

CURRICULUM VITAE

Nathan Bos, Ph.D.

Senior Staff Researcher
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Research focus: I do research in the field of computer-supported cooperative work. My interests are in geographically distributed work, agent-based modeling of group behavior, and the use of multi-player simulations for research.

EDUCATION

- 1998 Ph.D. University of Michigan Combined Program in Psychology and Education. Dissertation title: Affordances of students' using the World Wide Web as a publishing medium in project based learning environments. Chair: Joseph Krajcik
- 1991 B.A. Calvin College, Psychology. Emphasis on cognitive psychology and artificial intelligence applications.

APPOINTMENTS

- 2006- Senior Research Staff at the Johns Hopkins University Applied Physics Laboratory
- 2002-2006 Assistant Research Scientist (faculty track) at the University of Michigan School of Information
- 2002-2006 Director of special projects in educational technology for the University of Michigan School of Business Administration. Developed and evaluated cutting-edge educational technology projects as part of the Associate Dean for IT's *Technology Champions* program.
- 1998-2002 Postdoctoral research fellow at the Collaboratory for Research on Electronic Work (CREW).
- 2000-2001 Postdoctoral research with the Center for Innovative Learning Technologies (CILT), a partnership between SRI, UC-Berkeley, Vanderbilt, and the Concord Consortium. Involved in a review of design principles for educational technology, a working group on learning through computer games, and various other CILT efforts.

GRANTS AND AWARDS

- 2003-2006 Co-PI with Judy Olson on 3-year \$575,000 Grant *Odd Person Out? Studies of distributed group work where communications technologies are unequal*. National Science Foundation Information and Intelligent Systems grant # 0308009.
- 1998 University of Michigan Rackham Dissertation Fellowship
- 1993-1994 University of Michigan Rackham Merit award
- 1987-1991 Calvin College National Merit Scholarship

PUBLICATIONS BY TOPIC

Computer-Supported Collaborative Work

Olson, G., Zimmerman, A. & Bos, N.D. (2008). *Scientific Collaboration on the Internet*. Cambridge, MA: MIT Press.

- Bos, N.D., Olson, J.S., Nan, N., and Cheshin, A. (2008). Subgroup biases in partially distributed collaboration. *Journal of Information Technology Research*, 2 (1). Heshey, PA: IGI Global.
- Cheshin, A., Rafaeli, A., and Bos, N. (2008). Emotional contagion and group performance. *Extended Abstracts of the ACM Conference on Human Factors in Computing Systems (CHI 2008)*, New York: ACM Press.
- Bos, N.D., Zimmerman, A., Olson, J., Yew, J., Yerkie, J., Dahl, E. & Olson, G. (2007). From Shared Databases to Communities of Practice: a taxonomy of Collaboratories. *Journal of Computer Mediated Communications*, Special Issue on E-Science, N. Jankowski (Ed.)
- Bos, N.D., Olson, J.S., Nan, N., Shami, N.S., Hoch, S., Johnston, E. (2006). Collocation blindness in partially distributed groups: is there a downside to being collocated? *Proceedings of CHI 2006*. New York: ACM Press.
- Bos, N.D., Olson, J.S., Cheshin, A., Kim, Y.S., Nan, N. (2005). Traveling Blues: The effect of relocation on partially distributed teams. Short paper in *Proceedings of CHI 2005*. New York: ACM Press.
- Nan, N., Johnston, E., Olson, J. & Bos, N.D. (2005). Beyond being in the lab: using multi-agent modeling to isolate competing hypotheses. Short paper in *Proceedings of CHI 2005*. New York: ACM Press.
- Bos, N.D. (2005). Electronic Mail. Entry in W.S. Bainbridge (Ed.) *Berkshire Encyclopedia of Human Computer Interaction*. Berkshire Publishing.
- Bos, N.D., Shami, N.S., Olson, J.S., Cheshin, A. & Nan, N. (2004) In-group/ out-group effects in distributed teams: an experimental simulation. In *Proceedings of CSCW 2004*. New York: ACM Press.
- Bos, N.D., Hofer, E. & Olson, J. (2004). How are public data contributions rewarded in open genetics databases? Paper included in N.Bos (symposium chair) *Data sharing in large-scale scientific collaborations: facing the technical and organizational barriers to data aggregation and re-use. Academy of Management 2004*.
- Shami, N.S., Bos, N.D., Wright, Z., Hoch, S., Kuan, K.Y., Olson, J.S., Olson, G.M. (2004). An experimental simulation of multi-site software development. In *Proceedings of IBM Center for Advanced Studies Conference (CASCON)*, Toronto, CA, October 2004.
- Bos, N.D., Olson, J.S., Gergle, D., Olson, G.M., & Wright, Z. (2002). Effects of four computer-mediated channels on trust development. In *Proceedings of CHI 2002*. New York: ACM Press.
- Zheng, J., Veinott, E., Bos, N.D., Olson, J.S., & Olson, G.M. (2002). Trust without touch: Jumpstarting long-distance trust with initial social activities. In *Proceedings of CHI 2002*. New York: ACM Press.
- Bos, N.D., Gergle, D., Olson, J.S., & Olson, G.M. (2001). Being there versus seeing there: Trust via video. Short paper in *Proceedings of CHI 2001*. New York: ACM Press.
- Zheng, J., Bos, N.D., Olson, J.S., & Olson, G.M. (2001). Trust without touch: Jump-start trust with social chat. Short paper in *Proceedings of CHI 2001*. New York: ACM Press.
- Yamaguchi, R., Bos, N.D., & Olson, J.S. (2002). Emergent leadership in small groups using Computer-Mediated Communication. In *Proceedings of CSCL 2002*. Available online at <http://cscl2002.org/proceedings.html>
- Bos, N.D., Yamaguchi, R., & Olson, J.S. (2002). Emergent leadership in small groups using Computer-Mediated Communication. Poster presented at the American Educational Research Association.

