JAMES B. SHORT

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EDUCATION

Ed.D. in Curriculum and Teaching with a concentration in Educational Leadership: Teacher Education/Supervision/Staff Development
Teachers College, Columbia University, New York, NY, 2006.
Dissertation: Analyzing Standards-Based Science Instructional Materials: An Opportunity for Professional Development
Committee: Professors Frances Schoonmaker (Sponsor), A. Lin Goodwin, Ann Rivet, & Angela Calabrese Barton

M.Ed. in Science Education
George Peabody College for Teachers, Vanderbilt University, Nashville, TN, 1989.

B.S. in Biology
Rhodes College, Memphis, TN, 1987.

PROFESSIONAL EXPERIENCE

American Museum of Natural History, Education Department, New York, NY, 2007-present
Director, Gottesman Center for Science Teaching and Learning

- responsible for creating an education platform that has high visibility, influence, and presence in the science education and museum communities both locally and nationally
- integrate programs into the educational system in New York City, demonstrating that informal settings have a role in the city's formal educational system
- develop partnership programs with public schools, non-profit organizations, and the New York Department of Education
- lead the development and planning of professional development programs for teachers and school administrators, Museum learning experiences for students, and educational outreach programs
- contribute to strategic planning, proposal development, annual reporting, and budget management
- supervise Center staff of 25 science educators and manage five million dollar annual Center budget

Denver Public Schools, Division of Teaching and Learning, Denver, CO, 2004-2007
Science Curriculum Coordinator

- plan and coordinate implementation of district-wide K-12 science programs and to orchestrate program improvement efforts
- design and facilitate professional development for science teachers and district/school administrators
- partner with community groups, professional organizations, and higher education institutions to support redesigned science curriculum in the district and coordinate special programs for schools
- collaborate with the Denver Museum of Nature and Science and the Denver Zoo to develop educational outreach programs that coordinate and extend the district's K-12 science program
- develop district-wide support systems for K-12 science curriculum reform that include professional development opportunities, formative and summative assessments, materials management and kit refurbishment, and development of teacher leaders at schools
- observe and analyze science classes to identify ongoing professional development needs, monitor science assessment data, and utilize data to plan program improvements
- meet with parents and community groups to serve as a spokesperson for the district's science program

Metropolitan State College of Denver, Department of Teacher Education, Denver, CO, 2005-2006
Instructor, Science Education
Science Education Course 3950: Teaching Science in Middle and Secondary Schools

Secondary science methods course designed for pre-service teachers preparing to teach in middle and high schools. The focus of the course is on inquiry-based learning and teaching using standards-based instructional materials and strategies aligned with the research on how students learn science.

Science Education Consultant, September 2005-present

Denver Museum of Nature and Science, Denver, CO
Served as a consultant for Project Curiosity focused on developing interactive questions and activities for various dioramas to support key concepts in science linked to national and state science standards

BSCS National Academy for Curriculum Leadership Program, Richland, WA
Senior staff member associated with the national expansion of the NACL program into Washington State, a partnership between the BSCS Center for Professional Development and Washington State LASER, with major support from Agilent Technologies Foundation, Battelle, and the Pacific Northwest National Laboratory

Pacific Northwest National Laboratory, Richland, WA
Summer Institutes for Department of Energy Laboratory Science Teacher Professional Development program; sessions focused on science as inquiry and teaching experimental design

Space Science Institute, Boulder, CO
Institutes focused on designing professional development to support inquiry-based science for education and public outreach programs funded by NASA

BSCS Center for Professional Development, Colorado Springs, CO, July 2000-January 2005.
(The Biological Sciences Curriculum Study (BSCS) is a leading non-profit educational research and development institution focusing on science education and offering products and services in K-12 curriculum development, professional development, and research and evaluation)

Director, SCI Center at BSCS and the National Academy for Curriculum Leadership
The Science Curriculum Implementation (SCI) Center at BSCS was funded by the National Science Foundation (five-year grant for 5.8 million) to develop resources and provide technical assistance to support the implementation of standards-based secondary science instructional materials. Responsibilities as project director included:

- led the development of professional development products and services that are focused on leadership development for systemic reform and curriculum implementation
- directed the design and implementation of the National Academy for Curriculum Leadership (a three-year professional development and technical assistance program for school districts implementing standards-based curricula) that involved 12 leadership teams representing 10 school districts from around the country (including San Diego, Boston, Cincinnati, and Pittsburgh Public Schools)
- managed the design, marketing and dissemination of center activities including presentations at conferences, workshops and seminars, contracts with school districts, and print- and web-based information
- supervised design and execution of project evaluation by external contractor
- planned and managed tasks, budgets and time lines of center activities

Edison Schools Inc., New York, NY, July 1999-June 2000.
(Nation's largest private manager of public schools from kindergarten through twelfth grade)

Director, Science Education K-12
Responsibilities involved all aspects of Edison's K-12 science program including: program support, professional development, curriculum and instruction, and student achievement and assessment.

- revised Edison science standards to align with the National Science Education Standards
- designed and implemented new approaches to staff development for Edison's K-12 science programs

The Packer Collegiate Institute, Brooklyn Heights, NY, 1993-1999.
(Co-ed PreK-12 college preparatory day school)

Coordinator of Packer's Science Research Program, 1994-1999
Program involving high school students working on independent research projects

- students constructed a literature review from scientific journal articles and used e-mail to get feedback from scientists; students located mentors and summer internships working in research laboratories
- students published their work using web pages and presented their findings each spring at the annual Science Research Symposium
- served on advisory board for Rockefeller University's Science Outreach Program, one of the community partners in Packer's Science Research Program

Science Department Chair, 1993-1999
- implemented a constructivist teaching and learning philosophy that was used by all science teachers
- developed and implemented a high school science curriculum that began with physics first in 9th grade, chemistry in 10th grade, and biology in 11th grade, with an emphasis on molecular genetics and biotechnology
- developed a High School Science Research Program that enabled students to conduct a sophisticated literature review and find a mentor using the Internet in order to design and conduct individual research projects and publish their work on the world-wide-web
- facilitated teachers in Grades 5-8 in development of an integrated approach to learning and teaching science using major themes that incorporate earth, life, and physical science
- implemented a K-4 constructivist science curriculum taught by both science specialist and classroom teachers based on active learning in cooperative groups focused on major concepts and skills in science

Teaching Responsibilities included Biology, AP Biology, and 12th Grade Advisor, member of Student-Faculty Judiciary Committee.

Co-Chair, Professional Growth & Development Task Force, 1997-1999
Purpose of task force was to formulate a policy and develop a new research-based professional development program for school that resulted in changing the professional culture of school and nurturing the development of an adult learning community
- designed and implemented a two-year investigation of best practices in professional development
- served as the liaison with the administration during the formulation of the policy & programs
- directed Critical Friends Group (CFG) pilot program and provided ongoing support to CFG coaches

Albany Academy for Girls, Albany, NY, 1991-1993.
(Girls' PreK-12 college preparatory day school)

Science Department Chair, 1991-1993.
- developed a guided inquiry approach through a hands-on laboratory program that was implemented by all members of the science department
- developed and implemented a curriculum teaching experimental design to students in Grades 7 and 8 who demonstrated their understanding through independent research projects which were presented at the Annual Middle School Science Symposium
- implemented a hands-on K-6 science curriculum taught by Science Specialists based on constructivist learning theory and cooperative learning groups

Teaching Responsibilities included Biology, AP Biology, Seventh Grade Life Science, and an interdisciplinary science elective in Environmental Issues taught jointly with the History Department. Other responsibilities included Ninth Grade Class Advisor and faculty sponsor for the Ecology Club.

Episcopal High School, Alexandria, VA, 1989-1991.
(Boys' 9-12 college preparatory boarding school)

Teaching Responsibilities included Biology and an elective in Environmental Science. Other responsibilities included dormitory master, assistant track coach, technical director for drama productions, and faculty sponsor for the Ecology Club and Youth in Philanthropy Club.

PROFESSIONAL MEMBERSHIPS

National Science Teachers Association

NSTA Division XIV Director, 2006-2007
Member of NSTA Professional Development Committee, 2004-2006

National Science Education Leadership Association
Chair of NSELA Professional Development Committee, 2005-2008

PUBLICATIONS

Short, J.B. (2006). Leading professional development for curriculum reform. In J. Rhoton and P. Shane (Eds.), T*eaching science in the 21st century* (pp. 85-99). Arlington, VA: NSTA Press.

