

**Debra Bernstein**  
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## EDUCATION

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- Ph.D. University of Pittsburgh  
Cognitive Psychology, August 2010  
Dissertation title: *Developing Technological Fluency through Creative Robotics*
- M.S. University of Pittsburgh  
Cognitive Psychology, 2006  
Master's thesis title: *Searching for Signs of Intelligent Life: An Investigation of Young Children's Beliefs About Intelligence and Animacy*
- M.A. Teachers College, Columbia University  
Cognitive Studies in Education/Educational Psychology, 2002  
Master's thesis title: *An Exploration of the Development of Weight and Measurement Concepts in Preschool-Aged Children*
- B.A. University of Wisconsin-Madison  
Psychology and Social Welfare, 1997

## RESEARCH EXPERIENCE

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### **TERC, 2010-present, Senior Researcher**

- *Designing Biomimetic Robots (NSF/DRL 1742127)*. PI of a project to develop and study an interdisciplinary science, engineering, and robotics curriculum.
- *Understanding and improving curriculum materials design practices for effective 'large scale' implementation in science (NSF/DRL 1252416)*. PI of a project designed to investigate the process of curriculum design for K-12 science education materials.
- *Creative Robotics: An inclusive program for fostering diverse STEM talent in middle school*. External evaluator. This project integrates robotics into disciplinary classrooms and supports teachers in identifying exceptional engineering and computational thinking talent.
- *iECS: Inclusive Exploring CS Curriculum Enhancement as Face-to-Face and Online Support for Visually Impaired, High School Students (NSF/CNS 1240856)*. Co-PI and external evaluator. This project seeks to broaden participation in computing for visually impaired students.
- *Computer Science for All (CS4ALL) (NSF/CNS 1151981)*. Co-PI of a project whose goal is to facilitate transfer of computational thinking concepts between programming environments.

### **University of Pittsburgh Center for Learning in Out-of-School Environments (UPCLOSE), 2003-2010, Researcher**

- *Robot Diaries: Facilitating Technological Fluency in Middle School Girls (2005-2010)*
- *Activated Science Learner Project (2010)*
- *Exploring Young Children's Interactions with Technology (2004-2005)*
- *Personal Education Rover (PER) Museum Education Project (2003-2004)*

### **Institute of Child Health (London, UK), 2002-2003, Research Psychologist**

**Blue's Clues Television Show, 2001-2002, Research and Development Analyst**

**Danya International, Inc., 1998-2000, Research Associate**

## **PEER-REVIEWED ARTICLES AND CHAPTERS**

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Bernstein, D., Drayton, B., Schunn, C., & McKenney, S. (under review). Consequences of curricular adaptation strategies for implementation at scale.

Bopardikar, A., Bernstein, D., Drayton, B., & McKenney, S. (2018). Work-based curriculum to broaden learners' participation in science: Insights for Designers. *Research in Science Education*. DOI: <https://doi.org/10.1007/s11165-018-9731-x>

Pareja Roblin, N., Schunn, C., Bernstein, D., & McKenney, S. (2018). Exploring shifts in the characteristics of US government-funded science curriculum materials and their (unintended) consequences. *Studies in Science Education*, 54(1), 1-39.

Mutch-Jones, K., Bernstein, D., Ludi, S. (2016). Creating access to computer science: Enhancing engagement and learning for students with visual impairments. *Visual Impairment and Deafblind Education Quarterly*, 61(4), 38-51.

Puttick, G., Kies, K. and Garibay, C., Bernstein, D. (2015). Learning and behavior change in a Girl Scout program focused on energy conservation: Saving energy to 'save the planet.' *Journal for Sustainability Education*, 45 (1).

Bernstein, D., & Puttick, G. (2014). Seeding social norms about energy conservation among Girl Scouts. *Applied Environmental Education & Communication*, 13(3), 171-182.

Gomez, K., Bernstein, D., Zywica, J., & Hamner, E. (2012). Building technical knowledge and engagement in robotics: An examination of two out-of-school programs. In B.Barker, G. Nugent, N. Grandgenett, & V.I. Adamchuk (Eds.), *Robotics in K-12 Education: A New Technology for Learning* (pp. 222-244).

Bernstein, D. & Crowley, K. (2008). Searching for signs of intelligent life: An investigation of young children's beliefs about robot intelligence. *Journal of the Learning Sciences*, 17(2), 225-247.

