

CYNTHIA J. ATMAN

July 2006

EDUCATION

Ph.D., Engineering and Public Policy

Carnegie Mellon University, 1986 – 1990

Thesis: Network Structures as a Foundation for Risk Communication: An Investigation of Structure and Format Differences, Advisor: Baruch Fischhoff

M.S., Industrial and Systems Engineering

Ohio State University, Magna Cum Laude, 1981 – 1983

B.S., Industrial Engineering

West Virginia University, Magna Cum Laude, 1975 – 1979

PROFESSIONAL POSITIONS

University of Washington, Seattle, WA

Director and Principal Investigator, Center for the Advancement of Engineering Education (CAEE) (1/03- present)

NSF-funded Center for Learning and Teaching, five year, \$11 million award to University of Washington (lead), Colorado School of Mines, Howard University, Stanford University, and University of Minnesota, <http://www.engr.washington.edu/caee/>

Director, Center for Engineering Learning and Teaching (CELT), College of Engineering, UW (9/98 – present)

College of Engineering center to conduct research in engineering learning and promote teaching effectiveness in engineering classrooms at the UW, <http://www.engr.washington.edu/celt/>

Chair, Mitchell T. and Lella Blanche Bowie Endowed Chair (1/06 – present)

Professor, Department of Industrial Engineering (9/03 – present)

Associate Professor, Department of Industrial Engineering (9/98 – 9/03)

Adjunct Professor, Mechanical Engineering (3/01– present)

Adjunct Professor, Technical Communication (2/01– present)

University of Pittsburgh, Pittsburgh, PA

Associate Professor, Department of Industrial Engineering (5/97 – 9/98)

Assistant Professor, Department of Industrial Engineering (9/91– 5/97)

Whiteford Faculty Fellow, 1993 – 1999

American Association for the Advancement of Science Diplomacy Postdoctoral Fellow

U. S. Agency for International Development, Washington, DC (9/90 – 8/91)

Bureau for Science and Technology, Office of Education

Responsible for research and project development to address issues of math, science and technology education in developing countries.

Carnegie Mellon University, Pittsburgh, PA

Research Assistant (9/86 – 8/90)

LSW Incorporated, Landover, MD

Senior Software Trainer, U.S. Senate (1/85 – 8/86)

IBM Corporation, Bethesda, MD

Associate Programmer Analyst (8/83 – 12/84)

Ohio State University, Columbus, Ohio

Teaching Asst., Engineering Graphics (9/82 – 6/83), University Fellow (9/81 – 8/92)

Union Carbide Corporation, Charleston, West Virginia

Advanced Engineer (6/79 – 9/81)

HONORS AND AWARDS

- American Society of Engineering Education Fellow Member, May 2006
- American Association for the Advancement of Science Fellow, February 2006
- The Mitchell T. and Lella Blanche Bowie Endowed Chair, January 2006
- Invited Keynote address, International Computing Education Research Workshop, October, 2005
- *Design Studies* Best Paper Award for "Educating Effective Engineering Designers: The Role of Reflective Practice" Robin S. Adams, Jennifer Turns, Cynthia J. Atman, May 2003
- ASEE Chester F. Carlson Award for Innovation in Engineering Education, June 2002
- Outstanding Professor in Industrial Engineering, UW (award from students), June 2002
- Invited Keynote address, Innovation and Technology in Computer Science Education, June, 2001
- University of Pittsburgh, Whiteford Faculty Fellow, 1993 – 99
- National Science Foundation Young Investigator Award, 1993 – 98
- American Association for the Advancement of Science Diplomacy Postdoctoral Fellowship, 1990 - 91
- University Graduate Fellowship, Ohio State University 1981 – 82
- Outstanding Senior, West Virginia University Industrial Engineering, 1979

PUBLICATIONS

Refereed Journal Papers

- Cardella, Monica E., Cynthia J. Atman, and Robin S. Adams. "Mapping Between Design Activities and External Representations for Engineering Student Designers," *Design Studies*, vol. 27, no 1, pp. 5-24, January 2006.
- Turns, Jennifer, Robin S. Adams, Josh Martin, Monica Cardella, Joshua Newman, Cynthia J. Atman, "Tackling the Research-to-Teaching Challenge in Engineering Design Education: Making the Invisible Visible", *International Journal of Engineering Education*, vol. 22, no. 3, March 2006.
- Cardella, Monica E. and Cynthia J. Atman. "A Qualitative Study of the Role of Mathematics in Engineering Capstone Design Projects: Initial Insights", *iNEER Special Volume: Innovations – World Innovations in Engineering Education and Research*, Aung, Win et al (eds.), Begell House Publishing. October 2005
- Atman, Cynthia J., Monica E. Cardella, Jennifer Turns, Robin S. Adams, "Comparing Freshmen and Senior Engineering Design Processes: An In Depth Follow-up Study," *Design Studies*, vol. 26, no. 4, pp. 325-357, July 2005.
- Turns, Jennifer, Cynthia J. Atman, Robin S. Adams, and Theresa Barker. "Research on Engineering Student Knowing: Trends and Opportunities". *Journal of Engineering Education*, Invited Paper in Special Issue, pp. 27-41, January 2005.
- Turns, J., Robin S. Adams, Angela Linse and Cynthia J. Atman. "Bridging from Research to Practice in Undergraduate Engineering Design Education", *International Journal of Engineering Education*, vol. 20, no. 3, pp. 379-390, November 2003.
- Adams, Robin S., Jennifer Turns and Cynthia J. Atman. "Educating Effective Engineering Designers: The Role of Reflective Practice", *Design Studies*, Special Issue on Designing in Context, vol. 24, no. 3, 2003. pp. 275-294. This paper received the 2003 *Design Studies* Best Paper Award.
- Adams, Robin S., Cynthia J. Atman, Rie Nakamura, Gretchen Kalonji, Denice Denton. "Assessment of an International Freshmen Research and Design Experience: A Triangulation Study," *International Journal of Engineering Education*, Special Issue on Assessment, vol. 18, no. 2, pp. 180-192, 2002.

