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## **BRIGID BARRON**

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### **EDUCATION**

Ph.D. 1992 Clinical and Developmental Psychology (Vanderbilt University)

M.S. 1989 Psychology (Vanderbilt University)

B.S. 1984 Psychology (University of California, Santa Cruz)

### **HONORS AND AWARDS**

2003 National Science Foundation Early Career Award (2003-2008)

1998 Spencer Foundation/National Academy of Education, Postdoctoral Fellowship

1997 Bing Grant for Innovation in Teaching, Stanford University

1997 Research Grant, Stanford Office of Technology and Licensing (OTL)

1991 National Institute for Mental Health, Pre-doctoral Clinical Internship Fellowship

1991 Spencer Dissertation Fellowship. Woodrow Wilson National Fellowship Foundation

1985 Harold Stirling Vanderbilt Graduate Scholarship (Four Year)

1984 Highest Honors in Psychology, University of California, Santa Cruz

1984 Thesis Honors, University of California, Santa Cruz

1983 W.P. Massaro Memorial Award for Undergraduate Research, University of California, Santa Cruz

### **CURRENT POSITION**

*Assistant Professor of Education (1/96-present). Stanford University, School of Education*

### **PROFESSIONAL ACTIVITIES**

Faculty Participant, *John Gardner Center for Youth and Community*

Reviewer, *Journal of the Learning Sciences*

Reviewer, *Cognitive Science*

Reviewer, *Cognition and Instruction*

Reviewer, *Educational Evaluation and Policy Analysis*

Reviewer, *Educational Psychologist*

Program Committee Member, *International Conference of the Learning Sciences, 2002*  
Review Committee Member, *Third Annual International Cognitive Science Conference, 2001*  
Planning Board Member, *Fourth Computer Supported Collaborative Learning Conference, 1999*  
Co-chair, Interactive Events: *Computer Supported Collaborative Learning Conference, 1999*  
Advisory Board Member: *Technology Task Force for SPEAK-UP! Leadership Program for Girls*  
Consultant: *Plugged-In Technology Access Center* (Community Kids Children's Program)  
Consultant: *Irvine Foundation's* project to support community centers that serve youth (web site design)  
Consultant: *SRI International, V-Streets Research Group, Assessment of Community-Based Technology Centers*

## **PROFESSIONAL SOCIETIES**

- American Educational Research Association (AERA)
- Society for Research on Child Development (SRCD)
- European Association for Research Learning and Instruction (EARLI)
- American Association of University Women (AAUW)
- International Society of the Learning Sciences (ISLS)

## **COURSES**

- *Child Development and Schooling* (Graduate Course). Stanford University.
- *Child Development and New Technologies* (Graduate Course). Stanford University.
- *Learning, Design, and Technology* (Graduate Course). Stanford University.
- *Social Processes in Learning and Development* (Graduate Course). Stanford University.
- *Research Methods Sequence for Psychological Studies Program* (Graduate Course). Stanford University.
- *Life Span Human Development* (Undergraduate). Vanderbilt University, Peabody College.
- *Developmental Psychology* (Undergraduate), Vanderbilt University, Peabody College.

## **JOURNAL ARTICLES SUBMITTED FOR PUBLICATION**

Barron, B. (in review). Learning ecologies for technological fluency in a technology-rich community. *Journal of Educational Computing Research*.

Barron, B., Martin, C., & Roberts, E. (in review). Sparking self-sustained learning: Lessons from a design experiment to build technological fluency and bridge divides. *Journal of Educational Technology Research and Development*.

