

CAMILLE L. WAINWRIGHT

EDUCATIONAL HISTORY

- 1984 – PhD in Science Education: University of Minnesota
Thesis title: "The Effectiveness of a Computer-Assisted-Instruction Package in Supplementing Teaching of Selected Concepts in High School Chemistry: Writing Formulas and Balancing Chemical Equations"
- 1977 – M.S. Biology, with highest honors; Chemistry minor
Purdue University, West Lafayette, Indiana
- 1967 – B.A. Chemistry, cum laude; Biology minor
Concordia College, Moorhead, Minnesota

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EMPLOYMENT HISTORY

- 1992 - Present: Pacific University, Forest Grove, Oregon
Currently: Full Professor – Science Education; Director of NCATE Accreditation
2005 – present: NCATE Accreditation Coordinator
2005-06: Consultant to Boston Museum of Science on *Engineering the Future* curriculum project
1997 – 2006 Co-PI NSF OCEPT grant; PI of OCEPT Pacific University sub-grant
1995 – 2004 Coordinator of Continuing Teaching License and MAT/Standard Programs
1999 – 2003 Director of APT Math/Science program and OPUS (with OMSI)
1994 – 1996: Interim Director of the School of Education;
- 1984 - 1992: Chemistry and Physics Teacher; also Dean of Students (1988-1992)
Mounds Park Academy, St. Paul, Minnesota
- 1981 - 1984: Teaching Associate, Department of Curriculum and Instruction
University of Minnesota. Taught graduate courses in Educational Technology;
supervised science student teachers (approximate 45 per year) and taught seminar.
- 1977 - 1980: Chemistry Teacher, Crown Point High School
Crown Point, Indiana
- 1974 - 1975: Graduate Assistant/Guest Lecturer
Biology Department, Purdue University (Botany and Human Physiology)
- 1968 - 1971: Science Teacher (K - 12), U.S. Naval Station Sangley Point
Department of Defense Dependents' School, Republic of the Philippines
(taught Chemistry, Physics, Earth Science, Physical Science, and Elementary Science)
- 1967 - 1968: Science Teacher (Middle School)
Cecil County Public Schools, Elkton, Maryland
- 1963 - 1967: Research Assistant in Electron Microscopy (summers)
Department of Laboratory Medicine, University of Minnesota Hospitals
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GRANTS, AWARDS AND HONORS

12/05 – Awarded OTEN grant for purchase of science probeware and development of instructional strategies for Science Methods Class.

5/15/05 – Honored with the Pacific University Presidential Award for the Professional Educator of the Year

10/8/04 -- Selected as Oregon Science Educator of the Year, by the Oregon Science Teachers Association

1/12/04 – Selected as Thomas S. Thompson Distinguished Professor (with funded research)

1/10/04 – Selected to attend the WRITE ON! Institute, Menucha, Oregon

10/15/03 – Submitted application to American Association of Colleges of Teacher Education (AACTE) for Partnership for Excellence in Teacher Education (PETE II) grant. (Funded)

7/15/03 – Submitted Annual Report to National Science Foundation; OCEPT II grant was successfully funded for Year Two.

6/15/03 – Selected to attend the WRITE ON! Institute, Menucha, Oregon

8/1/02 – Awarded NSF OCEPT II grant as Principal Investigator (\$600,000 over 3 years)

5/02 – Elected Chair of the Pacific University Chapter of the American Association of University Professors

9/01 – Awarded Eisenhower grant (as Co-PI) in collaboration with Portland State University: “Mentoring Beginning Teachers in Science and Mathematics” (\$30,000)

5/9/01 – Awarded the prestigious Pacific University Faculty Achievement Award for Outstanding Service to Science Education in the state, region and nation.

2/01 – Selected by the Center for Advancement of Science Education (CASE) Project at University of Southern California as a member of the National Advisory Board for production of science education videotapes.

12/18/00 – Proposal to Oregon Technology Network – “Probeware for Real-Time Data Collection”; funded.