- McGourty, Jack, Larry Shuman, Mary Besterfield-Sacre, Cynthia J. Atman, Ronald Miller, Barbara Olds, Gloria Rogers, Harvey Wolfe, "Preparing for ABET EC 2000: Research-Based Assessment Methods and Processes," *International Journal of Engineering Education*, Special Issue on Assessment, vol. 18, no. 2, pp. 157-167, 2002.
- Besterfield-Sacre, Mary, Magaly Moreno, Larry J. Shuman, Cynthia J. Atman "Gender and Ethnicity Differences in Freshmen Engineering Student Attitudes: A Cross-Institutional Study," *Journal of Engineering Education*, vol. 90, no. 4, pp. 477-494, October 2001.
- Besterfield-Sacre, Mary, Larry J. Shuman, Harvey Wolfe, Cynthia J. Atman, Jack McGourty, Ronald, L. Miller, Barbara M. Olds, and Gloria Rogers, "Defining the Outcomes: A Framework for EC 2000," *IEEE Transactions on Education*, Special Issue on Assessment, vol. 43, no. 2, pp. 100-110, May 2000.
- Safoutin, Michael, Cynthia J. Atman, Robin S. Adams, Teodora Rutar Shuman, John Kramlich, and Jim Fridley, "A Design Attribute Framework for Course Planning and Learning Assessment," *IEEE Transactions on Education*, Special Issue on Assessment, vol. 43, no. 2, pp. 164-173, May 2000.
- Turns, Jennifer, Cynthia J. Atman, and Robin S. Adams, "Concept Maps for Engineering Education: A Cognitively Motivated Tool Supporting Varied Assessment Functions," *IEEE Transactions on Education*, Special Issue on Assessment, May 2000.
- Mullins, Carie A., Cynthia J. Atman, and Larry Shuman, "Freshman Engineers' Strategies and Performance When Approaching Design Problems," *IEEE Transactions on Education*, vol. 42, no. 4, pp. 281-287, November 1999.
- Atman, Cynthia J., Justin R. Chimka, Karen M. Bursic, and H. L. Nachtmann, "A Comparison of Freshman and Senior Engineering Design Processes," *Design Studies*, vol. 20, no. 2, pp. 131-152, March 1999.
- Atman, Cynthia J. and Karen M. Bursic, "Documenting a Process: The Use of Verbal Protocol Analysis to Study Engineering Student Design," *Journal of Engineering Education*, Special Issue on Assessment, pp. 121-132, April 1998.
- Besterfield-Sacre, Mary E., Cynthia J. Atman, and Larry Shuman, "Engineering Student Attitudes Assessment," *Journal of Engineering Education*, Special Issue on Assessment, pp. 133-141, April 1998.
- Bursic, Karen M. and Cynthia J. Atman, "Information Gathering: A Critical Step for Quality in the Design Process," *Quality Management Journal*, vol. 4, no. 4, pp. 60-75, July 1997.
- Besterfield-Sacre, Mary E., Cynthia J. Atman, and Larry Shuman, "Characteristics of Freshman Engineering Students: Models for Determining Student Attrition in Engineering," *Journal of Engineering Education*, vol. 86, no. 2, pp.139-149, April 1997.
- Atman, Cynthia J. and Karen M. Bursic, "Teaching Engineering Design: Can Reading a Textbook Make a Difference?," *Research in Engineering Design*, vol. 8, pp. 240-250, December 1996.
- Atman, Cynthia J. and Indira Nair, "Engineering in Context: An Empirical Study of Freshmen Student's Conceptual Frameworks," *Journal of Engineering Education*, vol. 85, no. 4, pp. 317-326, October 1996.
- Atman, Cynthia J., Ann Bostrom, Baruch Fischhoff, and M. Granger Morgan, "Designing Risk Communications: Completing and Correcting Mental Models of Hazardous Processes, Part I," *Risk Analysis*, vol. 14, no. 5, pp. 779-787, 1994.
Reprinted in *Environmental Risk Planning and Management*, Simon Gerrard, R. Kerry Turner and Ian Bateman, (eds.), Cheltenham, UK: Edward Elgar Publishing, 2001.

Bostrom, Ann, Cynthia J. Atman, Baruch Fischhoff, and M. Granger Morgan, "Evaluating Risk Communications: Completing and Correcting Mental Models of Hazardous Processes, Part II," *Risk Analysis*, vol. 14, no. 5, pp. 789-798, 1994.
Reprinted in *Environmental Risk Planning and Management*, Simon Gerrard, R. Kerry Turner and Ian Bateman, (eds.), Cheltenham, UK: Edward Elgar Publishing, 2001.

Morgan, M. Granger, Baruch Fischhoff, Ann Bostrom, Lester Lave, and Cynthia J. Atman, "Communicating Risk to the Public," *Environmental Science and Technology*, vol. 26, no. 11, pp. 2048-2056, 1992.

Journal Papers In Progress

Atman, Cynthia J., Ed Rhone, Jennifer Turns, Robin S. Adams, Theresa Barker. "Breadth in Engineering Design Problem Scoping", to be submitted to *Journal of Engineering Education*.

Atman, Cynthia J., Robin Adams, Susan Mosborg, Monica Cardella, Jennifer Turns. "Engineering Design Expertise", to be submitted to *Journal of Engineering Education*.

Cardella, Monica, Cynthia J. Atman, Jennifer Turns, Robin S. Adams. "Which Engineering Students' Design Processes Change? Four Cases", to be submitted to *Journal of Engineering Education*.

De Graff, Erik, Sheri Sheppard, Cynthia J. Atman, Annette Kolmo, Gillian Saunders-Smiths, Ruth Streveler. "Research on Engineering Education. Invited paper for a joint *Journal of Engineering Education/European Journal of Engineering Education* special issue on the globalization of engineering education, summer 2006.

Nelson, Kjell, Robin S. Adams, Cynthia J. Atman, Mary Lidstrom. "Biological Frameworks for Engineers: An Introductory Biology Course Designed for Engineering Students", to be submitted to *International Journal of Engineering Education*.

Books

M. Granger Morgan, Baruch Fischhoff, Ann Bostrom, and Cynthia J. Atman, *Risk Communication: A Mental Models Approach*, Cambridge University Press, 2002.

Book Chapters

Atman, Cynthia J., Jennifer Turns, Lorraine Fleming, Robin Adams, Larry Leifer, Sheri Sheppard, Karl A. Smith, Reed Stevens, and Ruth Streveler, "The Center for the Advancement of Engineering Education: A Description at Year 2". *Invention and Impact: Building Excellence in Undergraduate Science, Technology, Engineering, and Mathematics (STEM) Education*, American Association for the Advancement of Science (AAAS), January 2005.

Adams, Robin S., Jennifer Turns, Cynthia J. Atman, "The Center for Engineering Learning and Teaching, University of Washington". *Design Process Improvement – A Review of Current Practice*, Clarkson PJ and Eckert CM (Eds.), Springer Verlag London, Chapter 41, 2004.

Atman, Cynthia J. and Jennifer Turns. "Studying Engineering Design Learning: Four Verbal Protocol Studies," *In Design Knowing and Learning: Cognition in Design Education*", C. Eastman, M. McCracken, and W. Newstetter (Eds.), Elsevier: New York. 2002.

Bostrom, Ann, Cynthia J. Atman, Baruch Fischhoff, and M. Granger Morgan, "Public Knowledge About Indoor Radon: The Effects of Risk Communication." In J. Geweke (ed.) *Decision Making under Risk and Uncertainty: New Models and Empirical Findings*, The Netherlands: Kluwer Academic Publishers, pp. 243-251, 1992.

