Collective). (2003). Design-based research: An emerging paradigm for educational inquiry. *Educational researcher*, *32*(1), 5-8.

Owens, K. S., & Bell, P. (2002). *Using Controversy and Technology to Develop Conceptual Understanding of Chemical Representations.* In P. Bell, R. Stevens & T. Satwicz (Eds.), *Keeping Learning Complex: Proceedings of the Fifth International Conference of the Learning Sciences* (pp. 330-336). Mahwah, NJ: Lawrence Erlbaum Associates.

Havelock, B., & Bell, P. (2001). Using scientific controversy to support student reasoning in science classrooms. *Proceedings of the Sixth International History, Philosophy, and Science Teaching Conference (IPHPST 2001)*, Denver, CO.

Bell, P., & Linn, M. C. (2000). Scientific arguments as learning artifacts: Designing for learning from the web with KIE. *International Journal of Science Education, 22*(8), 797-817.

Bell, P., & Davis, E. A. (2000). Designing Mildred: Scaffolding Students' Reflection and Argumentation Using a Cognitive Software Guide. In B. Fishman (Ed.), *Proceedings of ICLS '00: The Fourth International Conference on the Learning Sciences* (pp. 142-149). Mahwah, NJ: Lawrence Erlbaum Associates.

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 & Development*, *47*(2), 61-84.

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.

Bell, P. (1997). Using argument representations to make thinking visible for individuals and groups. In R. Hall, N. Miyake, & N. Enyedy (Eds.), *Proceedings of CSCL '97: The Second International Conference on Computer Support for Collaborative Learning*, (pp. 10-19). Toronto: University of Toronto Press.

Bell, P., Davis, E. A., & Linn, M. C. (1995). The knowledge integration environment: Theory and design. In J. L. Schnase & E. L. Cunnius (Eds.), *Proceedings of Computer Support for Collaborative Learning '95* (pp. 14-21). Mahwah, NJ: Lawrence Erlbaum Associates. [Presented in plenary session.]

EDITORIALLY REVIEWED PUBLICATIONS

Bell, P. (2002). Fostering multi-partisan interactions online around a socially polarized science-based controversy. *The Journal of Education, Community, and Values, 2*(11). (Accessed online 13 December 2002, http://bcis.pacificu.edu/journal/2002/11/bell.php)

Hoadley, C. M., & Bell, P. (1996, September). Web for your head: The design of digital resources to enhance lifelong learning. *D-Lib Magazine*. URL - http://www.dlib.org/dlib/september96/kie/09hoadley.html

BOOKS & BOOK CHAPTERS

EDITED BOOKS:

Linn, M. C., Davis, E. A., & Bell, P. (2004). *Internet environments for science education*. Mahwah, NJ: Erlbaum.

Bell, P., Stevens, R., & Satwicz, T. (Eds.). (2004). *Keeping Learning Complex: Proceedings of the Fifth International Conference of the Learning Sciences*. Mahwah, NJ: Lawrence Erlbaum Associates.

BOOK CHAPTERS:

Bell, P. (2004). Promoting students' argument construction and collaborative debate in the science classroom. In M. C. Linn & E. A. Davis & P. Bell (Eds.), *Internet environments for science education*. Mahwah, NJ: Erlbaum.

Bell, P. (2004). The educational opportunities of contemporary controversies in science. In M. C. Linn & E. A. Davis & P. Bell (Eds.), *Internet environments for science education*. Mahwah, NJ: Erlbaum.

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*. Mahwah, NJ: Erlbaum.

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: Erlbaum.

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*. Mahwah, NJ: Erlbaum.

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*. Mahwah, NJ: Erlbaum.

Linn, M. C., Davis, E. A., Bell, P., & Eylon, B. S. (2004). Final thoughts — Internet environments for science education. In M. C. Linn & E. A. Davis & P. Bell (Eds.), *Internet environments for science education*. Mahwah, NJ: Erlbaum.

Bell, P. (2002). Using argument map representations to make thinking visible for individuals and groups. In T. Koschmann & R. Hall & N. Miyake (Eds.), *CSCL 2: Carrying Forward the Conversation* (pp. 449-485). Mahwah, NJ: Lawrence Erlbaum Associates.