1999 – 2001 – Served as Consultant for Oregon State University's Science and Mathematics Eisenhower grant project in conjunction with Oregon Department of Education: Science Teacher Leadership.

10/00 – Submitted a proposal to OCEPT: “The Outcomes Research Study” (funded at \$100,000/year for 4 years)

6/00 – Served as external evaluator for NSF *Horizons* grant (Portland State University).

- 9/99 – Awarded grant: "Natural Science Peer Tutor and Mentor Training", from Oregon Collaborative for Excellence in the Preparation of Teaching (\$5000)
- 5/99 – Awarded Eisenhower grant: "Professional Development – Teacher Enhancement to Achieve Mathematics Standards" (PD-TEAMS) (\$45,445)
 PD-TEAMS II awarded in 8/00 (\$45,000)
 PD-TEAMS III awarded in 9/01 (\$47,500)
- 5/99 – Selected as a member of Advisory Council for the Oregon Museum of Science and Industry (OMSI)
- 3/99 – Appointed by Oregon Superintendent of Instruction as a member of the Science Professional Development Planning and Product-Development Group
- 2/99 – Selected by Association of Educators of Teachers of Science as a Science Content Guide for Shedding Light on Science, a video production of the Harvard-Smithsonian Center for Astrophysics, funded by Annenberg/CPB.
- 12/98 – Awarded Hewlett Foundation grant: "Collaborative Professional Development with Health Sciences and Education Graduate Faculty" (Co-PI with faculty from Physical Therapy and Optometry)
- 8/98 – Founded the Oregon Science Education Council; elected Chair.
- 7/98 – Appointed to the Oregon Science Curriculum and Assessment Content Panel, Oregon Department of Education for two years.
- 1/98 – Selected to the Regional Advisory Board of the Mathematics and Science Consortium for NorthWest Schools (SMCNWS), regional Eisenhower consortium.
- 5/97 – Awarded NSF "Oregon Collaborative for Excellent in the Preparation of Science and Mathematics Teachers" (OCEPT) as Co-PI and PI of Pacific University sub-grant. (Sub-grant approximately \$21,000/per year for 5 years)
- 3/97 – Selected as a 'Certified Trainer' for American Academy for the Advancement of Science Project 2061 Curriculum Analysis workshops.
- 1/97 – Published autobiographical sketch in 1997 Directory of Practitioners: Role Models for Young Women, project of Advocates for Women in Science, Engineering and Mathematics. (Also in updated annual directories.)
- 10/96 – Submitted grant proposal to Oregon State System of Higher Education: Science Standards Staff Development (SSSD), in collaboration with Banks, Gaston, Newberg, Sherwood and McMinnville school districts; funded. (\$44,000)
- 7/96 – Selected as coordinator for the establishment of an Eisenhower National Clearinghouse Technology Access Site at Pacific University.
- 7/95 – Awarded US Dept. of Education National Diffusion Network Continuation Grant: "CASTLE Training Project"; PI/Project Director (\$850,000)