Refereed Conference Papers in Proceedings

- Cardella, Monica E. and Cynthia J. Atman. "A Qualitative Study of the Role of Mathematics in Engineering Capstone Design Projects: Initial Insights". American Society of Engineering Education Conference Proceedings, Portland, OR, June 2005.
- Cardella, Monica E. and Cynthia J. Atman, "Engineering Students' Mathematical Problem Solving Strategies in Capstone Projects," American Society of Engineering Education Conference Proceedings, Portland, OR, June 2005.
- Mosborg, Susan, Robin Adams, Rebecca Kim, Cynthia J. Atman, Jennifer Turns, and Monica Cardella, "Conceptions of the Engineering Design Process: An Expert Study of Advanced Practicing Professionals", American Society of Engineering Education Conference Proceedings, Portland, OR, June 2005.
- Turns, Jennifer, Robin Adams, Josh Martin, Susan Mosborg, Monica Cardella, Joshua Newman, and Cynthia J. Atman, "Tackling the Research to Teaching Challenge in Engineering Design Education," Harvey Mudd Conference Proceedings, Claremont, CA, May 2005. Revised version of this paper also published in the *International Journal of Engineering Education*.
- Cardella, Monica E. and Atman, Cynthia J. "A Qualitative Study of the Role of Mathematics in Engineering Capstone Design Projects" International Conference on Engineering Education Conference Proceedings, Gainesville, Florida, August 2004.
- Sheppard, Sheri, Cynthia J. Atman, Reed Stevens, Lorraine Fleming, Ruth Streveler, Robin S. Adams, Theresa Barker. "Studying the Engineering Student Experience: Design of a Longitudinal Study". American Society of Engineering Education Conference Proceedings, Salt Lake City, Utah, June 2004.
- Smith, Karl, Angela Linse, Jennifer Turns, Cynthia J. Atman. "Engineering Change". American Society of Engineering Education Conference Proceedings, Salt Lake City, Utah, June 2004.
- Atman, Cynthia J., Jennifer Turns, Monica E. Cardella, and Robin S. Adams. "The Design Processes of Engineering Educators: Thick Descriptions and Potential Implications", Design Thinking Research Symposium VI Proceedings, Sydney, Australia, November, 2003.
- Adams, Robin S., Jennifer Turns and Cynthia J. Atman. "What Could Design Learning Look Like?", Design Thinking Research Symposium VI Proceedings, Sydney, Australia, November 2003.
- Turns, Jennifer, Robin S. Adams, Angela Linse and Cynthia J. Atman. "Bridging from Research to Practice in Undergraduate Engineering Design Education," Designing Engineering Education Workshop at Harvey Mudd College, Claremont, CA, July 2003. Revised version of this paper also published in the *International Journal of Engineering Education*.
- Cardella, Monica E., Cynthia J. Atman, and Robin S. Adams. "Sketching as a Support for Engineering Design Problem Solving," an extended abstract in the Industrial Engineering Research Conference Proceedings, Portland, May 2003.
- Rhone, Edward J., Robin S. Adams, Jennifer Turns and Cynthia J. Atman. "Assessing IE Students' Preparedness for Practice: Do They Think Broadly?", Industrial Engineering Research Conference Proceedings, Portland, May 2003.
- Davis, D., M. Trevisan, D. McLean, P. Daniels, K. Gentili, C. Atman, R. Adams, S. Beyerlein & J. McCauley. "A Model for Transferable Integrated Design Engineering Education." Proceedings of the World Federation Engineering Organization, Nashville, TN, June 2003.
- Shuman, Larry J., Cynthia J. Atman, Elizabeth A. Eschenbach, Don L. Evans, Richard Felder, P. K. Imbrie, Jack McGourty, Ronald L. Miller, Larry G. Richards, Karl A. Smith, Eric P. Soulsby, Alisha A. Waller and Charles F. Yokomoto. "The Future of Engineering Education," Frontiers in Education Conference Proceeding, Boston, November 2002.

- Turns, J., Atman, C., Cardella, M., and Adams, R. "Do We See Within-Subject Change? Four Cases of Engineering Student Design Processes", Common Ground Conference Proceedings, Sponsored by the Design Research Society, London, England, September, 2002.
- Adams, Robin S., Pimpida Punnakanta, Cynthia J. Atman, and Craig D. Lewis, "Comparing Design Team Self-Reports with Actual Performance: Cross-Validating Assessment Instruments," American Society of Engineering Education Conference Proceedings, Montreal, Canada, June 2002.
- Cardella, Monica E., Cynthia J. Atman, Robin S. Adams, and Jennifer Turns, "Engineering Student Design Processes: Looking at Evaluation Practices Across Problems," American Society of Engineering Education Conference Proceedings, Montreal, Canada, June 2002.
- Nelson, Kjell E., Robin S. Adams, Mary E. Lidstrom, Jeffrey Bonadio, David A. Stahl, Cynthia J. Atman. "Teaching Biology From an Engineering Perspective: Developing a New Course that Integrates Biology Into Undergraduate Engineering Education," American Society of Engineering Education Conference Proceedings, Montreal, Canada, June 2002.
- Scott, Cathie, Cynthia J. Atman, Richard Storch. "Using Focus Groups to Identify Industrial Engineering Students' Perceptions of Performance-Based Outcomes and How to Assess Them," American Society of Engineering Education Conference Proceedings, Montreal, Canada, June 2002.
- Adams, Robin S., Jennifer Turns and Cynthia J. Atman. Educating Effective Engineering Designers: The Role of Reflective Practice. Design Thinking Research Symposium V Proceedings, Delft, Netherlands, December, 2001. One of six papers from the symposium selected to be included in a special issue of *Design Studies*.
- Turns, J., Atman, C.J., and Bennett, J. Assessing Student Preparedness for Professional Engineering Practice: A Professional Advice Task, Frontiers in Education Conference Proceedings, Reno, NV., November 2001.
- Scott, Cathie, Cynthia J. Atman, and Molly Johnson. "Preparing Engineering Graduate Students to Teach: An Innovative Course Design and Evaluation," *Received Best Paper in the Graduate Studies Division*, American Society for Engineering Education Conference Proceedings, Albuquerque, New Mexico, June 2001.
- Turns, Jennifer and Cynthia J. Atman. "Preparing for Professional Practice in Industrial Engineering: A Complementary Capstone Experience Influenced by the EC2000 Outcomes", American Society for Engineering Education Conference Proceedings, Albuquerque, New Mexico, June 2001.
- Atman, Cynthia J., Robin S. Adams, and Jennifer Turns, "Using Multiple Methods to Evaluate a Freshmen Design Course," Frontiers in Education Conference Proceedings, Kansas City, MO, November 2000.
- Bogusch, Laura L., Jennifer Turns, and Cynthia J. Atman, "Engineering Design Factors: What Do Students Think is Important," Frontiers in Education Conference Proceedings, Kansas City, MO, November 2000.
- Moreno, Magaly, Mary Besterfield-Sacre, Larry J. Shuman, Harvey Wolfe, and Cynthia J. Atman, "Institutional Differences in Student Self-Assessed Confidence: How Gender and Ethnicity Affect EC-2000 Outcomes," Frontiers in Education Conference Proceedings, Kansas City, MO, November 2000.
- Turns, Jennifer, Cynthia J. Atman, and Fred Mannering "Preparing for Professional Practice: Course Evaluation and Implications," Frontiers in Education Conference Proceedings, Kansas City, MO, November 2000.
- Adams, Robin S. and Cynthia J. Atman, "Characterizing Engineering Student Design Processes: An Illustration of Iteration," American Society of Engineering Education Conference Proceedings, St. Louis, MO, June 2000.