## **PEER REVIEWED PUBLICATIONS**

- Barron, B. (2003). When smart groups fail. To appear, *The Journal of the Learning Sciences*, 12, 307-359.
- Barron, B., Martin, C., Roberts, E., Osipovich, A., & Ross, M. (2002). Assisting and assessing the development of technological fluencies: Insights from a project-based approach to teaching computer science In G. Stahl (Ed.), *Computer support for collaborative learning: Foundations for a CSCL community*. Mahwah, NJ: Lawrence Erlbaum Associates.
- Barron, B. Martin, C.K., & Roberts, E. (2002). A design experiment to build technological fluency and bridge divides. In P. Bell & R. Stevens (Eds.), *Proceedings of the Fifth International Conference of the Learning Sciences: Keeping learning complex—fostering multidisciplinary research efforts*. Mahwah, NJ: Lawrence Erlbaum Associates.
- Martin, C. K., Barron, B., & Roberts, E. (2002). Designing and assessing ongoing professional development opportunities for high school computer science teachers. In P. Bell & R. Stevens (Eds.), *Proceedings of the Fifth International Conference of the Learning Sciences: Keeping learning complex—fostering multidisciplinary research efforts*. Mahwah, NJ: Lawrence Erlbaum Associates.
- Claybaugh, C., Barron, B., & Martin, C.K. (2002). Enhancing student understanding of computer science through telementoring. In P. Bell & R. Stevens (Eds.), *Proceedings of the Fifth International Conference of the Learning Sciences: Keeping learning complex—fostering multidisciplinary research efforts*. Mahwah, NJ: Lawrence Erlbaum Associates.
- Barron, B. & Sears, D. (2002). Advancing understanding of learning in interaction: An exploration of how ways of participating can influence joint performance and individual learning. In G. Stahl (Ed.), *Proceedings of the Computer-Supported Collaborative Learning 2002 Conference: Computer support for collaborative learning—Foundations for a CSCL community*. Hillsdale, NJ: Lawrence Erlbaum Associates.
- Barron, B. (2000). Problem solving in video-based microworlds: Collaborative and individual outcomes of high achieving sixth grade students. *Journal of Educational Psychology*, 92(2), 391-398.
- Barron, B. (2000). Achieving coordination in collaborative problem solving groups. *The Journal of the Learning Sciences*, 9(4), 403-436.
- Barron, B., Schwartz, D.L., Vye, N.J., Moore, A., Petrosino, T., Zech, L., & Bransford, J.D. (1998). Doing with understanding: Lessons from research on problem and project based-learning. *The Journal of the Learning Sciences*, 7, 271-311.
- Barron, B., Kantor, R., & The Cognition and Technology Group at Vanderbilt (1994). Technological tools to enhance math education: The Jasper Series. *Communications of the Association for Computing Machinery (ACM)*, 36, 52-54.
- Clark, E. V., & Barron, B. (1988). A thrower-button or a button-thrower? Children's judgments of grammatical and ungrammatical compound nouns. *Linguistics*, 26, 3-19.
- Massaro, D.W., Thompson, L.A., Barron, B., & Laren, E. (1986). Developmental changes in visual and auditory contributions to speech perception. *Journal of Experimental Child Psychology*, 41, 93-113.

## BOOK REVIEWS

Barron B. (2002). Creative work in relational context and its developmental significance: An essay review of *Creative Collaboration* by Vera John-Steiner. *Human Development*, 45, 367-371.

## BOOK CHAPTERS

Bransford, J.D., Zech, L., Schwartz, D., Barron, B., Vye, N.J., & the Cognition and Technology Group at Vanderbilt (2000). Designs for environments that invite and sustain mathematical thinking. In P. Cobb (Ed.) *Symbolizing, communicating, and mathematizing: Perspectives on tools and instructional design* (pp. 275-324). Hillsdale, New Jersey: Lawrence Erlbaum Associates.

Schwartz, D. L., Goldman, S. R., Vye, N. J., & Barron, B. (1998). Aligning everyday and mathematical reasoning: The case of sampling assumptions. In S.P. Lajoie (Ed.), *Reflections on statistics: Learning, teaching, and assessment in Grades K-12* (pp. 233-273). Mahwah, NJ: Lawrence Erlbaum Associates.

Vye, N.J., Schwartz, D.L., Bransford, J.D., Barron, B., Zech, L., & and the Cognition and Technology Group at Vanderbilt (1998). SMART environments that support monitoring, reflection, and revision. In J. Dunlosky, A.C. Graesser & D. J. Hacker (Eds.) *Metacognition in educational theory and practice* (pp. 305-345). Hillsdale, NJ: Erlbaum.

Zech, L., Vye, N.J., Bransford, J.D., Goldman, S.R., Barron, B.J., Schwartz, D.L., Hackett, R., Mayfield-Stewart, C., & the Cognition and Technology Group at Vanderbilt (1998). An introduction to geometry through anchored instruction. In R. Lehrer & D. Chazan (Eds.), *New directions for teaching and learning geometry* (pp. 439-463). Hillsdale, NJ: Lawrence Erlbaum Associates.

Bransford, J.D., Zech, L., Schwartz, D.L., Barron, B., Vye, N.J., & the Cognition and Technology Group at Vanderbilt (1996). Fostering mathematical thinking in middle school students: Lessons from research. In R.J. Sternberg & T. Ben-Zeev (Eds.), *The Nature of Mathematical Thinking* (pp. 203-250). Hillsdale, NJ: Erlbaum.

