

Sadhana Puntambekar

Assistant Professor
Department of Educational Psychology
Neag School of Education, University of Connecticut
U-64, 249 Glenbrook Road
Storrs CT 06269-2004

sadhana@uconnvm.uconn.edu
Work: (860) 486-4101
Home: (860) 429 5049
URL: <http://www.sp.uconn.edu/~sadhana>

Education

Ph.D., Cognitive Studies, School of Cognitive and Computing Sciences 1991-1996
University of Sussex, Brighton, UK
Doctoral Dissertation: Investigating the effect of a computer tool on students' metacognitive processes
Advisor Prof. Benedict du Boulay

MA, Psychology 1981-1983
Osmania University, India

BA, Psychology, Philosophy and Sociology 1978-1981
Osmania University, India

Experience

Current Position

Assistant Professor Since August 1998
Program in Cognition & Instruction and Educational Technology, Neag School of Education, University of Connecticut.

Previous Positions

Postdoctoral fellow February 1996 – August 1998
EduTech Institute at Georgia Institute of Technology, with Prof. Janet L. Kolodner.

Lecturer, Department of Educational Psychology 1994-1995
Institute of Education, University of London

Research scientist, Institute of Psychology
Jnana Prabodhini, Pune, India (Headquarters of MENSA in India) 1986-1988

Senior Research Scientist, Institute of Psychology,
Jnana Prabodhini, Pune, India. 1988-1991
In charge of managing and coordinating the design and implementation of
learning skills programs in schools

Research accomplishments - Grants

PI on *Designing hypertext systems for the science classroom: Understanding students' changing cognitive representations*. Early CAREER award funded by the National Science Foundation. 356,800 for four years. NSF award #9985158.

PI on the project *Designing Hypertext systems with dynamic concept maps*. Amount – 11, 492 for one year. Funded by the University of Connecticut's Faculty grant program.

Co-PI on a four year grant (1996-2000) funded by the J. S. McDonnell Foundation's Cognitive Studies in Education program (JSMS grant # 96-38; \$650,000). *Scaffolding Learning by Design: An exploration of the metacognitive skills needed to successfully negotiate and learn from open-ended problems*. PI - Kolodner, J. L. Georgia Institute of Technology.

Teaching

At UConn, I took the lead in launching the revised Masters Program in Educational Technology and developed the following courses.

- Interactive learning environments
- Web Based Learning
- Software design and evaluation
- Programming in Visual Basic

In addition, I have developed the following professional development courses for inservice teachers.

- Learning with technology
- Technology in the classroom

Courses developed and taught at the Institute of Education, University of London.

- Psychology of Learning with special emphasis on Learning with Technology tools
- Reading comprehension - Theory and Practice

Professional Activities

Chair, Workshop on Documenting collaborative interactions: Issues and approaches. Held at CSCL 2002.

Co-Chair, workshop on *Assessment methods in web based environments and adaptive hypermedia* at AIED 2001.

Organizer and chair of the symposium *Learning by design: Developing children's understanding of science by engaging them in solving design problems* at the annual meeting of the American Educational Research Association, 1996. Participants from the middle school project, Georgia Tech.

Organizer of the symposium *Learning by design: Opportunities and Challenges* at the annual meeting of the American Educational Research Association, 1998. Participants from Learning by design efforts across US.

Organizer, Fortnightly seminars on Intelligent Tutoring Systems, at the University of Sussex, 1992-1994.

Member of the *American Educational Research Association* (AERA), since 1993.

Member of the *Cognitive Science Society*, since March, 1997.

Member of *American Association for Computers in Education*, since September, 1999.

Reviewer - Journals

Member of the Editorial Board, *Distance Education: An international Journal*, appointed in October, 1997.

Reviewer, <i>International conference on Computers in Education</i>	1998
Ad Hoc Reviewer, <i>Annual meeting of the Cognitive Science Society</i> since 1998	
Reviewer, <i>Instructional Science</i> , special issue on AI tools in the classroom	1995
Reviewer, <i>Journal of Educational Computing Research</i>	since 1995
Ad Hoc Reviewer, <i>Journal of the Learning Sciences</i>	since 1996
Ad Hoc Reviewer, <i>AERA Annual meeting</i>	since 1997

Reviewer – Grants

National Science Foundation	October, 2001
State of Connecticut – Technology infrastructure grants	October, 1998

Awards

National Science Foundation's early CAREER award	2000-2004
Gold Medal awarded for the best student in Psychology in the University in Masters degree course	1983
Award for the best student in Psychology in the University Bachelors degree course	1981
Gold Medal awarded for the best student in Philosophy in the University in Bachelors degree course	1981
National Merit Scholarship awarded for outstanding performance	1981-1983