- Shuman, Larry J., Mary Besterfield-Sacre, Harvey Wolfe, Cynthia J. Atman, Jack McGourty, Ronald L. Miller, Barbara M. Olds, Gloria M. Rogers, "Matching Assessment Methods to Outcomes: Definitions and Research Questions," American Society of Engineering Education Conference Proceedings, St. Louis, MO, June 2000.
- Turns, Jennifer, Jennifer Temple and Cynthia J. Atman, "Understanding Engineering Student Disciplinary Knowledge – A Free Recall Study," American Society for Engineering Education Conference Proceedings, St. Louis, MO, June 2000.
- Atman, Cynthia J., Jennifer Turns, and Fred Mannering, "Integrating Knowledge Across the Engineering Curriculum," Frontiers in Education Conference Proceedings, San Juan, Puerto Rico, November 1999.
- Adams, Robin S. and Cynthia J. Atman, "Cognitive Processes in Iterative Design Behavior," Frontiers in Education Conference Proceedings, San Juan, Puerto Rico, November 1999.
- Besterfield-Sacre, Mary E., Magaly Moreno, Larry J. Shuman, and Cynthia J. Atman, "Comparing Entering Freshman Engineers: Institutional Differences in Student Attitudes," American Society of Engineering Education Conference Proceedings, Charlotte, NC, June 1999.
- Besterfield-Sacre, Mary E., Nancy Y. Amaya, Larry J. Shuman, Cynthia J. Atman, and Richard L. Porter, "Understanding Student Confidence as It Relates to First Year Achievement," Frontiers in Education Conference Proceedings, Tempe, AZ, November 1998.
- Chimka, Justin R. and Cynthia J. Atman, "Graphical Representations of Engineering Design Behavior," Frontiers in Education Conference Proceedings, Tempe, AZ, November 1998.
- Besterfield-Sacre, Mary E., Cynthia J. Atman, and Larry J. Shuman, "Statistical Process Monitoring of Engineering Attitudes - Implications for EAC 2000 Program Evaluation," American Society for Engineering Education Conference Proceedings, Seattle, WA, June 1998.
- Chimka, Justin R., Cynthia J. Atman, and Karen M. Bursic, "Describing Student Design Behavior," American Society for Engineering Education Conference Proceedings, June 1997.
- Besterfield-Sacre, Mary E., Cynthia J. Atman, Larry J. Shuman, and Harvey Wolfe, "Development of Customer-Based Outcome Measures for an Engineering Program," American Society for Engineering Education Conference Proceedings, June 1997.
- Besterfield-Sacre, Mary E., Larry J. Shuman, Cynthia J. Atman, and Harvey Wolfe, "Three Approaches to Outcomes Assessment: Questionnaires, Protocols and Empirical Modeling," American Society for Engineering Education Conference Proceedings, June 1997.
- Besterfield-Sacre, Mary E., Cynthia J. Atman, Larry J. Shuman, Richard L. Porter, Richard M. Felder, and Hugh Fuller, "Changes in Freshman Engineers' Attitudes - A Cross Institutional Comparison: What Makes a Difference?" Frontiers in Education Conference Proceedings, Salt Lake City, UT, November 1996.
- Atman, Cynthia J., Karen M. Bursic, and Stefanie L. Lozito, "An Application of Protocol Analysis to the Engineering Design Process," American Society for Engineering Education Conference Proceedings, June 1996.
- Shuman, Larry J., Cynthia J. Atman, and Harvey Wolfe, "Applying TQM in the IE Classroom: The Switch to Active Learning." American Society for Engineering Education Conference Proceedings, June 1996.
- Atman, Cynthia J., Karen M. Bursic, and Stefanie L. Lozito, "Gathering Information: What Do Students Do?" American Society for Engineering Education Conference Proceedings, pp. 1138-1144, June 1995.

- Besterfield-Sacre, Mary E., Cynthia J. Atman, and Larry J. Shuman, "How Freshman Attitudes Change in the Freshman Year," American Society for Engineering Education Conference Proceedings, pp. 157-163, June 1995.
- Mullins, Carie A., Cynthia J. Atman, and Larry J. Shuman, "Freshmen Expectations of an Engineering Program," American Society for Engineering Education Conference Proceedings, pp. 173-178, June 1995.
- Moore, Pamela L., Cynthia J. Atman, Karen M. Bursic, Larry J. Shuman, and Byron S. Gottfried, "Do Freshman Design Texts Adequately Define the Engineering Design Process?," American Society for Engineering Education Conference Proceedings, 164-172, June 1995.
- Atman, Cynthia J., Indira Nair, and Heather Nachtmann, "Do Engineers and Humanities Majors Perceive STS Issues Differently?" American Society for Engineering Education Conference Proceedings, pp. 225-229, June 1994.
- Besterfield-Sacre, Mary E. and Cynthia J. Atman, "Survey Design Methodology: Measuring Freshman Attitudes About Engineering," American Society for Engineering Education Conference Proceedings, pp. 236-242, June 1994.
- Mullins, Carie A. and Cynthia J. Atman, "Freshmen Engineer's Strategies for Solving Open-ended Problems," American Society for Engineering Education Conference Proceedings, pp. 220-224, June 1994.
- Nair, Indira and Cynthia J. Atman, "A Case for Teaching Engineering in Context: Engineering Freshmen's Views about STS Issues," American Society for Engineering Education Conference Proceedings, pp. 247-251, June 1993.
- Atman, Cynthia J. and Indira Nair, "Constructivism: Appropriate for Engineering Education?," American Society for Engineering Education Conference Proceedings, pp. 1310-1312, June 1992.
- Atman, Cynthia J. "Communicating Technical Information: A Mental Models Approach," Industrial Engineering Research Conference Proceedings, pp. 43-48, May 1992.

Refereed Conference Papers Without Proceedings

- Atman, Cynthia J., Jennifer Turns, Monica Horn, and Robin Adams. "Engineering Students Solving Design Problems: Cases from a Within-Subjects Verbal Protocol Study", Paper presented at the annual meeting of the American Educational Research Association, Seattle, WA, June 2001.
- Scott, Catherine. Cynthia J. Atman and Jennifer Turns. "Mastering Design Concepts Through the Coding of Design", Paper presented at the annual meeting of the American Educational Research Association, Seattle, WA, June 2001.

Technical Reports

- Cardella, Monica E., Jennifer Turns, Cynthia J. Atman, Robin Adams, and Eddie Rhone. "Detailed Descriptions of the Design Processes of Four Engineering Educators", CELT Technical Report CELT-03-01, Center for Engineering Learning and Teaching, University of Washington, Seattle, WA, 2003.
- Adams, Robin S., Michelle Valeriano, Jennifer Turns, and Cynthia J. Atman. "Industrial Engineering Pitt Concept Mapping Project: Findings from Phase I", CELT Technical Report CELT-01-09, Center for Engineering Learning and Teaching, University of Washington, Seattle, WA, 2001.
- Turns, Jennifer, Cynthia J. Atman, and Julie Bennett. "Assessing Student Preparedness for Professional Engineering Practice: A Professional Advice Task", CELT Technical Report CELT-01-08, Center for Engineering Learning and Teaching, University of Washington, Seattle, WA, 2001.

- Lewis, Craig D., Robin S. Adams, Pimpida Punnakanta, Jana Littleton and Cynthia J. Atman. "Assessing Engineering Design Performance and Teamwork: Cross-validating Written Self-Reports and Performance Observations", CELT Technical Report CELT-01-07, Center for Engineering Learning and Teaching, University of Washington, Seattle, WA, 2001.
- Atman, Cynthia J. and Jennifer Turns. "Relating Findings from the Learning Sciences to Engineering Education", CELT Technical Report CELT-01-06, Center for Engineering Learning and Teaching, University of Washington, Seattle, WA, 2001
- Horn, Monica, Jennifer Turns, Cynthia J. Atman, and Robin S. Adams. "Senior Follow-up Data Analysis", CELT Technical Report #006, Center for Engineering Learning and Teaching, University of Washington, Seattle, 2001.
- Rhone, Eddie, Jennifer Turns, Cynthia J. Atman, Robin S. Adams, Yimin Chen and Laura Bogusch. "Analysis of Senior Follow-up Data: The Midwest Floods Problem-Addressing Redundancies in Coding", CELT Technical Report #005, Center for Engineering Learning and Teaching, University of Washington, Seattle, 2001.
- Bogusch, Laura, Jennifer Turns, and Cynthia J. Atman. "Analysis of Senior Follow-up Data: The Midwest Floods Problem", CELT Technical Report #004, Center for Engineering Learning and Teaching, University of Washington, Seattle, 2001.