Bell, P. (2002). Science *is* argument: Developing sociocognitive supports for disciplinary argumentation. In T. Koschmann & R. Hall & N. Miyake (Eds.), *CSCL 2: Carrying Forward the Conversation* (pp. 499-505). Mahwah, NJ: Lawrence Erlbaum Associates.

Bell, P. & Linn, M. C. (2002). Beliefs about science: How does science instruction contribute? In B. Hofer & P. Pintrich, *Personal epistemology: The psychology of beliefs about knowledge and knowing* (pp. 321-346). Mahwah, NJ: Lawrence Erlbaum Associates.

Bell, P. & Winn, W. (2000). Distributed cognition, by nature and by design. In D. Jonnassen & S. Land, *Theoretical Foundations of Learning Environments* (pp. 123-145) Mahwah, NJ: Lawrence Erlbaum Associates.

SIGNIFICANT EDUCATIONAL DESIGN PRODUCTS

Software Learning Environments

- *Computer as Learning Partner (CLP) E-LabBook*:
  scaffolded experimentation environment for use of probeware in science class; developed collaboratively in the CLP Research Group – http://www.clp.berkeley.edu/
- *Knowledge Integration Environment (KIE)*:
  our first-generation Internet learning environment (circa 1994-97); developed collaboratively in the KIE Research Group – http://kie.berkeley.edu/
- *Web-KIE*:
  our second-generation Internet learning environment (circa 1997-98); I developed a pure web approach – see http://www.kie.berkeley.edu/KIE/web/hf-description.html and http://www.kie.berkeley.edu/KIE/web/frogs/
- *SenseMaker Argument Mapping Environment*:
  knowledge representation tools used to support science argumentation (there have been separate AppleScript, C, Java, and Flash implementations) – http://www.kie.berkeley.edu/sensemaker/
- *Web-based Inquiry Science Environment (WISE)*:
  our third- and fourth-generation Internet learning environment, currently in broad use (10,000+ registered teachers worldwide, with over 50,000 student uses), 1998-present; developed collaboratively in the WISE Research Group – http://wise.berkeley.edu/

Curriculum Projects (many were collaborative constructions with other research group members, most are available for classroom use from http://wise.berkeley.edu/)

- How Far Does Light Go? (physical science), The Light and Color Debate
- The Deformed Frogs Mystery, The Environmental Chemical Hypothesis, The Parasite Hypothesis
- Malaria Introduction, Cycles of Malaria, The DDT-Malaria Controversy (for high school chemistry classes), The DDT Dilemma (for middle and high school life science classes)
- Genetically Modified Foods: An Introduction, Gene Flow & Genetically Modified Foods
- Rosa Parks History Curriculum — elementary and middle school history project; developed collaboratively in the PATHS research project, http://depts.washington.edu/pathspro/

Online Knowledge Fora (virtual communities focused on deliberation of contemporary knowledge in science, developed as part of the SCOPE project, http://scope.educ.washington.edu/)

- Malaria Research & Policy Forum (1206 registered members worldwide)
- Genetically Modified Foods Educational Forum (2141 registered members worldwide)
- Declining Amphibians & Deformed Frogs Forum (551 registered members worldwide)
- "Teaching about Controversy" Online Teacher's Center (122 registered members worldwide)
- Keystones of Science: Genomics Forum (188 registered members worldwide)
- Keystones of Science: Global Warming Forum (115 registered members worldwide)

Multimedia and Hardware Products

- *Children of the Crane* (CD-ROM), DeLoyaza Associates, 1996, programmer. Interactive multimedia experience for children to learn about details of the bombing of Hiroshima. Winner of the Oracle Innovation in Education Award.
- *EarthExplorer Portable Data Collection Device, Software & Middle School Science Curricula*: research funded by NSF to develop and study a pre-PDA portable 'probeware' system (circa 1990); authored in collaboration with colleagues at Architectural Energy Corporation, Boulder CO.

GRANT AWARDS

Center Leader and Research Strand Leader of the "Learning in Informal and Formal Environments (LIFE) Center" funded by the National Science Foundation through the Science of Learning Center Program, 9/04 – 9/09, $25 million. Other center leaders include: John Bransford (PI), Brigid Barron, Patricia Kuhl, Andrew Meltzoff, Roy Pea, Byron Reeves, Jeremy Roschelle, Nora Sabelli, Dan Schwartz, and Reed Stevens.