Publications

Journals and Book chapters

- Hubscher R., & Puntambekar, S. (2001). Navigation support in adaptive hypermedia systems: Is More indeed better? In J. D. Moore, C. L. Redfield & W. L. Johnson (Eds.) *Artificial Intelligence in Education, AI-ED in the wired and wireless world*. pp. 13-22. IOS Press, Netherlands.
- Puntambekar, S., Stylianou, A., & Jin, Q. (2001). Visualization and external representations in educational hypertext systems. In J. D. Moore, C. L. Redfield & W. L. Johnson (Eds.) *Artificial Intelligence in Education, AI-ED in the wired and wireless world*. pp. 13-22. IOS Press, Netherlands.
- Puntambekar, S. & du Boulay, B. (1999). Design of MIST: A system to help students develop metacognition. In P. Murphy (Ed.) *Learners, Learning and Assessment*. pp. 245-257. Paul Chapman: London.
- Puntambekar, S. (1999). Helping the distance learner make choices. In *Distance Education, An International journal, volume, 2 (1)*.
- Puntambekar, S. & du Boulay, B. (1997). Design and development of MIST: A system to help students develop metacognition. *Journal of Educational Computing Research*, Vol. 16 (1), pp. 1-35.
- Puntambekar, S. (1995). Helping students learn 'how to learn' from texts: Towards an ITS for developing metacognition. *Instructional Science*, 23: 163-182.

Peer-reviewed Conference Proceedings

- Puntambekar, S. (1999). Formalization and integration of scaffolding in a web-based learning environment. In proceedings of WebNet 99 conference, Hawaii, October 23-30.
- Puntambekar, S. (1999). An integrated approach to individual and collaborative learning in a web-based learning environment. In proceedings of the CSCL (Computer Supported Collaborative Learning) conference, pp 160-171.
- Puntambekar, S. & Kolodner, J. L. (1998). Distributed scaffolding: Helping students learn in a learning by design environment. In A. S. Bruckman, M. Guzdial, J. L. Kolodner, & A. Ram (Eds.), *ICLS 1998, Proceedings of the International Conference of the Learning Sciences*, pp. 35-41.
- Puntambekar, S. & Kolodner, J. L. . (1998). The Design Diary: development of a tool to help students learn science by design. In A. S. Bruckman, M. Guzdial, J. L. Kolodner, & A. Ram (Eds.), *ICLS 1998, Proceedings of the International Conference of the Learning Sciences*, pp. 230-236.
- Kolodner, J. L., Crismond, D., Gray, J., Holbrook, J., Puntambekar, S. Learning by design: From theory to practice. In A. S. Bruckman, M. Guzdial, J. L. Kolodner, & A. Ram (Eds.), *ICLS 1998, Proceedings of the International Conference of the Learning Sciences*, pp. 223-229.

- Puntambekar, S., Nagel, K., Hübscher, R., Guzdial, M., & Kolodner, J. L. (1997) Intragroup and Intergroup: An exploration of learning with complementary collaboration tools. In R. Hall, N. Miyake, & N. Enyedy (Eds.), *CSCL 97, Proceedings of Computer Supported Collaborative Learning Conference*, pp. 207-215.
- Guздial, M., Hübscher, R., Nagel, K., Newstetter, W., Puntambekar, S., Shabo, A., Turns, J., & Kolodner, J. L. (1997). Integrating and Guiding Collaboration: Lessons Learned in Computer-Supported Collaborative Learning Research at Georgia Tech. In R. Hall, N. Miyake, & N. Enyedy (Eds.), *CSCL 97, Proceedings of Computer Supported Collaborative Learning Conference*, pp. 91-100.
- Puntambekar, S. (1995). Stop and think: Helping students develop metacognition with the help of a computer tool. In Selwood, I., Fox, P., Tebutt, M., *WCCE 95, Sixth IFIP world conference on Computers in Education, Birmingham*.
- Puntambekar, S. (1994). 'What will I do next?' Developing metacognition with the help of a computer based system. In Thomas, M., Sechrest, T., and Estes, N. (Eds). *Deciding our future: Technological imperatives for education. Proceedings of the 11th international Conference on Technology and Education, London 27th - 30th March, 1994*.
- Puntambekar, S. (1993). Towards an ITS for training metacognitive skills in studying from tests. In *Proceedings of the 7th International PEG conference, Edinburgh, July 2 - 4, 1993, pp. 389-398*.
- Puntambekar, S. (1993). Metacognition in Intelligent Tutoring Systems: Implementing a general model for studying from texts. In Brna, P., Ohlsson, S., & Pain, H. *Artificial Intelligence in Education, Proceedings of AI-ED 93. Edinburgh, Scotland, 23-27 August*.