Learning Simulations

- Bos, N.D., Shami, N.S., & Naab, S. (2006). Designing a globalization game to teach corporate social responsibility. *Simulation & Gaming* 37: 56-72.
- Bos, N.D. & Shami, N.S. (2006). Adapting a face-to-face learning game for online play. *Educational Technology Research and Development* 54 (6).
- Bos, N.D. & Gordon (2005) A Simulated consulting project with a deregulating utility company. *Simulation & Gaming* 36 (1).

- Bos, N.D. (2005). Real versus Realistic: tradeoffs of using accurate details in simulation games. Plenary talk at the annual conference of the International Simulation and Gaming Association (ISAGA '05), Atlanta, GA, June 27-July 1.
- Johnston, E.J. & Bos, N.D. (2005). Validating an agent-based model with experimental data. Presented at the annual conference of the International Simulation and Gaming Association (ISAGA '05), Atlanta, GA, June 27-July 1.
- Bos, N.D., Naab, S. & Gordon, M. (2005). SimMAP: Turning action-based learning into simulated consulting projects. ABSEL 2005, March 16-18, Orlando, FL.
- Raybourn, E. & Bos, N. (2005). Design and evaluation of Serious Games. Invited SIG, CHI 2005.
- Shami, N.S., Bos, N.D., Fort, T. & Gordon, M. (2004). Designing a globalization game to teach corporate social responsibility. Winner of Best Paper award, online learning track, ABSEL 2004.
- Gordon, M., Bos, N.D., & Knox, T. (2003) A Flexible, feasible model for simulated project-based learning. *E-Learn Conference 2003*.
- Bos, N.D., Fort, T. & Gordon, M. (2003) Simulation of tradeoffs in socially-responsible globalization. *E-Learn Conference 2003*.
- Bos, N.D. (2001). What do game designers know about scaffolding? Borrowing SimCity design principles for education. Technical report for the CILT Playspace working group. Available online at <http://www-personal.si.umich.edu/~serp/work/SimCity.pdf>
- Bos, N.D. (2001). Giving back to the Web: social filtering of Web resources in high school science. *Journal of Science Education Technology*, 10 (1), 3-15.
- Bos, N.D. (2000). High school students' critical evaluation of scientific resources on the World Wide Web. *Journal of Science Education Technology*. 9(2) 161-173.
- Bos, N.D. (1997). Analysis of feedback from an 'authentic' outside -the -classroom audience on high-school fiction writing. *International Journal of Educational Telecommunications* 3(1). 83-98.
- Bos, N.D., Krajcik, J., and Patrick, H. (1995). Telecommunications for teachers: supporting reflection and collaboration among teaching professionals. *Journal of Computers in Mathematics and Science Teaching*, 14(1). Reprinted with author's comments in J. Gall & M. Gall, (Eds.) *Applying educational research: a practical guide*. Longman Publishers.