Contributing Researcher on the "Center for the Advancement of Engineering Education (CAEE)" funded by the National Science Foundation through the Centers for Learning and Teaching (CLT) program, Cindy Atman (University of Washington, Principal Investigator), 1/03 – 12/07, $10 million.
URL - http://www.engr.washington.edu/caee

Co-Principal Investigator of a grant entitled "A Comparative Psychology of School Subjects: Promoting Epistemological Sophistication in Elementary Science Learning through the Study of History" (or PATHS project) funded by the National Science Foundation, 4/00 – 12/03, $1 million with Samuel Wineburg, Reed Stevens, and Leslie Herrenkohl. URL - http://depts.washington.edu/pathspro/

Co-Principal Investigator of the "Partnership for Research in Inquiry-Based Math, Science, and Engineering Education (PRIME)" Project funded by the National Science Foundation through the GK-12 Initiative, 1/00 – 12/03, $1.47 million. Project involves coordinating and studying partnerships between graduate students in Math, Science, and Engineering and middle school science and math teachers.
URL - http://www.engr.washington.edu/prime/

Co-Principal Investigator of the "Science Controversies On-Line: Partnerships in Education (SCOPE)" Project funded by the National Science Foundation through the Knowledge and Distributed Intelligence (KDI) Initiative with Marcia C. Linn (UC-Berkeley) and Pam Hines (*Science* magazine, AAAS), 10/98 – 9/02, $1.84 million. URL - http://scope.educ.washington.edu/

Founding member of the Design-Based Research Collective funded by the Spencer Foundation through an Advanced Studies Institute grant (2001-02). Other participants included Christopher Hoadley (PI), William Sandoval (Co-PI), Eric Baumgartner, Sean Brophy, Sherry Hsi, Diana Joseph, Chandra Orrill, Sadhana Puntambekar, and Iris Tabak. Our collective efforts focused on formalizing design-based research as a method used in the field of education. URL - http://www.DesignBasedResearch.org/

Proposer and Coordinator, Media Design Studio as well as the Qualitative and Quantitative Computer Research Facility, College of Education, University of Washington Student Technology Fee, 2001-03, $175K.

Contributing Researcher on the project "Establishing a Shared Set of Criteria and Dimensions for Analyzing Online Discussions." Center for Innovative Learning Technologies (CILT) Seed Grant. Alex Cuthbert (PI). Contributors: P. Bell, R. Stevens, A. Clark, J. Slotta, D. Kirkpatrick, 2000.

Contributing Researcher on the "Program for Educational Transformation Through Technology (PETTT)" Project at the University of Washington, 9/99 – present, $1.27 million per biennium.
URL - http://depts.washington.edu/pettt/

Contributing Researcher on the project "Modeling Malaria: An Interactive Tool for Exploring Science Controversy." Center for Innovative Learning Technologies (CILT) Seed Grant. Margaret Corbit (PI). Contributors: P. Bell, B. Levey, K. Shea Owens, M. Linn, 1999.

Contributing Researcher on the project "Designing Knowledge Representations and Epistemic Practices for Science Learning." Center for Innovative Learning Technologies (CILT) Seed Grant. Bill Sandoval (PI). Contributors: P. Bell, E. Coleman, N. Enyedy, D. Suthers, 1999.

Sponsoring Mentor (along with Prof. Leslie Herrenkohl) for Dr. Kalyn Shea Owens who was awarded a three-year fellowship from the National Science Foundation through the "Postdoctoral Fellowships in Science, Mathematics, and Technology Education" (PFSMETE) program. I mentored Dr. Owens in the practice of classroom experimentation and the development of innovative science curricula.

Principal Investigator of the "Cognitive Benefits of Speech Recognition for Students with Learning Disabilities" Project funded by Microsoft through the "Exploring PC Accessibility: New Discoveries" grant program, 4/1/99 – 3/31/00, $10,000. The project was directed by Dr. Tom Quinlan and Scott Beers as part of their graduate study in the College of Education at the University of Washington.