Barron, B., Vye, N.J., Zech, L., Schwartz, D., Bransford, J.D., Goldman, S.R., Pellegrino, J., Morris, J., Garrison, S., & Kantor, R. (1995). Creating contexts for community based problem solving: The Jasper Series. In C. Hedley, P. Antonacci & M. Rabinowitz (Eds.), *Thinking and Literacy: The Mind at Work* (pp. 47-71). Hillsdale, NJ: Erlbaum.

Barron, F., Barron, N., & Barron, B. (1990). The saving grace of art in the education of the creatively gifted. In C.W. Taylor (Ed.), *Expanding Awareness of Creative Potentials Worldwide* (pp. 117-123). Salt Lake City, Utah: Brain Talent Press.

Bransford, J.D., Hasselbring, T., Barron, B., Littlefield, J., & Goin, L. (1989). The use of macro-contexts to facilitate mathematical thinking. In R. Charles & E. Silver (Eds.), *The teaching and assessing of mathematical problem solving*. Hillsdale, NJ: Erlbaum.

## CONTRIBUTIONS TO BOOKS AND PAPERS UNDER CTGV AUTHORSHIP<sup>1</sup>

Cognition and Technology Group at Vanderbilt (1997). *The Jasper Project. Lessons in curriculum, instruction, assessment, and professional development.* Mahwah, NJ: Erlbaum.

Cognition and Technology Group at Vanderbilt (1996). Looking at Technology in Context: A Framework for understanding technology and education research. In D.V. Berliner & R.C. Calfee (Eds.), *The handbook of educational psychology* (pp. 807-840). New York: Macmillan Publishing.

Cognition and Technology Group at Vanderbilt (1994). From visual word problems to learning communities: Changing Conceptions of cognitive research. In K. McGilly (Ed.), *Classroom lessons: Integrating cognitive theory and classroom practice* (pp. 157-200). Cambridge, MA: MIT Press.

## TECHNICAL REPORTS AND UNPUBLISHED MANUSCRIPTS

Kulewicz, S., Barron, B., Goin, L., Bransford, J.D., & Hasselbring, T. (1986). *The effects of video context and mediation on mathematical problem solving* (Technical Report No. 86.1.6) Nashville, TN: Learning Technology Center, Vanderbilt University.

Schwartz, D., & Barron, B. (1996). *Supporting group problem solving with instructions to use visualizations.* Unpublished manuscript. Nashville, TN: Learning Technology Center, Vanderbilt University.

## ADDITIONAL PUBLICATIONS IN PROGRESS

### Edited Book

Goldman-Segal, R., Barron, B., Pea, R., & Derry, S. (in preparation). *Video Research in the Learning Sciences.* Mahwah, NJ: Lawrence Erlbaum Associates.

### Book Chapter

Barron, B. (in preparation). Access, interest, and participation in fluency-building activities. To appear in Vera's V. Michalchik & W. Heineke (Eds.), *Researching equity in educational technology.* Greenwich, CT: Information Age Press.

### Journal Article

Yarnall, L., Ravitz, J., Penuel, W.P., Means, B., & Barron, B. (in preparation). Shaping preservice teachers' assessments of small group collaborative problem-solving.

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<sup>1</sup> I was an active member from 1986-1995 in an interdisciplinary group of researchers known as the Cognition and Technology Group at Vanderbilt (CTGV), first as a graduate student, then as a postdoctoral research scientist.