- 7/94 – Awarded Eisenhower grant for “Teachers as Leaders: Math, Science and Technology Education for Elementary Teachers”; PI/Project Director (\$40,000)
Subsequent grants awarded in 1995 (\$40,000), 1996 (\$42,000).
- 6/94 – Awarded Professional Development Support Grant for Elementary Teachers, from Science and Mathematics Consortium for NorthWest Schools (\$2500)
- 5/94 – CASTLE Curriculum awarded Program Effectiveness Validation from the US Dept. of Education Program Effectiveness Panel (Co-author)
- 5/93 – Selected to the Regional Roundtable for Teacher Certification in Math and Science of the Northwest Regional Education Laboratory
- 1/93 – Awarded Eisenhower grant for "Enhancing Science, Mathematics and Technology Instruction in Elementary Classrooms"; PI/Project Director (\$30,000)
- 7/92 - 12/93: PI/Project Director: "Interdisciplinary Science/Mathematics/Technology Education Project" Eisenhower grant (\$125,000)
- 6/92 – Distinguished Service Award, presented by Mounds Park Academy
- 4/20/92 – Minnesota Governor's Youth Service Program Award
- 11/91 – Minnesota Educator, selected by Optical Society of America to attend Opticon/OSA Annual Meeting, San Jose, CA
- 4/91 – Ashland Oil Recognition for Excellence in Science Teaching
- 5/90 – Governor’s Commendation for Excellence in Science Teaching
- 5/90 – Minnesota Presidential Award for Excellence in Science Teaching
- 11/4/89 – University of Minnesota Chemistry Day: Mounds Park Academy Chemistry Students/Teacher awarded two of five top cash awards
- 6/89 – Selected "Outstanding Science Teacher of 1988-89" by Minnesota High Technology Council
- 5/89 - Minnesota Presidential Award for Excellence in Science Teaching
- 1/88 - Selected as a Physics Teacher Resource Agent by the American Association of Physics Teachers
- 6/87 - Woodrow Wilson National Foundation Summer Fellowship in Physics
Princeton University, Princeton, New Jersey
- 12/83 - Graduate School Tuition Grant
Department of Curriculum and Instruction, University of Minnesota
- 1983 - "Best Microcomputer Software of the Year", presented to the authors and publisher of Explorer Metros - Learning Periodicals Group Award

6/83 - Curriculum Improvement Project Grant, Center for Educational Development,
University of Minnesota

6/70 - Outstanding Teacher Award, United States Department of the Navy, Department of
Defense School System

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PUBLICATIONS

BOOKS:

Engineering the Future: Science, Technology and the Design Process (ETF) (2007).
Key Curriculum Press. Evaluator and Contributing Author.
<http://www.keypress.com/x19890.xml>

Electricity Visualized: The CASTLE Project (2007). PASCO Scientific, 9th edition –
Editor and co-author. Now available in hard cover (from PASCO), CD-ROM (in
collaboration with NSF C3P project), or on the web in PDF at:
<ftp://ftp.pasco.com/Support/Documents/English/EM/EM-8624A>

Electricity and Magnetism, textbook in Science Explorations series, published by
Prentice Hall, Needham Heights, MA; completely re-written as 5th edition (2007) –
author. (Both Student Edition and Teacher Edition)

Chapter (“Developing an Instrument for Reliable Field-Based Assessment”), 2006; in
Preparing Future Science and Mathematics Teachers, NSF Publication. D. Smith & E.
Swanson, editors.

Electricity and Magnetism, textbook in Science Explorations series, published by
Prentice Hall, Needham Heights, MA; completely re-written as 4th edition (2004) –
author. (Both Student Edition and Teacher Edition)

Author of the following texts, published by Prentice Hall, Needham Heights, MA;
2005.

Prentice Hall Indiana Science Explorer Series – Electricity and Magnetism
Prentice Hall North Carolina Science Explorer Series – Electricity and Magnetism

Co-author of the following text, published by Prentice Hall, Needham Heights, MA;
2003.

Prentice Hall Virginia Science Explorer - Physical Science

Co-author of the following texts, published by Prentice Hall, Needham Heights, MA;
2003.

Discoveries in Life, Earth and Physical Science
Investigations in Life, Earth and Physical Science
Adventures in Life, Earth and Physical Science

Science Instructional Framework: Lessons to Support the Oregon Standards (2001).
Published by the Oregon Department of Education: Salem, OR. (Author).

Electricity and Magnetism, textbook in Science Explorations series, published by Prentice Hall, Needham Heights, MA; 3rd edition (2003) – author. (Both Student Edition and Teacher Edition)

Co-author: Physical Science, published by Prentice Hall, Needham Heights, MA; in the *Science Explorations* series, 2000.