Project Director for the "Fostering University and School Partnerships through KIE User Groups" Project at UC-Berkeley funded by the Department of Commerce, Marcia C. Linn (Principal Investigator), 5/97 – 9/98, $64,000. Project involved coordinating the efforts of a university-school partnership consisting of six middle school teachers, two graduate students from the natural sciences, and one graduate student from education.

HONORS

Berglund Fellow of Internet Studies, 2002-2003, awarded by the Berglund Center for Internet Studies at Pacific University for research entitled "Understanding how to foster multi-partisan on-line interactions around controversy: Research on an alternative to highly polarized Internet thought collectives."

Nominated for the University of Washington Distinguished Teaching Award, 2002-03.

Dissertation Research Fellowship from the National Science Foundation through the "Reforming Education Through Science & Design" Traineeship Program; UC-Berkeley; 1997-98; Andy diSessa, Marcia C. Linn & Michael Ranney (Principal Investigators). URL - http://soe.berkeley.edu/sand.html

PROFESSIONAL ACTIVITIES

NATIONAL AND INTERNATIONAL SERVICE

Member, Board of Science Education with the National Academy of Sciences

Elected Founding Board Member, International Society of the Learning Sciences (ISLS), 2003-2007 term, http://www.isls.org/.

Review board, *The Journal of the Learning Sciences*.

Editorial board, *International Journal of Science Education*.

Conference Committee, International Society of the Learning Sciences (ISLS).

"Outstanding Paper Award Committee" for the competitive evaluation of papers presented at the National Association for Research in Science Teaching (NARST) annual meetings, Fall 1998 to Fall 2001.

Advisory board, Center for Information Technology in Science (ITS), Texas A&M, NSF-funded Center for Learning and Teaching (CLT).

Advisory board, "Synergy Communities Aggregating Results about Education" (SCALE), Marcia C. Linn (PI).

Advisory board, "Making thinking visible: Promoting Students' Model Building and Collaborative Discourse," Janice Gobert (PI).

Member of the Board of Directors for Theatre Banshee, a theatre company conducting stage and classroom performances in Los Angeles, 1995-present.

CONFERENCE SERVICE

Program committee for the Sixth International Conference of the Learning Sciences (ICLS), "Embracing diversity in the learning sciences," June 2004, Los Angeles.

Reviewer for the outstanding student paper award, Computer Supported Collaborative Learning (CSCL) Conference 2003, Bergen, Norway.

Co-Chair of the Fifth International Conference of the Learning Sciences (ICLS), "Keeping Learning Complex: Fostering Multidisciplinary Research," October 2002, Seattle, WA.

Program committee for the Fourth Computer Supported Collaborative Learning Conference (CSCL), January 2002, Boulder, CO.

Program committee for the Fourth International Conference of the Learning Sciences (ICLS), June 2000, Ann Arbor, MI.

REVIEWER

Cognition & Instruction
The Journal of the Learning Sciences
International Journal of Science Education
Review of Educational Research (RER)
Journal of Research in Science Teaching (JRST)
Interactive Learning Environments (ILE)

Cognitive Science
Spencer Foundation (major grants program)
National Association for Research in Science Teaching (NARST) Conference
Computer Support for Collaborative Learning (CSCL) Conference
International Conference for the Learning Sciences (ICLS)
International Conference on Computers in Education

COLLEGE SERVICE

Director, Cognitive Studies in Education program, 2002-present
Chair, Committee on Faculty Affairs (COFA), 2002-03
Member, Technology Advisory Committee, 2001-2003
Coordinator, Qualitative and Quantitative Research Lab & Design Studio, 2001-03
Participant, Ad-hoc committee on Inclusion of Gender Equity in Teacher Education (an effort affiliated with the Washington State Gender Equity Project), 2001-2002
Member, Faculty Council, 2000-2003
Co-Facilitator, College of Education Strategic Plan Development, 2000-01
Faculty search committees: elementary science education (twice), early literacy, math / science (director of K-12 Institute)

PRESENTATIONS

Bell, P. (2004, July 12). The school science laboratory: Considerations of learning, technology, and scientific practice. Invited presentation to the Committee on High School Laboratories: Role and Vision, National Academy of Sciences.

Bell, P. (2004, June 24). Toward a comparative understanding of school subjects: The case of science and history in elementary school. Paper presented at the Sixth International Conference of the Learning Sciences (ICLS), Santa Monica, CA.

