

CATHERINE S. MARTIN-DUNLOP
California State University Long Beach
Science Education and Liberal Studies Departments (*joint position*)
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EDUCATION

August 2001 – December 2004: **Curtin University of Technology, Perth, Western Australia**
PhD in Science Education

Title of Dissertation: *Perceptions of the Learning Environment, Attitudes Towards Science, and Understandings of the Nature of Science Among Prospective Elementary Teachers in an Innovative Science Course*

1997 – 1999: **University of Southern California, Los Angeles, CA**
Masters in Science Education

Title of Thesis Project: *A Comparison of Science Achievement, Self-Efficacy, and Scientific Career Aspirations of Girls in Coeducational and Single-Sex Schools*

1977-79 & 1987-89: **Simon Fraser University, Burnaby, BC, Canada**
Bachelor of Education/BC Secondary School Teacher Certification

Minors in Biology, Geography and Secondary School Education

1979 – 1981: **British Columbia Institute of Technology, Burnaby, BC, Canada**
Diploma of Technology in Fish, Wildlife, & Recreation Program

Specialized in fisheries enhancement and management

TEACHING AND RESEARCH EXPERIENCE

January 2005 – present: **Assistant Professor, Science Education & Liberal Studies Departments, California State University, Long Beach, CA.** 2007/05 – Continuing to revise and teach *EDSS 473c Student Teaching for Secondary Science Teachers*, a seminar that became a 2-unit credit course and used *Teaching Performance Assessment 4 (TPA4)*. Spring 2007, 2005, Summer 2006 - developed and taught new graduate level course for Masters students, *SCED 552 Nature of Science*. Throughout 2004/05, I supervised our department's first graduate student. Title of student's thesis: *Perceptions of the Learning Environment and Associations with Achievement of Gifted Biology Students*. Continuing to teach *SCED 401 A Process Approach to Science* each semester, and to serve in a leadership role for our eight faculty members who teach *SCED 401*. Courses taught in the past include *EDEL 475 Science Methods for Elementary Teachers* and *EDSS 450c Curriculum & Methods for Teaching Secondary Science*. During Fall 2006 as part of my responsibilities to the College of Education, I supervised two students in *EDEL 482, Elementary Student Teaching & Seminar*.

August 1999 – December 2004: **Lecturer, Science Education Department, California State University, Long Beach, CA.** Over this 5-year period I have taught *SCED 401* 22 times and supervised a dozen secondary science student teachers. I have also taught *EDEL 475*, the

science methods course for elementary teachers, *EDSS 450c Curriculum & Methods for Teaching Secondary Science* and *EDSS 472c/572c Student Teaching Seminar for Secondary Science Teachers*. I also made presentations at professional science education conferences (e.g., CSTA, NSTA, NARST, AERA, ASTE) and undertook several service-oriented activities.

October 2000 – August 2001: **Science Education Researcher, California Institute of Technology (Caltech), Pasadena, CA.** Involved in a three-year, \$3-million NSF grant to compare traditional textbook learning and teaching with hands-on inquiry in 40 fifth grade science classrooms in California, Nevada, and Arizona. Helped develop the instruments for the science knowledge test, classroom observations and teacher interviews. Also completed 3-hour performance assessment in biology involving flatworms, and conducted a portion of the actual fieldwork including coordination of site visits, classroom observations, teacher interviews, administration of tests and student survey, and delivery and scoring of performance assessments.

September 1999 – December 1999: **Seminar Instructor, University of Southern California, Los Angeles, CA.** Taught and mentored 22 freshmen from various academic and artistic backgrounds during an Educational Psychology course. Focus of course was on acquiring and practicing effective academic learning skills, i.e., ‘learning how to learn.’

September 1998 – May 1999: **Student Teacher Coordinator/Field Supervisor, University of Southern California, Los Angeles, CA.** Supervised eight high school student teachers during their two-semester practice teaching experience throughout the Los Angeles Unified School District. This involved initial contacts with schools, principals, and master teachers, as well as weekly observations/coaching sessions with each student.