Technology supporting Project-Based Learning

- Kali, Y. & Bos, N.D. (2002). *Design principles for educational technology*. Organized a structured poster session at the Annual Meeting of the American Educational Research Association.
- Bos, N., Drabenstott, K., Krajcik, J., Soloway, E., Talley, M., Woolridge, S., & Miller, J. (2000). Students' Searching and Evaluating with the Artemis Interface to a Digital Library . In B. Fishman & S. O'Connor-Divelbiss (Eds.), *Proceedings of the Fourth International Conference of the Learning Sciences* (pp. 150-156). Mahwah, NJ: Erlbaum. . pdf available from: <http://www.umich.edu/~icls/proceedings/design.html>
- Wallace, R., Bos, N., Hoffman, J., Eccleston Hunter, C., Krajcik, J., Soloway, E., Kiskis, D., Klann, E., Peters, G., Richardson, D., Ronen, O. (1998). ARTEMIS: Learner-Centered Design of an Information Seeking Environment for K-12 Education. *Proceedings of CHI98, Human Factors in Computing Systems*. New York: Association for Computing Machinery.
- Krajcik, J.S., Soloway, E., Blumenfeld, P.C., Marx, R.W., Ladewski, B.L., Bos, N.D. and Hayes, P.J. (1996). The Casebook of Project Practices- an Example of an Interactive Multimedia System for Professional Development. *Journal of Computers in Mathematics and Science Teaching*, 15 (1/2), 119-135.
- Bos, N.D. (1999) Designing understanding: a case study of motivation and engagement with new media. In V. Talsma (symposium organizer) *Promoting scientific understandings in a project-based technology-infused science environment: the Community High experience*. Presented at the annual meeting of the National Association for Research in Science Teaching. Boston, MA, March 28-30.

- Bos, N.D. (1998). Presenter and symposium chair. *Writing on the Internet: creating space, supporting interaction and integrating advanced technology*. Annual meeting of the American Educational Research Association, San Diego, CA.
- Bos, N.D. (1997). Student publishing of value-added resources in a digital library. in E. Soloway (symposium chair) *Using online digital resources to support sustained inquiry learning in K-12 science classrooms*. Paper presented at the annual meeting of the American Educational Research Association, Chicago, IL.
- Krajcik, J.S., Bos, N.D., and Soloway, E. (1997). Student publishing in a digital library- purposes and instructional support. in P. Bell (symposium chair) *Artifact-building in computer learning environments: supporting students' scientific inquiry*. Paper presented at the annual meeting of the American Educational Research Association, Chicago, IL.
- Kupperman, J., Wallace, R. & Bos, N.D. (1997). Ninth graders' use of a shared database in an Internet research project: issues of collaboration and knowledge-building. Paper to be presented at the second conference for Computer Supported Collaborative Learning, Toronto, ON.
- Bos, N.D. and Wisnudel, M. (1996, April). Appropriate educational goals for a short-term summer computer camp. *Leading and Learning with Technology*, 23 (7), 6-9.
- Wallace, R., Bos, N.D., Hamel, K., Lee, Y, and Alloway, G. (1996). The U-M Digital Library: a resource for on-line library inquiry. Paper presented at the annual conference of the Michigan Association for Computer Users in Learning. Grand Rapids, MI.
- UMDL Teaching and learning group. (1996). *Creating An Inquiry Learning Environment Using The World Wide Web*. Paper Presented at the Second International Conference of the Learning Sciences, Evanston, IL.
- Bos, N.D. and Ladewski, B.G. (1995). User Testing of CaPPs software, and implications for multimedia case studies of teaching. Poster presented at the annual meeting of the American Educational Research Association, San Francisco, CA.
- Bos, N.D., Ladewski, B.G., Krajcik, J.S. and Soloway, E. (1995). The Casebook of project practices: how teachers use interactive multimedia tools to develop new ideas about science teaching. Paper presented at the annual conference of the National Association for Research in Science Teaching, San Francisco, CA.
- Marx, R.W., Blumenfeld, P.C. and Bos, N.D. (1995). How teachers use interactive media tools to develop new ideas about teaching. In R. Marx (Symposium chair), *Multiple Perspectives of designing, developing, and using interactive multimedia for teacher enhancement*. Paper presented at the annual meeting of the American Educational Research Association, San Francisco, CA.
- Ladewski, B.G., Hayes, P., Bos, N.D., Rubio, R., Krajcik, J.S., and Soloway, E. (1995). The Iterative design and development process: developing a technological partner that understands a teachers' world. In R. Marx (Symposium chair), *Multiple Perspectives of designing, developing, and using interactive multimedia for teacher enhancement*. Paper presented at the annual meeting of the American Educational Research Association, San Francisco, CA.
- Kaplan, A. and Bos, N.D. (1995). Patterns of achievement goals and psychological well-being in young adolescents. (1995). Poster presented at the annual meeting of the American Educational Research Association. San Francisco, CA.
- Bos, N.D., Hayes, P., Rubio, R. and Ladewski, B.G. (1994). The Project-Support Network: answering teachers' questions about project-based science. Paper presented at the annual conference of the Michigan Association for Computer Users in Learning. Grand Rapids, MI.