Bell, P. (2004, April). Scaffolding inquiry about technoscience: Making room for more complex images of science. Paper presented at the 2004 Annual Meeting of the American Educational Research Association, San Diego, CA.

Bell, P. (2004, April). Pedagogical pluralism in the teaching of a contemporary scientific controversy. Paper presented at the 2004 National Association for Research in Science Teaching, Vancouver, BC.

Bell, P. (2004, February). Partership for Research in Inquiry-based Math, Science, and Engineering Education (PRIME). Paper presented at the 2004 Annual Meeting of the American Association for the Advancement of Science (AAAS), Seattle, WA.

Bell, P. (2003, March). Understanding how to foster multi-partisan on-line interactions and learning about contemporary controversies in science. Paper presented at the 2003 National Association for Research in Science Teaching, Philadelphia, PA.

Bell, P. (2003, March). Scaffolding argumentation and constructive debate in the science classroom. Invited presentation made as part of the Center Connect outreach project at the University of Washington, College of Education, Seattle, WA.

Bell, P. (2003, February). On the grammar and epistemology of design-based research. Invited presentation made as part of a panel discussion on the nature and role of design-based research in education, UC-Berkeley Graduate School of Education.

Fischer-Fortier, D. & Bell, P. (2002, November). Mediating knowledge networking online with malaria research scientists. Paper presented at the Annual Meeting of the Society for Social Studies of Scientists (4S), Milwaukee, WI.

Bell, P. (2002, June). *Understanding how to foster multi-partisan on-line interactions around scientific controversy.* Presentation at an institute entitled "Education, Community, and Values: Interface on the Internet" at the Berglund Center for Internet Studies, Pacific University, Forest Grove, OR.

Bell, P. (2002, April). *On the grammar and epistemology of design-based research in education.* Paper presented in a session entitled "Design Experimentation Research Methods: Advancing Theories of Context, Learning, and Design" at the 2002 Annual Meeting of the American Educational Research Association, New Orleans, LA.

Havelock, B., & Bell, P. (2001, November). Using scientific controversy to support student reasoning in science classrooms. Paper presented at *The Sixth International History, Philosophy, and Science Teaching Conference (IPHPST 2001)*, Denver, CO.

Bell, P. (2001, November). Emerging genres of learning technology. Invited presentation made as part of the Web-Ed conference series on the University of Washington campus, Program for Educational Transformation Through Technology (PETTT), Seattle, WA.
Video available at: http://depts.washington.edu/webed/presentations.html

Bell, P. (2001, April). *Fostering Epistemic Practices That Use Knowledge Representations for Group Argumentation.* Paper presented at the 2001 Annual Meeting of the American Educational Research Association, Seattle, WA. (I organized and chaired the session entitled "Argumentation in the Science Classroom: Supporting and Understanding Students' Epistemic Practices.")

Bell, P. & Davis, E. A. (2001, April). *Design Principles for Scaffolding Students' Reflection and Argumentation in Science.* Paper presented at the 2001 Annual Meeting of the American Educational Research Association, Seattle, WA.

Stevens, R., Herrenkohl, L., Wineburg, S. & Bell, P. (2001, April). *Toward a Comparative Understanding of School Subjects: Possible Relations Between Science and History in Elementary School.* Paper presented at the 2001 Annual Meeting of the American Educational Research Association, Seattle, WA.

Havelock, B. & Bell, P. (2001, April). *Using the Internet to Sustain Professional Development for Science Teachers.* Paper presented at the 2001 Annual Meeting of the American Educational Research Association, Seattle, WA.

Bell, P. (2001, February). *Promoting science learning by scaffolding argumentation and classroom debate.* Presentation made to the Computer and Cognitive Sciences Department at Chukyo University, Toyota, Japan.

Bell, P. (2001, February). *Emerging genres of learning technology.* Presentation made to the Computer and Cognitive Sciences Department at Chukyo University, Toyota, Japan.

Bell, P. & Slotta, J. D. (2001, February). *Technology as Controversy Teaching Partner: Genetically Modified Foods.* Presentation made at the 2001 Annual Meeting of the American Association for the Advancement of Science, San Francisco, CA.