Short, J.B. (2006). Selecting instructional materials as professional development to support teacher change. In *The cornerstone-to-capstone approach: Creating coherence in high school science* (pp. 173-180). Colorado Springs: BSCS.

Short, J.B. (2006). Analyzing standards-based science instructional materials: An opportunity for professional development. *Dissertation Abstracts International*, 67 (07), 2452. (UMI No. 3225196)

Landes, N.M., Powell, J.C., & Short, J.B. (February 2004). AIM for professional development. *Science and Children*, 40-45.

Bybee, R.W., Short, J.B., Landes, N.M., Powell, J.C. (2003). Leadership, professional development, and science curriculum implementation: A systemic perspective. In J. Wallace and J. Loughran (Eds.), *Leadership and professional development in science education: New possibilities for enhancing teacher learning* (pp. 155-176). London: RoutledgeFalmer.

Powell, J.C., Short, J.B., & Landes, N.M. (2002). Curriculum reform, professional development, and powerful learning. In R.W. Bybee (Ed.), *Learning science and the science of learning* (pp. 121-136). Arlington, VA: NSTA Press.

FEDERAL GRANTS

Principal Investigator (NSF Award No. DRL-0918560) with Co-PI Suzanne Wilson at Michigan State University and scientists from the Cary Institute for Ecosystem Studies on project entitled *Learning Science as Inquiry with the Urban Advantage: Formal-Informal Collaborations to Increase Science Literacy and Student Learning*. The overarching research question is how can informal science education institutions best design resources to support teachers, school administrators, and families in the teaching and learning of students to conduct scientific investigations and better understand the nature of science? (2009-2013)

Prinicipal Investigator (IMLS Award No. LG-26-09-0121-09) on project entitled *Partnering for Results with Urban Advantage*, a national leadership demonstration project to build and support outcome-based, sustained partnerships between museums and school districts in professional development. The two-year project focuses on establishing a partnership model for informal/formal science education initiatives centered around teacher professional development and student learning outcomes by creating a leadership institute for professional development providers.

Principal Investigator (NASA Grant No. NNX09AL93G) on project entitled *Integrated Media and Teacher Professional Development Program: GRACE Mission Climate Change Science at AMNH* to support teachers' and students' ability to engage with a global gravity data set visualization to understand how water distribution is affected by climate change. (2009-2010)

Co-Principal Investigator with Digital Learning Sciences and Denver Public Schools (NSF Award No. 0734872) with the American Geological Institute and It's About Time/Herff Jones Publishing as partners to develop an online curriculum customization service for the National Science Digital Library (NSDL) to support secondary Earth science teachers implementing standards-based curricula. (2008-2010)

Design Team member on a Teacher Professional Continuum Project (NSF-Award No. 0553174) entitled *Building Systems for Quality Teaching and Learning in Science: A Simulation Game and Learning Modules* with the Mathematics, Science, and Technology Program at WestEd. (2006-2009)

Former Project Director, BSCS Science Curriculum Implementation and Dissemination Center (NSF-Award No. ESI-9911615) and former Director of the BSCS National Academy for Curriculum Leadership program in the BSCS Center for Professional Development; developed resources and provided technical assistance to support the implementation of standards-based secondary science instructional materials (2000-2005)

AWARDS

Recipient of the *2005 Susan Loucks-Horsley Award at BSCS* for contributions and service in the field of professional development.

Recipient of the *2003 Executive Director's Award at BSCS* for providing vision and leadership in establishing the SCI Center at BSCS as a national leader in professional development for science education reform.

Recipient of the *1998 BSCS Teacher of the Year Award*
BSCS is the nation's leading biology-education organization developing innovative science curricula for grades kindergarten through college.

PRESENTATIONS

Numerous presentations and workshops at professional meetings and conferences (National Science Teachers Association, National Staff Development Council, National Science Education Leadership Association) over the last five years:

- Teaching Science as Inquiry and the *National Science Education Standards*
- Strategies and Tools for Teaching Experimental Design in the Science Classroom
- Linking research from *How People Learn* to Standards-Based Science Instructional Materials
- Analyzing Instructional Materials (AIM) Process and Tools
- Examining the Conceptual Flow of Science Content in Science Units
- Designing Transformative Professional Development
- Evaluating Professional Development
- Using the Concerns-Based Adoption Model (CBAM) for Monitoring Curriculum Implementation