## Conference Presentations

- Barron, B. (accepted). *Advancing understanding of the development of technological fluency through a learning ecologies perspective*. To be presented at the European Association Research on Learning and Instruction (EARLI), in Padova, Italy, August 2003.
- Mercier, E., & Barron, B. (accepted). *Bunnyworld: Experience within a collaborative programming project in a college computer science class*. To be presented at the European Association Research on Learning and Instruction (EARLI) in Padova, Italy, August 2003.
- Barron, B., Martin, C., Mercier, E., Pilner, K. Mathus, A., Johri, A., & Walter, S. (2003, April). Patterns of participation in fluency-building experiences in a high-tech community: Implications for bridging divides by design. Presented at Annual Meetings of the American Educational Research Association, Chicago, IL.
- Barron, B., Martin, C., Roberts, E., Osipovich, A. and Ross, M. (2002, January). Design Experiments at a Distance: Lessons from Developing a Secondary School Computing Curriculum for Bermuda Public Schools. Presented at the *Computer-Supported Collaborative Learning Conference, Boulder, Colorado*.
- Barron, B. & Sears, D. (2002, January). Advancing understanding of learning in interaction: An exploration of how ways of participating can influence joint performance and individual learning. Presented at the *Computer-Supported Collaborative Learning Conference, Boulder, Colorado*.
- Barron, B. & Sears, D. (2001). "I know what I'm doing": Collaboration and the importance of an intersubjective intentional stance for capitalizing on distributed expertise. Presented at the meetings of the American Educational Research Association, New Orleans, LA.
- Sears, D.A., Barron, B.J., & Strobel, K.R. (2001, April). Coding collaborative interactions in a math setting: Attempting to identify discourse patterns that lead to group acceptance of correct proposals. Paper presented at the Annual Meetings of the American Educational Research Association, Seattle, WA.
- Barron, B., Sears, D., & Strobel, K. (1999). *Achieving coordination in face-to-face problem solving: Implications for joint solutions and individual learning*. Presentation at the 1999 Computer Support for Collaborative Learning Conference. Stanford, California.
- Strobel, K. Haydel, A., Kim, D., & Barron, B. (1999). *Coordination and conflict during collaborative problem solving*. Presentation at the Biennial Meetings of the Society for Research in Child Development (SRCD).
- Shahidi, B., Strobel, K., Olt, A., & Barron, B. (1999, April). Mapping processes and outcomes of problem solving groups: Toward understanding discrepancies between collaborative and individual performance. Presentation at the Annual Meetings of the American Educational Research Association, Montreal, Canada.

- Strobel, K., Barron, B., Butler, Y., & Kim, H. (1998, April). *Processes and products of collaborative problem solving: A study of conversation among high achieving 6<sup>th</sup> grade students*. Paper presented at the Annual Meetings of the American Educational Research Association, San Diego, CA.
- Barron, B., Schwartz, D.L., Vye, N.J., Moore, A., Petrosino, T., Zech, L., & Bransford, J.D. (1998, April). Doing with understanding: Lessons from research on problem and project based-learning. In S. Williams & C. Hmelo (Chairs), *Learning through problem solving: Lessons from Classroom Research*. Symposium conducted at the Annual Meeting of the American Educational Research Association, San Diego, CA.
- Barron, B., Vye, N.J., Secules, T., Johnston, J. Gray, J. Belynn-Bovia, Kantor, R., & Mayfield-Stewart, C. (1996, April). Building in opportunities for and resources for revision: Social and technological designs for formative assessment. In J.D. Bransford (Chair), *Enhancing project-based learning: Lessons from research and development*. Symposium conducted at the Annual Meetings of the American Educational Research Association, New York NY.
- Barron, B., Mayfield-Stewart, C., Schwartz, D., & Czarnik, C. (1996, April). Students' use of tools for formative assessment. In D.L. Schwartz (Chair), *Models and roles for formative assessment: Insights from the SMART assessment project*. Symposium conducted at the Annual Meetings of the American Educational Research Association, New York NY.
- Barron, B., Vye, N.J., Pellegrino, J., Bransford, J.D., Goldman, S., Schwartz, D.L., Zech, L.K., & Kantor, R. (1994, April). *Building a learning community for mathematics: An interactive workshop illustrating implementation and outcomes*. Presentation at the Annual Meetings of the American Educational Research Association, San Francisco CA.
- Barron, B., Vye, N.J., Bransford, J.D., & Zech, L. (1993). *SMART assessment: Design and implementation*. Presented at a meeting of the American Educational Computing & Technology (AECT) Conference, Nashville, TN.
- Barron, B., & Rieser, J. (1991, April). *Collaborative problem solving with the Jasper Series: Effects on initial performance, mastery and transfer*. Presented at the Annual Meeting of the American Educational Research Association, Chicago, IL.
- Barron, B., Bransford, J, Kulewicz, S., & Hasselbring, T.S. (1989, April). *Use of macrocontexts to facilitate mathematical thinking*. Paper presented at the Annual Meetings of the American Educational Research Association, San Francisco, CA.
- Furman, L. Barron, B., Montavon, E., Vye, N. Bransford, J., & Shah, P. (1989, April). *The effects of problem formulation training and type of feedback on math handicapped students; problem solving abilities*. Paper presented at the Annual Meetings of the American Educational Research Association, San Francisco, CA.
- Michalchick, V., & Barron, B. (2000). Beyond Access: Assessing Community Technology Centers for Improvement of Practice. CREATE Conference. San Jose, CA.
- Montavon, E., Furman, L., Barron, B., Bransford, B., & Hasselbring, T.S. (1989, April). *The effects of varied context training and irrelevant information training on the transfer of math problem solving skills*. Paper presented at the Annual Meetings of the American Educational Research Association, San Francisco, CA.