Bell, P. (2000, April). *Refinement of Middle School Students' Understanding of Science Resulting From Argumentation and Debate Instruction.* Paper presented at the 2000 Annual Meeting of the American Educational Research Association, New Orleans, LA.

Bell, P. (2000, April). *Designing Knowledge Representation Tools and Practices to Support Students' Theorizing, Argumentation, and Debate in Science.* Paper presented at the 2000 Annual Meeting of the American Educational Research Association, New Orleans, LA.

Bell, P. (2000, April). *SCOPE Virtual Communities: Supporting Teachers, Learners, and Scientists in Exploring Current Controversies.* Paper presented at the 2000 Annual Meeting of the American Educational Research Association, New Orleans, LA.

Bell, P. (2000, April). *Science Controversies On-Line: Partnerships in Education (SCOPE).* Paper presented at the 2000 National Association for Research in Science Teaching, New Orleans, LA.

Bell, P., Shear, L., Wanner, N. & Baumgartner, E. (1999, May). *Of museums, sustained inquiry, and deformed frogs*. Presentation made at the 1999 Annual Conference of the Center for Innovative Learning Technologies, San Jose, CA.

Bell, P. & Shear, L. (1999, April). *Partnering to Design Innovative Internet Curriculum on a Current Scientific Controversy.* Paper presented at the 1999 Annual Meeting of the American Educational Research Association, Montreal, Canada. (This presentation was part of a symposium I organized and chaired entitled "Organizing Principles for Curriculum Design Partnerships: Connecting Teachers, Scientists, and Researchers for Local Classroom Reform.")

Linn, M. C., Shear, L., Bell, P. & Slotta, J. D. (1999, April). *Organizing principles for science education partnerships: Can 'rats in space' and 'deformed frogs' help students learn*. Paper presented at the 1999 Annual Meeting of the American Educational Research Association, Montreal, Canada.

Bell, P. (1999, March). *Debating about Deformed Frogs: Design Principles for Bringing a Current Scientific Controversy into the Classroom.* Paper presented at the 1999 Annual Meeting of the National Association for Research in Science Teaching, Boston, MA.

Bell, P. & Shear, L. (1999, January). *What do on-line activities about the frog controversy teach students*? Presentation made at the 1999 Annual Meeting of the American Association for the Advancement of Science, Anaheim, CA. (This presentation was part of a symposium organized by myself and Marcia C. Linn entitled "Yuck, Gross!: What can on-line deformed frogs teach about science.")

Bell, P. (1998, June). *Computers as learning partners and classroom debate a context for learning science*. Invited presentation made at the "Education for Thinking: Goals and Methods for the Middle School Years" Workshop, Teacher's College, Columbia University, Prof. Deanna Kuhn (organizer).

Bell, P. (1998, April). *The KIE software and curriculum: Relating debate activities and conceptual change through design experiments.* Paper presented at the 1998 Annual Meeting of the American Educational Research Association, San Diego, CA. (This paper was part of a symposium organized by myself and Sherry Hsi entitled "Using Science and Design Experiments to Understand Innovative Uses of Technology in Classrooms.") URL - http://www.kie.berkeley.edu/events/aera98.html

Bell, P. (1998, April). *Engaging students with scientific controversy: Using arguments to make thinking visible.* Paper presented at the 1998 Annual Meeting of the National Association for Research in Science Teaching, San Diego, CA.

Bell, P., Shear, L., Muniz, R., Davis, B. & Gordon, J. (1998, March). *How deformed frogs taught us to create successful internet curriculum together*. Session presented at the San Francisco Unified School District Spring District-Wide Teacher Professtional Development Day.

Linn, M. C., Bell, P., Shear, L., Parks, D. & Davis, B. (1997, September). *How deformed frogs can help students learn science using the web: The KIE-Roosevelt curriculum design partnership.* Invited seminar sponsored by the Interactive University Project at the University of California, Berkeley.

Cuthbert, A., Bell, P., and Hoadley, C. (1997). Tracking activity patterns in online environments: implications for instructional design. *Proceedings of HCI International '97*, San Francisco, CA.

Bell, P., & Linn, M. C. (1997, March). *Scientific arguments as learning artifacts: Designing for learning on the web*. Paper presented at the 1997 Annual Meeting of the American Educational Research Association, Chicago, IL. (This paper was part of a symposium I organized and chaired called "Artifact-Building in Computer Learning Environments: Supporting Students' Scientific Inquiry.")