Lawrence, K., Bernstein, D., Pearson, R., Mandy, W., Campbell, R., & Skuse, D. (2008). Changing abilities in recognition of unfamiliar face photographs through childhood and adolescence: Performance on a test of non-verbal immediate memory (Warrington RMF) from 6 to 16 years. *Journal of Neuropsychology*, 2(1), 27-45.

Bernstein, D., Crowley, K., & Nourbakhsh, I. (2007). Working with a robot: Exploring relationship potential in human-robot systems. *Interaction Studies*, 8(3), 465-482.

Nourbakhsh, I., Hamner, E., Ayoob, E., Porter, E., Dunleavy, B., Bernstein, D., Crowley, K., Lotter, M., Shelley, S., Hsiu, T., & Clancey, D. (2006). The Personal Exploration Rover: Educational assessment of a robotic exhibit for informal learning venues. *International Journal of Engineering Education*, 22(4), 777-791.

Kalish, C. W., Weissman, M. D., & Bernstein, D. (2000) Taking decisions seriously: Children's understanding of conventional truths. *Child Development*, 71(5), 1289-1308.

## PEER-REVIEWED CONFERENCE PROCEEDINGS

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Ludi, S., Bernstein, D., & Mutch-Jones, K. (2018). Enhanced Robotics! Improving Building and Programming Learning Experiences for Students with Visual Impairments. In *Proceedings of the 2018 ACM SIGCSE Technical Symposium on Computer Science Education (SIGCSE '18)*. ACM, New York, NY, USA

Bernstein, D., Drayton, B., McKenney, S., & Schunn, C. (2016). Designing science curriculum for implementation at scale: Considerations for diverse and resource-limited settings. In C. Looi, J. Polman, U. Cress, & P. Reimann (Eds.) *Transforming Learning, Empowering Learners: The International Conference of the Learning Sciences (ICLS) 2016* (pp. 886-889). Singapore: International Society of the Learning Sciences.

Hamner, E., Cross, J., Zito, L., Bernstein, D., & Mutch-Jones, K. (2016). Training Teachers to Integrate Engineering into Non- Technical Middle School Curriculum. In proceedings of *Frontiers in Education Conference (FIE)*, IEEE.

Cross, J., Hamner, E., Zito, L., Nourbakhsh, I., & Bernstein, D. (2016). Development of an Assessment for Measuring Middle School Student Attitudes towards Robotics Activities. In proceedings of *Frontiers in Education Conference (FIE)*, IEEE.

Puttick, G., Strawhacker, A., Bernstein, D., & Sylvan, E. (2014). "It's not as bad as using the toaster all of the time." Trade-offs in a Scratch game about energy use. *Proceedings of the International Conference of the Learning Sciences, Boulder, CO*.

Touretzky, D.S., Marghitu, D., Ludi, S., Bernstein, D., & Ni, L. (2013). Accelerating K-12 computational thinking using scaffolding, staging, and abstraction. *SIGCSE 2013, Denver, CO*.

Hamner, E., Lauwers, T., & Bernstein, D. (2010). The debugging task: Evaluating a robotics design workshop. *Proceedings of the AAAI Symposium on Using Robots to Promote Learning: Design and Evaluation*.

Hamner, E., Lauwers, T., Bernstein, D., Nourbakhsh, I., & DiSalvo, C. (2007). Robot Diaries: Broadening participation in the computer science pipeline through social technical exploration. In *Proceedings of the AAAI Symposium on Using AI to Motivate Greater Participation in Computer Science*.

Nourbakhsh, I., Hamner, E., Dunlavey, B., Bernstein, D., & Crowley, K. (2005). Educational Results of The Personal Exploration Rover Museum Exhibit, In *Proceedings of ICRA 2005*, Barcelona, Spain.

## SELECTED PRESENTATIONS

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Bernstein, D., Puttick, G., Cassidy, M., Wendell, K., Danahy, E., & Shaw, F. (April, 2019). *Designing Biomimetic Robots to Support Multidisciplinary Engagement in Middle School*. Forthcoming paper presentation at the National Association for Research in Science Teaching, Baltimore, MD.