Other

- Shuman, Larry J., Cynthia J. Atman, and Byron S. Gottfried, "The Freshman Engineering Experience: Two Courses and Assessment Methodology," ABET Conference Proceedings, November 1996.
- Atman, Cynthia J. and Ann Bostrom, "Risk Research: Back to the Basics," National Association of Professional Environmental Communicators, vol. 3, no. 2, 1992.
- Atman, Cynthia J. "Math, Science and Technology Education Project Design Proposal," Agency for International Development, August 1991.
- Atman, Cynthia J. and Baruch Fischhoff, "Comparing the Effectiveness of Network Diagrams to Text and Outlines for Communicating Information," Institute of Industrial Engineering Integrated Systems Conference Proceedings, Fall 1989.
- Atman, Cynthia J. "Tables or Graphs? Applicability of GOMS Models to Issues of Display Design," EPP Tech Report, Carnegie Mellon University, January 1988.

PRESENTATIONS

Invited Presentations

- Atman, Cynthia J., "Portraying Engineering Design Expertise: Empirical Insights". Invited Keynote Address, First International Computing Education Research Workshop. October 1, 2005
- Atman, Cynthia J. and Cardella, Monica E. "Engineering Learning Research at the Center for Engineering Learning and Teaching" Invited presentation at the American Society for Engineering Education Mathematics and Physics Division Luncheon, Portland, OR, June 15, 2005.
- Atman, Cynthia J. and Jennifer Turns "Learning Engineering" Invited presentation at the NSF Research, Evaluation and Communication series on Research on Learning in the Disciplines, Washington, DC, April 27, 2005.
- Atman, Cynthia J., Dennis Lund "Center for the Advancement of Engineering Education," Invited presentation at the American Society of Engineering Education Regional Conference, Seattle, Washington, April 2004.

- Atman, Cynthia J., Jennifer Turns, Lorraine Fleming, Bob Mathieu. "Looking at Learning", Invited workshop at the Course, Curriculum & Laboratory Improvement Conference, Arlington, Virginia, April 2004.
- Atman, Cynthia J., "Research Culture for Graduate Students", Invited panelist at the American Society of Engineering Education Conference Proceedings, Salt Lake City, Utah, June 2004.
- Atman, Cynthia J., Robin S. Adams and Jennifer Turns. "Building Capacity in Engineering Education," Invited talk, University of Queensland, Brisbane, Australia, November 2003.
- Atman, Cynthia J. "How to Improve Engineering Student Learning", Invited Presentation, American Society for Engineering Education, Engineering Deans Institute, Santa Monica, CA, March 2003.
- Atman, Cynthia J., Richard Felder and Jennifer E. Turns. "How People Learn Engineering: Two Examples and a Call to Action", Invited presentation to the National Academy of Engineering Retreat on Engineering Education Research Center, January 2002.
- Atman, Cynthia J. "What Do Engineering Students Know?" Invited Keynote Address, Innovation and Technology in Computer Science Education, Canterbury, England, June 2001.
- Atman, Cynthia J. "Student Learning in Engineering and Design", Invited presentation, Department of Design and Innovation, The Open University, Milton Keynes, England, June 2001.
- Atman, Cynthia J., Robin S. Adams, Mike Safoutin, and Jennifer Turns, "Unpacking Design: Four Directions to Understand Engineering Student Design Processes," Invited presentation, Center for Design Research, Stanford University, October 1999.
- Atman, Cynthia J. and Jennifer Turns, "Engineering Student Learning: Research in 'Design' and 'Knowledge Integration'," Invited presentation, Stanford Learning Lab, Stanford University, October 1999.
- Atman, Cynthia J. and Jennifer Turns, "Studying Engineering Design Learning: A Case Study in the Application of Protocol Analysis and the Development of Measures," Invited presentation at the conference on Knowing and Learning to Design, Georgia Institute of Technology, April 1999.
- Atman, Cynthia J. "Engineering Student Design Processes," Invited presentation, Learning Research and Development Center, University of Pittsburgh, April 1998.
- Atman, Cynthia J. "Engineering Student Learning," Invited workshop presentation at the NASA Administrators Fellowship Program, National Research Council, December 1997.
- Atman, Cynthia J. Invited presentation at the NSF Division of Undergraduate Education Program Effectiveness Review, November 1997.
- Atman, Cynthia J. "Using Verbal Protocol Analysis to Assess Student Design Learning," Invited presentation at the NSF workshop on Design Education, Georgia Institute of Technology, September 1997.
- Atman, Cynthia J. "Process Knowledge and Prior Knowledge: Some Assessment Challenges," Invited workshop presentation at the NSF Engineering Education Scholars Workshop, Carnegie Mellon University, July 1997.
- Atman, Cynthia J. "Assessment in Engineering Education," Invited workshop presentation at the American Association of Environmental Engineering Education and Practice Conference, August 1996.
- Atman, Cynthia J., Larry Leifer, Ronald L. Miller, and Barbara M. Olds, "Innovative Assessment Opportunities," A National Technological University Satellite broadcast to the U.S. engineering education community on November 14, 1995. Number of sites: 152 engineering schools, audience size: 1167.

- Atman, Cynthia J. "The Problem of Problem Solving," Invited presentation at the NSF Workshop on Assessment for Engineering Coalition schools, July 1995.
- Atman, Cynthia J., Indira Nair, and Heather Nachtmann, "Do Engineers and Humanities Majors Perceive STS Issues Differently?," Invited presentation, Bucknell University, October 1994.
- Atman, Cynthia J. "Risk Communication," Invited seminar speaker, Graduate School of Public Health, University of Pittsburgh, September 1994.

Presentations

- Adams, Robin S., Rie Nakamura, and Cynthia J. Atman. "What Makes a Good Freshmen Research and Design Project?" American Society for Engineering Education Conference, Albuquerque, NM, June 2001.
- Adams, Robin S., Mary E. Lidstrom, Cynthia J. Atman, Allen Olson, Kjell Nelson, Jennifer Turns. "Teaching a Biological Perspective to Engineers," Presentation at the American Educational Research Association, Seattle, WA, April 2001.
- Turns, Jennifer, Cynthia J. Atman, "Concept Map Use in Course-Level and Program-Level Assessment," American Society for Engineering Education Conference, St. Louis, MO, June 2000.
- Scott, Cathie, Jennifer Turns, and Cynthia J. Atman, "Learning About engineering Design Through an Examination of Student Design Strategies," American Society for Engineering Education Conference, St. Louis, MO, June 2000.
- Atman, Cynthia J., Jennifer Turns, "Characterizing Engineering Student Design Processes – A Within Subjects Verbal Protocol," American Society for Engineering Education Conference, St. Louis, MO, June 2000.
- Shuman, Larry, Mary Besterfield-Sacre, Harvey Wolfe, Cynthia J. Atman, Jack McGourty, Ronald Miller, Barbara Olds, and Gloria Rogers, "Defining the Outcomes A Bloom's Taxonomy Approach to EC 2000," American Society for Engineering Education National Conference, Charlotte, NC, June 1999.
- Turns, J., C. J. Atman and I. Sidiadinoto. "Students Use of Functional, Behavioral and Structural Terms to Describe Artifacts During Design." American Society of Engineering Education Conference, Charlotte: NC, June 1999.
- Atman, Cynthia J., Justin R. Chimka, and Karen M. Bursic, "Results From a Verbal Protocol Study of the Design Process," Frontiers in Education Conference, Pittsburgh, PA, November 1997.
- Besterfield-Sacre, Mary E., Cynthia J. Atman, and Larry J. Shuman, "A Cross Institutional Comparison of Freshman Engineering Attitudes," Frontiers in Education Conference, Pittsburgh, PA, November 1997.
- Besterfield-Sacre, Mary E., Cynthia J. Atman, Larry J. Shuman, and Harvey Wolfe, "Outcomes Assessment Using Questionnaires, Protocols and Empirical Models: Pilot Study Results," NSF sponsored Best Assessment Processes in Engineering Education Symposium, April 1997.
- Besterfield-Sacre, Mary E., Larry J. Shuman, and Cynthia J. Atman, "Engineering Student Attitudes Assessment," NSF sponsored Best Assessment Processes in Engineering Education Symposium, April 1997.