January 1998 – June 1998: **Science Teacher, St. Jeanne de Lestonnac Catholic School, Tustin, CA.** Taught eight classes of science to grade 4, 6, 7, and 8 students. Also, revitalized the school’s science curriculum, performed the first-ever inventory of science equipment, and made recommendations in order to bring the department up-to-date with safety standards and current science education trends.

1995 – 1997: **Science & Mathematics Teacher, The Archer School For Girls, Pacific Palisades, CA.** Developed new science and mathematics curriculum and resource base within budget for this new private school that resulted in additional celebrity financing, increased parent satisfaction and participation, all within a four-month period. Taught the grade 6, 7, and 8 science and mathematics curriculum across a wide spectrum of abilities using a hands-on inquiry approach. Organized and led multi-day science field trips to Catalina Island and on a marine research vessel.

1992 – 1994: **Biology & Environmental Systems Teacher, Li Po Chun United World College of Hong Kong, China.** Brought order to chaos at this newly opened, 250-student, high profile campus that resulted in positive media coverage, high academic achievement, and government recognition. The two-year pre-university curriculum was based on the highly respected and challenging International Baccalaureate program. The school was also dedicated to promoting international cooperation and understanding among its diverse student population. Additional resident teacher activities included tutoring/counseling eleven international students, and instructing action programs (rock climbing, hiking and girls’ weight-lifting).

1989 – 1992: Biology Teacher, Lord Tweedsmuir Secondary School, Surrey, BC, Canada.

In addition to teaching eleventh and twelfth grade biology for three years, I also taught tenth grade general science, English composition, and mathematics. Extra-curricular activities included participation in the Ski Club, Scholarship/Awards Committee, Graduation Committee, and School Crisis Team. Held leadership roles in the school's Multicultural Club and the 30-Hour Famine for World Vision. Served as a Master/Cooperating Teacher for a student teacher.

PUBLICATIONS

Martin-Dunlop, C., & Fraser, B.J. (2007). Learning environment and attitudes associated with an innovative science course designed for prospective elementary teachers. *International Journal of Science & Mathematics Education*.

Martin-Dunlop, C. (2006, Sept.). *Science learning environments and action research*. Science Scope, 44-47.

Pine, J., Aschbacher, P., Roth, E., Jones, M., McPhee, C., **Martin, C.**, Phelps, S., & Foley, B. (2006). Fifth graders' science inquiry abilities: A comparative study of students in hands-on and textbook curricula. *Journal of Research in Science Teaching*, 43, 467-484.

Martin-Dunlop, C., & Fraser, B. J. (2006). *Improving the learning environment of university science courses: A key to better elementary teacher education*. Conference proceedings from the Fourth International Science, Mathematics and Technology Education Conference, Victoria, BC, Canada.

SELECTED PRESENTATIONS

Martin-Dunlop, McMahon, M., & Hodum, P. (April 2006). *Authentic Scientific Inquiry—Does It Improve Understanding of the Nature of Science?* Paper presented at the Annual Meeting of the National Association for Research in Science Teaching, San Francisco, CA.

Martin-Dunlop, C., Hodum, P., & McMahon, M. (January 2006). *Synchronous Orbits: Scientist—Science Educator Collaboration Via Satellite*. Paper presented at Annual Meeting of Association of Science Teacher Educators, Portland, OR.

Martin-Dunlop, C. (October 2005). *Improving the Teaching and Learning of the Nature of Science*. California Science Teachers Association (CSTA) Annual Conference, Palm Springs.

Martin-Dunlop, C., & Hodum, P. (January 2005). *Adding a Scientist to a Course for Prospective Elementary Teachers: Does It Improve Understanding of the Nature of Science?* Annual meeting of the Association for the Education of Teachers in Science (AETS), Colorado Springs, CO.

Martin-Dunlop, C. (October 2006, 2004, 2003). *Action Research for Science Teachers Using Learning Environment Surveys*. CSTA Annual Conferences, San Jose, Long Beach and San Francisco.