Presentations

- Puntambekar, S., & Stylianou, A. (2001). CoMPASS – Concept maps to help students learn from online materials. *Paper presented at the annual conference of the Northeast Educational Research association*.
- Stylianou, A., & Puntambekar, S. (2001). Conceptual navigation support in a science hypertext system: How do students learn from non-linear electronic texts? *Paper presented at the annual conference of the Northeast Educational Research association*.
- Puntambekar, S., Stylianou, A., & Jin, Qi. (2001). Concept mapping as a meta-level tool for hypertext navigation. *Demo at the AIED conference*.
- Puntambekar, S. (2001). Learning from online resources: Understanding students' cognitive strategies and representations. *Presented at AERA 2001*.
- Puntambekar, S. (2001). Designing hypertext systems for the science classroom: Understanding students' changing cognitive representations. Presented at the Pis meeting at the National Science Foundation.
- Puntambekar, S. (2000) Designing online materials to support learning by design. Presented in the symposium, Learning from design activities, two years later. *Presented at the Annual Meeting of the American Educational Research Association, New Orleans, April 24-28, 2000*.

- King, Fredrick, B. & Puntambekar, S. (2000). Project-based technology. Partners with technology. Presented in the symposium, the merits of multiple theories of learning in the study of technology use in classroom settings. *Presented at the Annual Meeting of the American Educational Research Association*, New Orleans, April 24-28, 2000.
- Puntambekar, S. (1999). Individual and collaborative learning in a WWW environment. . In *proceedings of the CSCL (Computer Supported Collaborative Learning) conference*, December 12-15, Stanford, CA.
- Toman, J. & Puntambekar, S. (1999). An interactive web-based environment for teachers learning at a distance. Presented at NERA, 1999.
- Puntambekar, S., Guzdial, M., Nagel, K., Hübscher, R., Shabo A., & Kolodner, J. L. Supporting a complete learning by design process for middle school students. *Presented at the Annual Meeting of the American Educational Research Association*, San Diego, April 13-17, 1998.
- Puntambekar, S., Davies, J., Hübscher, R., Newstetter, W., Kolodner, J. L. (1997). Towards a model for scaffolding students learning science by design. *In Proceedings of the annual meeting of the Cognitive Science Society, Stanford.*
- Puntambekar, S & Hübscher, R. (1997). A structure-function-behavior analysis of the design process. *Presented at the Design Education Workshop, Georgia Institute of Technology.*
- Newstetter, W., & Puntambekar, S. (1997). Scaffolding Learning by Design: An exploration of the metacognitive skills needed to successfully negotiate and learn from open ended problems. *Presented at the McDonnell meeting on Cognitive Studies for Educational Practice, Seattle.*
- Puntambekar, S. (1997). Supporting the design process by using design diaries in the 'Learning by Design' environment. *Paper Presented at the AERA annual meeting, March 24-28, Chicago.*
- Hübscher, R., Puntambekar, S., & Guzdial, M. (1997). A scaffolded learning environment supporting learning and design activities. *Presented at the Annual Meeting of the American Educational Research Association, March 24-28, Chicago.*
- Hübscher, R., Puntambekar, S., & Guzdial, M., & Kolodner, J. L. (1996). Integrating tools into the classroom. *In Proceedings of the Conference on Human Factors in Computing Systems, Atlanta.*
- Puntambekar, S. (1995). Effect of a computer tool on students' metacognitive processes. *Presented at the Annual Meeting of the American Educational Research Association, April 18-22, San Francisco.*

Technical reports

- Puntambekar, S. (1993). Investigating the effect of a computer tool on students' metacognitive processes. *Graduate research in Cognitive and Computing Sciences in Sussex. (CSRP 381, School of Cognitive and Computing Sciences, University of Sussex).*
- Puntambekar, S. (1993). Metacognition in Intelligent tutoring systems - on helping students 'learn how to learn'. *In Brook, J. K. and Arvanitis T. N. (Eds.) The Sixth White House*

papers: Graduate research in Cognitive and Computing Sciences in Sussex. (CSRP 300, University of Sussex).

Puntambekar, S. (1992). Training metacognitive skills in studying from texts. In C. Wood, R. Davidge, and P. Costa (Eds.) *The Fifth White House papers: Graduate research in Cognitive and Computing Sciences in Sussex. (CSRP 251, University of Sussex).*

Puntambekar, S. (1983) Organizational function of Rehearsal. Unpublished Masters dissertation., *Osmania University, Hyderabad, India.*

Submitted

Puntambekar, S., & Kolodner, J. L. Distributed Scaffolding: Helping students learn science by design. Submitted to *Cognition and Instruction*.

Puntambekar, S. Building communities of learners in a web-based environment. Submitted to the *Journal of Interactive Media in Education*.

Puntambekar, S., & Hübscher, R. scaffolding in complex learning environments: what we have learned and what we have missed. Submitted to the *Journal of the Learning Sciences*.

Hübscher, R. & Puntambekar, S. Adaptive navigation for learners in hypermedia systems. Submitted to the *Adaptive Hypertext* conference.