- Atman, Cynthia J. "What Diagrams Do Readers Prefer in Risk Communications?," Annual Society for Risk Analysis Conference, December 1995.
- Bostrom, Ann and Cynthia J. Atman, "Correcting Misconceptions about Global Climate Change: Is a Myth-Fact Box a Good Idea?" Annual Society for Risk Analysis Conference, December 1995.
- Atman, Cynthia J. and Karen Bursic, "How Effective are Textbooks in Teaching the Engineering Design Process?," Frontiers in Education Conference, Atlanta, Georgia, November 1995.
- Redfern, Mark. S. and Cynthia J. Atman, "Human Factors at the University of Pittsburgh," Three Rivers Chapter of the Human Factors and Ergonomics Society, November 1995.
- Atman, Cynthia J. Initiatives at the University of Pittsburgh, American Society of Engineering Education Conference Panel on Restructuring Engineering Education, June 1995.
- Atman, Cynthia J. and Rich Puerzer, "Investigating Advantages for Using Schematic Diagrams to Explain Risk Information," Industrial Engineering Research Conference, May 1995.
- Atman, Cynthia J. and Ann Bostrom, "Unconfounding Content and Structure in the Mental Models Approach for Risk Communication Design," Annual Society for Risk Analysis Conference, December 1994.
- Atman, Cynthia J. "Have You Tried.....Concept Maps?," Frontiers in Education Conference, November 1994.
- Atman, Cynthia J. "Using Decision Analytic Structures for Risk Communication," Invited Session, Industrial Engineering Research Conference, May 1994.
- Atman, Cynthia J., Proposal Writing Workshop, American Society for Engineering Education Conference, June 1993.
- Atman, Cynthia J. "Comparing Alternative Information Formats for Effective Risk Communication," Invited Session, Industrial Engineering Research Conference, May 1993.
- Atman, Cynthia J. "STS and the Freshman: A Survey of Humanities and Engineering Freshmen," National Association for Science, Technology, and Society Conference, January 1993.
- Bostrom, Ann, Cynthia J. Atman, Baruch Fischhoff, and M. Granger Morgan, "Risk Communication Evaluation: Mental Models and Other Approaches," Annual Society for Risk Analysis Conference, December 1992.
- Atman, Cynthia J. "Diagrams, Outlines or Text: What Do Readers Like and Remember?," Annual International Visual Literacy Association Conference, October 1992.
- Atman, Cynthia J., Ann Bostrom, Baruch Fischhoff, and M. Granger Morgan, "Developing Effective Risk Communication: Content and Structure," Annual Society for Risk Analysis Conference, December 1991.
- Atman, Cynthia J. "Using Decision Analytic Tools for Structuring Written Risk Communication," Annual ORSA/TIMS Conference, October 1990.
- Atman Cynthia J. "Using Protocol Data to Evaluate Risk Communication: An Indoor Radon Example," Fifth International Conference on the Foundation and Applications of Utility, Risk, and Decision Theories, June 1990.

Workshops

- McGovern, Victoria, Cynthia J. Atman, Eliene Augenbraun, Andrea Stith, Crispin Taylor. "Multiple Career Pathways", American Association for the Advancement of Science Annual Meeting, February, 2006.

- Atman, Cynthia J., Jennifer Turns, Lorraine Fleming. "Learning Science Research Applied to Engineering," American Society for Engineering Education Workshop, June 2005.
- Atman, Cynthia J., Theresa Barker, Monica Cardella, and Susan Mosborg. "Looking at Research on Learning: an Interactive Workshop," University of Washington College of Engineering TA Workshop, September 2004.
- Sheppard, Sheri D., Cynthia J. Atman, Robin S. Adams, and Cheryl Richardson. "What Do We Know About our Engineering Students," Frontiers in Education Conference, Boston, November 2002.
- Turns, Jennifer, Robin S. Adams, Josh Martin, Angela Linse, and Cynthia J. Atman. "Design Education Workshop: Connecting Research and Practice", American Society for Engineering Education Annual Conference, Montreal, Canada, June 2002.
- Denton, Denice, Cynthia J. Atman, Angela Linse, "Faculty Recruitment and Professional Development," Engineering Deans Institute Conference, March 2001.
- Olds, Barbara, Larry J. Shuman, Harvey Wolfe, Mary Besterfield-Sacre, Jack McGourty, Ron Miller, Cynthia J. Atman, and Gloria Rogers, "A Baker's Dozen Assessment Methods and Their Strengths and Weaknesses," NSF-Best Assessment Practices III. Rose-Hulman Institute of Technology, April 2000.
- Atman, Cynthia J. and Jennifer Turns, "Concept Maps for Assessment in Engineering Education," Rose-Hulman Institute of Technology, Best Assessment Processes III Conference Terre Haute, IN., April 2000.
- Shepard, Sheri, Cynthia J. Atman, Larry Carlson, Ed Crawley, Pam Eibeck, Dan Frey, Anthony Marchese, Donald E. Richards, Jackie Sullivan, Ian Waitz, Eric Van Duzer, "Innovations in Engineering Education: What Makes Innovation Possible and Sustainable," Frontiers in Education Conference, April 2000.
- Besterfield-Sacre, Mary, Larry J. Shuman, Harvey Wolfe, Cynthia J. Atman, Jack McGourty, Ron Miller, Barbara Olds, and Gloria Rogers, "EC 2000 Attributes: Definition and Use," Frontiers in Education Conference, November 2000.
- Atman, Cynthia J., Mary Besterfield-Sacre, Jack McGourty, Ron Miller, Barbara Olds, Gloria Rogers, Larry Shuman, Jennifer Turns, and Harvey Wolfe, "Assessment Methods for Addressing EC 2000: An Introduction to Program Assessment," Frontiers in Education Conference, November 1999.

Poster Sessions

- Turns, J., Robin S. Adams, Cynthia J. Atman and Monica E. Cardella. "Moving from research to practice in undergraduate engineering design education." Poster presented at the International Conference for the Learning Sciences, Seattle, October 2002.
- Tanimoto, S., Robin S. Adams, Cynthia J. Atman, E. Hunt, W. Winn. "Unobtrusive assessment in online learning: Methodology and tools." Poster presented at the International Conference for the Learning Sciences, Seattle, October 2002.
- Temple, Jennifer, Bettina Vuong, Jennifer Chin and Julie Christensen. Cynthia J. Atman as Faculty Sponsor. "An Application of Verbal Protocol Analysis to Engineering Design." UW Undergraduate Research Fair, 2000.
- Atman, Cynthia J. and Jennifer Turns, "Engineering Student Design Processes: Four Verbal Protocol Studies," Poster session for the National Science Foundation Research on Education, Policy and Practice PI Meeting, June 1999.