Vye, N., Bransford, J., Furman, L., Barron, B., & Montavon, B. (1989, April). *An analysis of students' mathematical problem solving in everyday settings and its relation to formal mathematics*. Paper presented at the Annual Meetings of the American Educational Research Association, San Francisco, CA.

## **EDUCATIONAL ARTIFACTS**

*SMART Programs* (co-designed with members of CTGV):

Tools to support mathematical problem-solving conversations in classrooms. Two sets of programs (three episodes each) developed to accompany episodes of the Adventures of Jasper Woodbury:

SMART I: Big Splash

SMART II: Blueprint for Success.

*Computer Science Curriculum for Secondary School Students:*

Currently a two-course sequence that develops technological fluency through project-based learning approach. (<http://Bermuda.Stanford.edu>)

## **INVITED PRESENTATIONS**

### **2001**

Designing contexts that support shared thinking: Lessons from experiments in collaborative learning. University of California, Santa Cruz Developmental Psychology Group.

### **1998**

SMART Play: Communication, Collaboration, and Creativity in the Classroom. Xerox Palo Alto Research Center (PARC) Forum.

*Technological tools for enhancing project-based learning: Some lessons from research.*

Presentation to school administrators taking part in the Summer Leadership Institute. Held at Stanford University.

### **1997**

Towards Mapping Process and Outcome in Problem Solving Groups: Some Preliminary Attempts to Understand Variance between High-achieving Triads. Presentation to Psychology Department of Stanford University.

*SMART: Scientific and Mathematical Arenas for Refining Thinking.* Presentation to the Japanese Association for the Promotion of Multimedia in Education. Held at Stanford University October, 1997.

*On the Design of Learning Environments Supported by Technology.* Presentation to Bay CHI Kids (Association for Computing Machinery SIG on Computer-Human Interactions for Kids). Held at Stanford University.

*Problem and Project-Based Learning: Some Lessons from Research.* Presentation to school administrators taking part in Leadership Institute. Held at Stanford University.

## 1996

- Technology-Based Tools for Assessment and Revision: An introduction to the SMART project.* Presentation to the media and technology strand at the NESA meeting, Stockholm, Sweden.
- Supporting Environments for Problem Solving: The Jasper Series.* Presentation to Stanford Alumni for Classrooms without Quizzes during Alumni Weekend.
- SMART Jasper: Tools for Assessment and Revision.* Presentation to San Mateo County School Board. Held at Stanford University.
- Building on Strengths: Uses of Technology with Young Children.* Presentation to Bing Nursery School Teachers at Bing Nursery School, Stanford University.

## 1995

- Technological Tools for Art Education.* Workshop Developed for the Rockland County Art Teachers Association, Stony Point, New York. Fall 1995.

## OTHER RESEARCH AND PROFESSIONAL EXPERIENCE

- 8/92-12/95 *Senior Research Associate.* Department of Psychology and Human Development of Peabody College. Grant Coordinator: Scientific and Mathematical Arenas for Refining Thinking. Funded by National Science Foundation.
- 7/91-6/92 *Clinical Intern.* Pre-Doctoral Internship in Child Clinical Psychology, University of Washington, Seattle. Six four month rotations included: Family therapy in an adolescent health clinic, individual and family therapy and assessment in inpatient psychiatric unit for children, Custody evaluations for family court, assessment of residents in institution for adult mentally retarded persons. Intellectual and personality assessment at the Center for Capable Youth.
- 5/89- 6/90 *Clinical Graduate Assistant.* Susan Gray School of Vanderbilt University. Duties included assessment of language, adaptive behavior, and intellectual abilities of developmentally delayed children aged 0-4, and of sexually or physically abused children aged 2-5. Additional responsibilities were report writing and feedback to parents.
- 9/88- 6/89 *Clinical Practicum.* Worked under the supervision of Dr. William MacLean in the Behavioral Pediatrics Clinic of Vanderbilt Medical Center. Experiences included planning and implementation of intervention with children and families, assessment, report writing, and school observation.
- 9/87- 5/88 *Clinical Practicum.* Worked under the supervision of Dr. Warren Thompson of Nashville Metropolitan Schools. Duties included individual counseling with elementary school students, intellectual, academic, and personality assessment, classroom observation, and parent interviews.

2/81- 8/81 *Peer Counselor*. Mariposa House, a shelter for battered women and their children. Duties included initial screening of clients, peer counseling, and organizing therapeutic activities for the children of clients under the supervision of a psychologist.