SERVICE

Reviewer experience

National Science Foundation ad-hoc reviewer, Division of Information and Intelligent Systems

Journals:

Journal of Computer-Mediated Communications, Journal of Human-Computer Interaction, Journal of the Learning Sciences, Journal of Research on Science Teaching, Journal of Computer-Supported Collaborative Work, Organization Science, Transactions on Computer-Human Interaction

Conferences:

Academy of Management, American Educational Research Association, Association for Business Simulations and Experiential Learning, CHI (Human-Computer Interaction), Computer-Supported Cooperative Work, Computer-Supported Collaborative Learning, International Conference on the Learning Sciences

Service positions

- Board member and 2006 Simulation Track chair at the Association for Business Simulations and Experiential Learning
- Designer and co-administrator of MichiganPaidExperiments.org, a clearinghouse for paid subject recruitment at the University of Michigan
- Member of the University of Michigan's Institutional Review Board
- Board Member involved in design and administration of the Business School's new Behavioral Lab

Recent Board member of:

- MOCHI: Southern Michigan Northern Ohio Local Special Interest Group in Computer Human Interaction
- AERA SIG Advanced Technologies for Learning
- AERA SIG Educational in Science and Technology

TEACHING

- 2007 Cognitive Engineering. Designed and taught a professional development class covering basic cognitive psychology concepts, methods, and applications in the operational and intelligence domains.
- 2005 SI 554 Serious Games Designed and taught this new Master's level course listed in the School of Information and the School of Education. This course reviews the design, evaluation, and usage of simulations for learning, research, and policy making.
- 2001 CSCW for Educators An online course on Computer- Supported Collaborative Learning for professionals involved in teacher education through the NSF Preparing Tomorrow's Teachers with Technology grant through the Concord Consortium.
- 1999- SI Digital Toolkit Taught summer short courses on Computer-Supported Cooperative Learning and Filemaker Pro.
- 1999 Assistant for a graduate-level class on software usability testing, Evaluation of Systems and Services with Judith Olson.
- 1997 Graduate student instructor for undergraduate course Educational Psychology and Human Development. Had full responsibility for design and teaching of this required course for pre-service teachers.
- 1995 Teaching Assistant for graduate-level course Theory, research and use of technological tools in science education. Working with Professors Carl Berger and Joseph Krajcik, I helped plan and conduct this course in critical analysis of educational software, and oversaw weekly labs using Hyperstudio software.
- 1995 Teaching Assistant for undergraduate course Introduction to Psychology, Fall term 1995, with Professor James Hilton. Led four weekly discussion sections and was responsible for assessment.

- 1995 Organized, administrated, hired and coordinated staffing, and taught LEGO-LOGO classes for a summer computer camp for minority middle school students.
- 1990-91 Taught LOGO computer classes, Millbrook Christian School, Grand Rapids, Michigan. 1990 & 1991.