Atman, Cynthia J., Karen M. Bursic, Byron S. Gottfried, John F. Patzer, and Larry J. Shuman, "Engineering Education Research," Poster session for the University of Pittsburgh School of Engineering Research Fair, May 1996.

Mullins, Carie and Cynthia J. Atman, "Understanding Freshman Problem Solving," Poster session for the University of Pittsburgh School of Engineering Research Day, April 1994.

Puerzer, Richard, Cynthia J. Atman, and Chris Yarsky, "Developing Effective Written Risk Communication," Poster session for the University of Pittsburgh School of Engineering Research Day, April 1994.

Atman, Cynthia J. and Baruch Fischhoff, "The Impact of Format on Recall of Written Risk Information," Poster session at the Annual Society for Risk Analysis meeting, December 1992.

RESEARCH GRANTS

"Center for the Advancement of Engineering Education," PI: Cynthia J. Atman, Co-PI's Reed Stevens at the University of Washington, Sheri Sheppard and Larry Leifer at Stanford University, Lorraine Fleming at Howard University, Ruth Streveler at the Colorado School of Mines, Karl Smith at the University of Minnesota. National Science Foundation, Higher Education Center for Learning and Teaching, \$10,172,714, 1/03-12/07 plus \$1,130,000 in supplemental funding.

"The Teaching Challenges of Engineering Faculty: Insights from a Model Instructional Development Program," PI: Jennifer Turns, Co-PI's: Robin S. Adams, Cynthia J. Atman and Angela Linse. National Science Foundation, \$374,973, 7/02-6/04.

"A Learning Environment for Information Technology Concepts Using Intensive, Unobtrusive Assessment," PI: Steven Tanimoto, Co-PI's: Cynthia J. Atman, Earl Hunt and William Winn. National Science Foundation, \$1,112,499, 10/01-9/04.

"An Engineering Design Expertise Continuum: Filling it in and linking it to Education Practice," PI: Cynthia J. Atman, Co-PI's: Robin S. Adams and Jennifer Turns at the University of Washington. National Science Foundation, \$508,196, plus \$20,000 Research Experience for Undergraduates Supplement, 9/01-8/04.

"Toward Enhancing Engineering Design Education: Bringing Research Results into the Classroom", PI: Jennifer Turns, Co-PI's: Robin S. Adams, Cynthia J. Atman, GE Fund for \$50,000, 1/01-12/01.

"Integration of Biology into the Engineering Curriculum at the University of Washington," PI: Mary E Lidstrom, Co-PI's: Cynthia J. Atman, Molly Johnson, and Francis A. National Science Foundation, \$499,998 plus \$10,000 Research Experience for Undergraduates Supplement, 9/00-8/03.

"Regional Implementation of Transferable Integrated Design Engineering Education (TIDEE)" PI: Denny C. Davis, Washington State University. Co-PI's: Michael S. Trevisan, and David I. McLean at Washington State University, Cynthia J. Atman, Dale E. Calkins, Mani Soma at the University of Washington, Patricia D. Daniels and Robert G. Heeren at Seattle University, Kenneth L. Gentili at Tacoma Community College, Robert Christianson and Jeff McCauley at Green River Community College. National Science Foundation, \$1,421,000 for entire coalition and includes \$359,000 plus \$10,000 Research Experience for Undergraduates Supplement for the University of Washington, 7/99-6/02. My role is PI for UW subcontract.

"Engineering Education: Assessment Methodologies and Curricula Innovations," PI: Larry Shuman, University of Pittsburgh, Co-PI's: Mary Besterfield-Sacre, Harvey Wolfe at the University of Pittsburgh, Cynthia J. Atman at the University of Washington, Jack McGourty at Columbia University, Barbara Olds and Ronald Miller at the Colorado School of Mines and Gloria Rogers at the Rose-Hulman Institute of Technology. National Science Foundation, awarded \$852,790 for entire coalition and includes \$114,178 plus \$30,000 Research Experience for Undergraduates Supplement and \$19,996 extension for the University of Washington, 10/98-03/01. My role is PI for UW subcontract.

"Tracking Undergraduate Engineering Attitudes - A Cross-Institutional Study: Implications for Retention and Success in Engineering Programs," PI: Larry J. Shuman at the University of Pittsburgh, Co-PIs: Cynthia J. Atman at the University of Pittsburgh and Mary Besterfield-Sacre at the University of Texas at El Paso. Engineering Information Foundation, \$88,700 to the University of Pittsburgh, 6/98-5/01.

"Engineering Interface," PI: Larry J. Shuman, Co-PI's: Cynthia J. Atman, Byron S. Gottfried and Norman P. Hummon, National Science Foundation Division of Undergraduate Education, \$130,000 to the University of Pittsburgh, 6/97-8/99.

"1997 Frontiers in Education Conference," PI: Larry Shuman, Co-PI's: Cynthia J. Atman and Don Chiarulli, National Science Foundation, \$56,771 to the University of Pittsburgh, 5/97-12/97.

"Understanding How Engineering Students Approach Open-Ended Problems — Implications for Engineering Education," PI: Cynthia J. Atman, National Science Foundation Young Investigator Award. National Science Foundation plus matching funds from General Electric Fund, Ford Motor Company Fund, Westinghouse Foundation, Xerox Corporation, Lockheed Martin totaling \$529,427, 9/93-2/00.

"The Freshman Engineering Experience," PI: Larry J. Shuman, Co-PI's: Cynthia J. Atman, Byron S. Gottfried and John F. Patzer, II. National Science Foundation, \$200,000 plus \$10,000 for Research Experience for Undergraduates Supplement to the University of Pittsburgh, 1/93 - 4/95.

"Risk Communication Evaluation: Focusing on the Readers' Needs" PI: Cynthia J. Atman, Co-PI: Dr. Ann Bostrom at Georgia Institute of Technology. , National Science Foundation Joint Private Industry Initiative with the Electric Power Research Institute, awarded \$113,905 plus \$12,500 addition for Research Experience for Undergraduates. 9/92-8/94.

"Mental Models of Science, Technology and Society Issues: A Comparison of Engineers and Humanities Students," PI: Cynthia J. Atman, Co-PI: Indira Nair at Carnegie Mellon University, National Science Foundation, \$72,000 plus \$10,000 addition for Research Experience for Undergraduates, 9/91-8/93.