Electricity and Magnetism, textbook in Science Explorations series, published by Prentice Hall, Needham Heights, MA; 1998 and 2000 editions – author. (Both Student Edition and Teacher Edition)

Microcomputers: A Course for Parents and Children, 1983 – Minnesota Educational Computing Consortium, St. Paul, Minnesota – Co-author.

ARTICLES:

Wainwright, C. L. (2006). "Challenging misconceptions in learning electricity; a curriculum study". (Submitted to Science Education.)

Wainwright, C. L., Morrell, P. D., Flick, L. and Schepige, A. (2004, Fall). Observation of Reform Teaching in Undergraduate Level Mathematics and Science Courses *School Science and Mathematics*, 104(7), 31-44..

Morrell, P. D., Wainwright, C., and Flick, L. (2004). Reform teaching strategies used by student teachers. *School Science and Mathematics*, 104 (5), 199-213.

Park, Y-S., Flick, L. B., Morrell, P. D., and Wainwright. C. (2004). Student teachers' and beginning teachers' understandings of scientific inquiry. The Journal of the Korean Earth Science Society, 25(3).

Wainwright, C., Flick, L. & Morrell, P. "The Development of Instruments for Assessment of Instructional Practices in Standards-Based Teaching". The Journal of Mathematics and Science: Collaborative Explorations, Fall, 2003.

Wainwright, C. & Frykholm, J. "Assessing mathematics achievement in Oregon schools; A case study" in The Oregon Mathematics Teacher, November/December, 2002.

Wainwright, C., Flick, L. & Morrell, P. "The Oregon-Teacher Observation Protocol (O-TOP)", published on-line (8/02) by the Oregon University System at www.ous.edu/aca/Tepdf10-TOP.pdf

"A Comparison of Two Innovative Alternative Programs in Science Teacher Preparation" in *Proceedings of the 2002 Annual International Conference of the Association for the Education of Teachers in Science*.

"Assessing the Impact of Undergraduate Mathematics and Science Instruction on Beginning Teachers' Instructional Practice" in *Proceedings of the 2002 Annual International Conference of the Association for the Education of Teachers in Science*.

Wainwright, C. *et al* (2001) "Shedding Light on Science Video Workshops" in *Proceedings of the 2001 Annual International Conference of the Association for the Education of Teachers in Science*. <http://www.ed.psu.edu/CI/journals/2001aets/01file1.asp>

Wainwright, C. (2001) "Just in time: An alternative pathway to teaching science (APT)" in *Proceedings of the 2001 Annual International Conference of the Association for the Education of Teachers in Science*.
<http://www.ed.psu.edu/CI/journals/2001aets/01file1.asp>

Wainwright, C., Jordan, W., & Boardman, M. "The Natural Science Education Advisory Group: Processes and Products" in *Proceedings of the 2002 Oregon Academy of Science*.

Wainwright, C. & Hellman, W. "Oregon Science Education Council's Recommendations for the Science Preparation of Teachers". On-line at <http://www.mth.pdx.edu/OCEPT/>

Wainwright, C. "Oregon Science Education Council's Recommendations for the Science Preparation of Teachers" in Proceedings XXXVII of the Oregon Academy of Science.

Wainwright, C. Abstract in *Proceedings of the Oregon Academy of Science*: "Natural Science Peer Tutor and Mentor Training at Pacific University", 5/00.

Wainwright, C. "Gender Indifference", The Physics Teacher, 3/99.

Wainwright, C. "The Oregon Continuing Professional Development Plan", The Oregon Science Teacher, 11/98.

Wainwright, C. & Wiener, R. "Is a Density Gradient Necessary for a Flame to Bend in a Rotating System?", The Physics Teacher, 10/98.

Wainwright, C. "Earth, Moon and Sun (Probing for Misconceptions)"; Middle school feature in The Oregon Science Teacher, March/April, 1998

Gallahan, L. & Wainwright, C. "Achievement, Confidence and Classroom Behaviors: Factors that Influence Participation in Science"; juried Poster Session for Society for Research in Child Development Biennial Meeting, 4/5/97, Washington, DC.