Martin-Dunlop, C., & Fraser, B. (April 2004). *Perceptions of the Learning Environment and Attitudes Towards Science Among Prospective Elementary Teachers in an Innovative Science Course*. American Educational Research Association (AERA) Annual Conference, San Diego, CA.

Martin-Dunlop, C., & Fraser, B. (April 2004). “*Learning Science Can Be Fun*”: *Changing Future Elementary Teachers’ Ideas About Laboratory Learning Environments and Attitudes Towards Science*. National Association for Research in Science Teaching (NARST) Annual Meeting, Vancouver, BC, Canada.

Martin-Dunlop, C. (January 2004). ‘*Science Phobia*’—*Can It Be Overcome in Prospective Elementary Teachers?* AETS Annual Meeting, Nashville, TN.

Martin-Dunlop, C. (October & February 2003). *Don’t Cut That Flatworm! How to Use Intact Flatworms for Inquiry Science*. CSTA Annual Conference, Long Beach, and the Greater Los Angeles Teachers of Science Association (GLATSA) Annual Conference.

Martin-Dunlop, C. (February 2002). *A Novel Use of Technology in a Science Capstone Course for Elementary Teachers*. Technology Enhancement/PT³ Conference, Cerritos College, CA.

Martin-Dunlop, C. (October 2001). *Performance Assessment in Textbook-Based and Hands-On Inquiry Science Classrooms*. CSTA Annual Conference, Palm Springs.

PROFESSIONAL SERVICE

- 2007: Reviewer for article submissions to *Learning Environments Research: An International Journal*.
- 2006-07: Appointed to the Editorial Board of MERLOT, Teacher Education Subcommittee, and as a peer reviewer of learning objects.
- 2005-07: Secretary and member of the International Education Committee and Experiential Learning Subcommittee, CalState-Long Beach.
- 2005-07: External examiner for three doctoral theses entitled “Learning Environments Associated with Using Laptop Computers at Dubai Women’s College,” “Effects of Using Graphic Organizers on the Attitudes and Classroom Environment of Elementary Science Students,” and “Evaluation of the Effectiveness of Using Mixed Mode Delivery in a Pre-service Teacher Education Program in Singapore.” Provided extensive and detailed feedback to doctoral candidates for the Science & Mathematics Education Centre, Curtin University of Technology, Perth, Australia.
- 2002-07: Proposal Reviewer for research papers, Association for the Education of Teachers in Science (AETS) annual conferences
- 2003, 2005-07: Proposal Reviewer for research papers in the Learning Environments Special Interest Group (SIG), AERA conferences.
- 2003, 2005-06: Proposal Reviewer for research papers, National Association for Research in Science Teaching (NARST) conferences.
- March 2002 – 2007: State Science Olympiad Competition volunteer.
- 2001 – present: Coordinator for 6-8 sections of SCED 401 every semester (budget, mentor for new faculty teaching the course, and liaison with Liberal Studies Department).

AWARDS & GRANTS

- 2008: Enhancing Educational Effectiveness Awards, CSULB. *Using Technology To Improve the Teaching & Learning of the Nature of Science*. Three units of release time, student office assistant, and technology-related equipment.
- 2007: Scholarly & Creative Activities Award, CSULB. *Using Students' Concept Maps on the Nature of Science to Evaluate a Guided-Authentic-Inquiry Activity (GAIA) in a Science Course for Prospective Elementary Teachers*.
- 2002 & 2003: Preparing Tomorrow's Teachers for Technology (PT³) Grant, California State University, Long Beach

PROFESSIONAL AFFILIATIONS

- Sigma Xi, The Scientific Research Society
- National Association for Research in Science Teaching (NARST)
- Association for Science Teacher Education (ASTE)
- National Science Teachers Association (NSTA)
- California Science Teachers Association (CSTA)
- American Association for University Women (AAUW)
- Union of Concerned Scientists
- National Geographic Society
- World Wildlife Fund
- Nature Conservancy
- Sierra Club
- California Council on Teacher Education