EDUCATIONAL ACTIVITIES

Educational Activities at the University of Washington

Classes Offered

Undergraduate: Human Factors Engineering

Graduate: Methods for Teaching Engineers
Cognitive Engineering

Students

Ph.D. Students: Michael Safoutin, graduated 8/03
Monica Cardella, expected graduation 6/06

M. S. Students: Monica Cardella, graduated 3/02
Eddie Rhone, graduated 6/03
Theresa Barker, 8/04-6/05

Ph.D. Committees: Robin S. Adams, graduated 5/01
Frank Ashby, expected graduation 6/06

Undergraduate Research Students:

1999-2000: Jake Burghardt, KaMan Louise Cheung, Jennifer Chin, Matt Dallas, Kristen Jankowski, Melissa Kagele, Eric Landsness, Novy Phandana, Laura Sanrendatu, Albert Sukianto, Jennifer Temple, and Britton Vidal

2000-2001: Jake Burghardt, KaMan Louise Cheung, Jennifer Chin, Daniel Detloff, Jennifer Temple, Julie Christensen, Jana Littleton, Eddie Rhone, Bettina Vuong, Karl Wiegand

2001-2002: Russel Dement, Sarah Hayes, Ian Louie, Joshua Martin, Abigail Navarro, Joshua Newman, John Orcutt, Alison Schwerzler, Jennifer Temple, Michelle Valeriano

2003-present: Many undergraduate students work with both CELT and CAEE on research projects. They are not listed by name here because they work mainly with research scientists and graduate students.

Mary Gates Undergraduate Scholars:

Jake Burghardt (2000)
Joshua Martin (2001)
Michelle Valeriano (2001)
Athena Epilipsia (2005)

Educational Activities at the University of Pittsburgh

Classes Offered

Undergraduate: Introduction to Industrial Engineering
Engineering Economic Analysis
Senior Design Project
Human Factors Engineering

Graduate: Cognitive Engineering
Behavioral Systems Engineering
Directed Readings on Cognitive Mental Models

Students

Ph.D. Students: Carie Mullins
Justin Chimka

Ph.D. Committee: Mary Besterfield-Sacre

Masters Students: Pamela Moore
Christine Yarsky
Stefanie Lozito

Masters Committees: Gary Rafe

Undergraduate Students:

Supported forty-one undergraduate students through National Science Foundation Research Experience for Undergraduates and Westinghouse Foundation grants. None of these students had considered graduate school before working with me. As a result of working with my research team, three students have completed Masters degrees and an additional three completed Ph.D.'s in Industrial Engineering

SERVICE ACTIVITIES

Service Activities to the Profession

Professional Service

- Member, International Advisory Editorial Board, *Design Studies*, 1/06 – present
- Member, Planning committee for the Engineering and Education Partnership in Higher Education for a Technologically Literate Citizenry meeting, 10/05 – present
- Invited Member, Engineering Education Research Colloquy series, 9/05-present
- Chair, ASEE Chester F. Carlson Award Committee, 6/04-6/07
- Member, Harvey Mudd Design Workshop Advisory Committee, 1/04-1/07
- Member, ASEE Chester F. Carlson Award Committee, 6/03 – 5/04
- Chair, National Academy of Engineering Committee to establish the NAE Center for the Advancement of Scholarship on Engineering Education, 6/01 – 12/02
- Member, National Academy of Engineering Committee on Engineering Education, 1/00 – 6/03
- Associate Editor, *Journal of Engineering Education*, 12/00 – 2/03
- Member, AAAS Nominating Committee, 12/98 – 12/01
- Member, National Research Council Board on Engineering Education, 1998 – 2000
- Co-chair, 1997 Frontiers in Education Conference
- Member, NSF Panel to Define Program on Assessment (ASA) in the Division of Undergraduate Education, July, 2000
- Member, NSF Review Panel for the ECSEL Engineering Education Coalition, 1996 – 97. Coalition schools are: University of Washington, Morgan State University, Pennsylvania State University, University of Maryland, Howard University, City College of New York and Massachusetts Institute of Technology
- Director at Large for New Engineering Educators, Education Research Methods Division of American Society of Engineering Educators, 1995 – 1996
- Participant, National Science Foundation Conference on Restructuring Engineering Education, July 1994
- Member, U. S. Department of Education Steering Committee on Mathematics and Science Education, Representative from the Agency for International Development, 1990 – 1991

Proposal Reviews

- Member, NSF Review Panel for Distinguished Teaching Scholars, May 2004.
- Member, NSF Review Panel for CAREER Award, October, 1999.
- Member, NSF Review Panel for the PFSMETE program, April, 1998.
- Reviewer, National Science Foundation, Graduate Education (ongoing)
- Reviewer, National Science Foundation, Engineering Directorate (ongoing)
- Reviewer, National Science Foundation, Research, Evaluation, and Communications Division, (ongoing)
- Reviewer, National Science Foundation, Decision, Risk and Management Science Division, 6/93 –6/98
- Reviewer, National Science Foundation, Division of Undergraduate Education, Chaired panel session, July, 1993
- Reviewer, U. S. Department of Education, Fund for the Improvement of Post-secondary Education, 9/93 – 9/95

Journal and Conference Paper Reviews

- Reviewer, *Journal of Engineering Education* (ongoing)
- Reviewer, *International Journal on Engineering Education* (ongoing)
- Reviewer, *Frontiers in Education Conference* (ongoing)

- Reviewer, ASEE Conference (ongoing)
- Member, Review Committee, International Conference on the Learning Sciences, October, 2002
- Reviewer, ASME Design Automation Conference, 1999
- Reviewer, Industrial Engineering Research Conference, 1992

Service Activities to the University of Washington

Industrial Engineering Departmental Committees

- Member, Faculty Search Committee, 2005-2006
- Co-Chair, IE ABET Committee, 1999 – 2001
- Member, Administrative Assistant Selection Committee, 1999
- Member, Faculty Search Committee, 1999 – 2006

College of Engineering Committees

- Member, Promotion and Tenure Committee, 2004-2007
- Member, Mechanical Engineering Strategic Planning Committee, 1999 – 2000
- Member, Oversight Committee for the Integrated Learning Factory, 1999
- Member, Future Faculty Training Certificate Program Advisory Panel, 1999
- Member, Northwest Regional Roundtable working group, 1999
- Member, College of Engineering ABET Committee, 1999 – 2001

University Committees

- Member, Search Committee for Director of the K-12 Science/Math Institute, College of Education, 2005 - 2006
- CIDR Advisory Board, 2000 – 2006
- Advisory Board on Accountability, 1999 – 2000
- University Undergraduate Education Committee, 1999 – 2001
- Advisor, Program for Educational Transformation Through Technology, 1999 – 2003
- U-wired Steering Committee, 1999 – 2000

Service Activities to the University of Pittsburgh

Committee Service

- School of Engineering ABET Committee, Member 1996 – 1998
- School of Engineering Research Committee, Member 1995 – 1996
- Provost Advisory Committee on Women's Concerns, Member 1993 – 1995
- School of Engineering Affirmative Action Committee, Chair 1992 – 1993, Member 1991 – 1992

Recruiting and Retention Activities

- Presenter, PEP Day, 1991, 1995
- Attendee, Bridging the Gender Gap, October, 1995
- Member, Planning Committee for Sue Rosser's campus visit, 1994
- Organized and ran support group for women graduate students, 1991 – 1993
- Freshman Mentor, 1992 – 1993
- Session leader, Engineering School Teaching Assistant Training, 1992
- Speaker, How to Survive and Thrive as a Woman in the Academic World, 1992
- Speaker, Women in Engineering Program for High School Girls, 1991 and 1992
- Speaker, Women in Science and Technology Program, 1991

PROFESSIONAL ASSOCIATION MEMBERSHIPS

- American Association for the Advancement of Science (AAAS)
- American Educational Research Association (AERA)
- American Society for Engineering Education (ASEE)
- Institute of Industrial Engineers (IIE)
- Institute of Electrical and Electronics Engineering (IEEE)
- International Society of the Learning Sciences (ISLS)
- Society of Women Engineers (SWE)