Wainwright, C. "An Electricity Curriculum Based on Capacitor-Controlled Transient Lamp Lighting", in NSF Instructional Resource Live database (on Internet) -- NSF 9050189, 5/96.

Wainwright, C. Abstracts published in "The Guide to Mathematics and Science Reform", electronic database: "CASTLE Teacher Training Project" and "Teachers as Leaders: Mathematics, Science and Technology Workshops for Elementary Teachers", 4/96.

Wainwright, C. Abstract in the 1995 Proceedings of the Oregon Academy of Science: "The CASTLE Grant and the National Diffusion Network".

Steinberg, M. & Wainwright, C. "Capacitor-Aided System for Teaching and Learning Electricity (CASTLE)" in Education Programs that Work, US Dept. of Education NDN, 1994.

Wainwright, C. & Steinberg, M. "Using Models to Teach Electricity -- The CASTLE Project", The Physics Teacher, September, 1993.

Wainwright, C. "Will All Hispanic Physics Teachers Please Stand Up?", MSTA News, Fall, 1990.

Wainwright, C. "The Effectiveness of a Computer-Assisted Instruction Package in High School Chemistry", Journal of Research in Science Teaching, 26:4, 1989.

Wainwright, C. "Constructing the Joystick Pendulum", The Science Teacher, 53:6, 1986.

Wainwright, C. "The Apple Game Port Adapter", The Science Teacher, 53:6, 1986.

Wainwright, C. "Research on Learning with Computers", Minnesota Academy of Science Proceedings, Fall, 1985.

Wainwright, C. & Gennero, E. "The One-Computer Science Classroom", The Science Teacher, April, 1984.

REVIEWS:

Served as a reviewer for papers presented at annual conferences (2005, 2006, 2007, 2008) for the National Association for Research in Science Teaching and the Association of Science Teacher Educators.

Served as principal reviewer for development of an on-line Science Methods course, August - December, 2006.

Served on a Review Panel for NSF grant proposals for the Teacher Professional Continuum (TPC) program, Washington, DC, Oct. 26 – 29, 2004.

Participated in formal review of PASS (Proficiency-based Admissions System) websites; PCC Sylvania campus, 4/18/03.

Reviewed text for Wiley/Jossey-Bass Education Publishers: Today's Mathematics by Heddens & Speer. (3/03)

Reviewed "Rediscovering Biology: Molecular to Global Perspectives" video/on-line curriculum units: Annenberg/CPB in cooperation with OPB. (1/03)

Reviewed No Child Left Behind grant proposals for federal funding through the Oregon University System. (11/02)

Reviewed Earth Science with Calculators (text released in 2002), software and hardware package distributed by Vernier Software Corporation (9/02).

Reviewed applications for OCEPT Scholars Program (undergraduate and graduate scholarships for students planning to teach science, mathematics or elementary, especially those from underrepresented groups); provided \$100,000 per year. (annually, 1997-2002)

Reviewed Anchor Papers for Training: The Scientific Inquiry Scoring Guide for the Oregon Department of Education, 4/02.

Reviewed Strand Maps for American Academy for Advancement of Science/Project 2061 Atlas for Science Literacy, © 2000.

Reviewed The Private Eye: Looking/Thinking by Analogy text, published in 1997.

Inquiry Mathematics and Science Methods text, reviewed for Wadsworth Publishing Company, 3/97.

Report on Pacific University School of Education programs for Directory of Middle Level Preparation Programs, submitted to National Middle School Association, published 3/97.

Reviewed Apple II Applications, by Marvin L. DeJong, in The Bog Hopper, 5/86.

Reviewed "Energy Search", by Thomas F. Snyder, in The Science Teacher, 10/84.

Reviewed "Geology Search", by Thomas F. Snyder, in The Science Teacher, 12/84.