Bernstein, D. (April, 2018). *Integrating Robotics Activities in Middle School Disciplinary Classrooms Supports Disciplinary Engagement*. Paper presented at the International Conference of the American Educational Research Association, New York.

Bernstein, D., Mutch-Jones, K., Cassidy, M., Hamner, E., & Cross, J. (April, 2016). *Robots and Romeo and Juliet: Studying Teacher Integration of Robotics into Middle School Curricula*. Paper presented at the International Conference of the American Educational Research Association, Washington, DC.

Bernstein, D., McKenney, S., Barber, J., Bopardikar, A., Drayton, B., Walkup, S., Pareja Roblin, N., & Schunn, C. (2014). *Design dimensions: In-depth retrospective studies of K-12 science curriculum*

*design*. Poster presentation at the annual meeting of the International Society for Design and Development in Education (ISDDE), Cambridge, UK.

Puttick, G., & Bernstein, D. (2013). *Girls energy conservation corps: Study of a Girl Scout program focused on energy conservation*. Paper presented at the meeting of the National Association for Research in Science Teaching, San Juan, PR.

Bernstein, D., Puttick, G., & Hubbard, P. (April, 2012). *Seeding social norms about energy conservation among Girl Scouts*. Paper presented at the meeting of the American Educational Research Association, Vancouver, Canada.

Bernstein, D., & Hamner, E. (March, 2012). *Exploring the impact of family involvement on youth engagement in a creative robotics workshop*. Paper presented at the meeting of the National Association for Research in Science Teaching, Indianapolis, IN.

Bernstein, D. (2010). *Robot Diaries: Encouraging and enabling technological creativity*. Poster presented at the International Conference of the Learning Sciences, Chicago, IL.

Bernstein, D. (2010). *Exploring learning in educational robotics initiatives*. Invited talk at the AAAI Symposium on Using Robots to Promote Learning: Design and Evaluation.

Bernstein, D., & Crowley, K. (2009). *Can robots think for themselves? Identifying spaces for the exploration of children's ideas about robots*. Paper presented at The Reign of Catz and Dogz Workshop, Conference on Human Factors in Computing Systems (CHI), Boston.

Bernstein, D., Hamner, E., Lauwers, T., Nourbakhsh, I., & DiSalvo, C. (2008, March). *Robot Diaries: Investigating technological fluency in middle school girls*. In K. Crowley (Chair), *Thinking through the disciplines in informal and everyday settings: Ecology, art, robotics, and paleontology*. Symposium conducted at the meeting of the American Educational Research Association, New York.

Bernstein, D. (July, 2006). *Educational robotics and informal learning: How technology is changing how kids think*. Paper presented at the Informal Learning Conference, Tokyo, Japan.

Bernstein, D. & Crowley, K. (2005, April). *Investigating children's beliefs about artificially intelligent artifacts*. Poster presented at the meeting of the Society for Research in Child Development, Atlanta, GA.

Stubbs, K., Bernstein, D., Crowley, K., & Nourbakhsh, I. (2005, July). *Long-term human-robot interaction: The Personal Exploration Rover and museum docents*. Paper presented at the conference on Artificial Intelligence in Education, Amsterdam.

Bernstein, D. & Crowley, K. (2005, April). *Investigating children's beliefs about artificially intelligent artifacts*. Poster presented at the meeting of the Society for Research in Child Development, Atlanta, GA.

Bernstein, D. (2005, April). *Searching for signs of intelligent life: How experience impacts children's ideas about artificial intelligence*. In D. Shaffer (Chair), *Islands of Expertise and ARTS: Developing alternative routes to scientific understanding through informal and out-of-school learning experiences*. Symposium conducted at the meeting of the National Association for Research in Science Teaching, Dallas, TX.

Bernstein, D. (2004, August). *Parents, Docents and Robots: Examining Mediation at a Mars Rover Exhibit*. In K. Crowley (Chair), *Islands of Expertise: An Approach to Exploring the Cognitive Ecology of Childhood*. Symposium conducted at the meeting of the Visitor Studies Association, Albuquerque, NM.

## PROFESSIONAL ACTIVITIES

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- Ad-hoc reviewer for: *Journal of the Learning Sciences*, *Journal of Engineering Education*, *Journal of Research on Technology in Education*, *Visitor Studies*
- Proposal reviewer for the National Science Foundation
- Member: AERA, NARST