Bell, P., & Linn, M. C. (1997, March). Using technology to support conceptual change in science: Helping students learn about light using the internet. Paper presented at the Annual Meeting of the National Association for Research in Science Teaching, Chicago, IL.

Bell, P. (1997, January). *Metaphors, Pitfalls, and Possibilities for Using the Internet in K-12 Education*. Invited session at the "Colloquium on Using the Internet for Instruction and Outreach" sponsored by the Instructional Technology Program and the Interactive University Project at UC-Berkeley.

Bell, P. (1996, December). *The KIE to learning science with the internet*. Paper presented at National Science Teachers Association Global Summit on Science Education 1996, San Francisco, CA.

Bell, P. (1996, September). *Learning science using the internet: Metaphors, pitfalls, and possibilities*. Paper presented at KidCom '96 Educational Technology Conference, Berkeley, CA.

Bell, P. (1996, July). *Multimedia representations for science learning: A cautionary tale*. Paper presented in poster session at the Cognitive Science '96 Annual Meeting, San Diego, CA.

Bell, P., & Davis, E. A. (1996, April). *Designing an activity in the knowledge integration environment*. Paper presented in a symposium at the 1996 Annual Meeting of the American Educational Research Association, New York, NY.

Bell, P., Kirkpatrick, D., & Muilenburg, L.. (1996, March). *Computer as learning partner: Lessons learned and current best practices*. Session presented at National Science Teachers Association 1996 National Convention, St. Louis, MI.

Bell, P., & Davis, E. A. (1995, October). *The knowledge integration environment: Engaging middle school students in an exploration of evidence on the net*. Exhibit presented at Computer Support for Collaborative Learning (CSCL '95), Bloomington, IN.

Bell, P. (1995, August). *Middle school students' understanding of light as seen through their exploration of evidence*. Invited presentation at the Semi-Annual Meeting of the American Association of Physics Teachers, Spokane, WA.

Bell, P., & Tien, L. (1995, April). *Networked coaching and integrated learning in science*. Paper presented at the Annual Meeting of the National Association for Research in Science Teaching, San Francisco, CA.

Bell, P. (1995, April). *How far does light go?: Individual and collaborative sense-making of science-related evidence*. Paper presented in a poster session at the 1995 Annual Meeting of the American Educational Research Association, San Francisco, CA.

TEACHING: COURSES, CLASSROOM EXPERIENCE & WORKSHOPS

Assistant Professor, College of Education, University of Washington (Fall 1998 to present): I have taught the following graduate courses. Most syllabi are available through my homepage.

- Exploring the Gap Between Science Education and the Nature of Science
- New Technologies and Child Development (http://faculty.washington.edu/pbell/kidtech/)
- Design-based Research Methods in Education (two quarter practicum sequence)
- Dilemmas in Teaching and Learning (for preservice secondary teachers)
- Cognition in the Context of the School Curriculum
- Graduate reading seminar on the works of Jerome Bruner
- Emerging Genres of Learning Technologies
- Discourse in the Disciplines (with Reed Stevens, Sam Wineburg & Leslie Herrenkohl), and
- Contemporary Instructional Theory
- Explorations in Programming, Problem Solving & Artificial Intelligence (UC-Berkeley, with Marcia Linn & Mike Clancy)

Teaching Assistant, Foothill Middle School (Fall 1993 through Spring 1998) and Roosevelt Middle School (Fall 1997 through Spring 1998).

I have conducted numerous workshops for teachers focused on the integration of technology into science instruction in the following K-12 school districts: Seattle School District (WA), Highline School District (WA), Bellevue School District (WA), Shoreline School District (WA), Mt. Diablo School District (CA), San Francisco Unified School District (CA), and Oakland Unified School District (CA). In addition, teachers, educators, and researchers from around the country have attended our workshops. Many of these efforts led to sustained partnerships with teachers who became involved in our classroom research activities.

PROFESSIONAL MEMBERSHIPS

American Educational Research Association (AERA)
International Society of the Learning Sciences (ISLS)
National Association for Research in Science Teaching (NARST)
Society for Social Studies of Science (4S)
Cognitive Science Society (CSS)