OTHER PROJECTS:

Authored "Science Endorsement Standards and Competencies" based on input from Oregon Teachers of Teachers of Science (TOTOS); submitted to Oregon Teacher Standards and Practices Commission.

"Shedding Light on Science" series (1999): With a team of science educators, developed a PBS nationally-disseminated videotape project to improve elementary teacher education, produced by the Harvard-Smithsonian Center for Astrophysics, funded by the Annenberg/CPB Project. Authored Workshops #3 and #4, and served as on-camera actor for filming Workshop #3. (See www.learner.org/channel/workshops/sheddinglight/)

Authored Mathematics and Science Content Courses Appropriate for Future Teachers, booklet published by Oregon Collaborative for Excellence in the Preparation of Teachers, April, 1999.

Authored "Feasibility Study: The Establishment of Programs for Preparation of Special Educators and School Counselors", prepared for the faculty of the School of Education, November, 1998.

Authored Advising Guide: Programs in Teacher Education in Oregon for Prospective Mathematics, Science and Elementary Teachers, booklet published by Oregon Collaborative for Excellence in the Preparation of Teachers; annual editions in 1998,

1999, 2000, 2001, and 2002. (Now published by the Oregon University System on-line at <http://www.ous.edu/aca/studies.htm>)

Authored "The Strategic Plan for the School of Education", Pacific University, 1994.

Science Editor of Data Insights, Sunburst Publishing, Pleasantville, NY, 1989 (instructional software package).

Author: "Periodic Table", "Gestation Period", and "Density" in Data Insights, Sunburst Publishing, Pleasantville, NY, 1989 (instructional software programs).

Contributing author: Data Models, Sunburst Publishing, Pleasantville, NY, 1989.

Contributing author: "Classification", Computer Literacy Instructional Module, Minnesota Educational Computing Consortium (MECC), St. Paul, Minnesota, 1982.

Programmer and Co-author: "Explorer Metros", Sunburst Publications, NY, 1982 (instructional software package).

PRESENTATIONS (Selected List)

7/23-25/07 – "Workshop: Using the OTOP for Assessment in PTR A Classes" (presented four times); Greensboro, NC. Based on the OTOP, available on-line at: <http://fg.ed.pacificu.edu/wainwright/index.html>

1/5/07 – "Toward Learning and Understanding Electricity: Challenging Persistent Misconceptions". Association of Science Teacher Educators, Clearwater Beach, FL.

1/10/07 – "Development of a Standards-Based Observation Instrument (OTOP)". American Association of Physics Teachers, Seattle, WA.

5/1/07 – "A Look at the Reform-Based Mathematics and Science Teaching Practices of Student Teachers and their Undergraduate College Faculty", P. Morrell, L. Flick, & C. Wainwright. Monash, Australia.

5/21/06 – "Instructional Strategies Using Probeware in a Science Methods Class", at OTEN Conference, Willamette University.

8/15/06 – "Assessment, Objectives, and Instruction"; presentation given to the faculty of the Pacific University School of Pharmacy.

4/10/06 – American Education Research Association: "Analysis of University Teaching in Science and Mathematics Undergraduate Courses" with Lawrence Flick, Pejmon Sadri, Patricia Morrell, Adele Schepige, and Emily van Zee.

4/8/06 – American Education Research Association: "A Longitudinal Examination of Reform-Based Science Teaching in Preservice to Beginning Teachers" with Patricia Morrell, Adele Schepige, and Lawrence Flick.

- 3/25/06 – Physics Teacher Education Coalition (PhysTEC): “The CASTLE Curriculum: Capacitor-Aided System for Teaching and Learning Electricity”. University of Arkansas – **Invited Speaker**.
- 1/15/06 – Association for Science Teacher Educators (ASTE): “Reform-based teaching practices employed by student teachers” with Patricia Morrell, Adele Schepige, and Lawrence Flick.
- 1/15/06 – Association for Science Teacher Educators (ASTE): “Three longitudinal case studies of reform-based teaching: An OCEPT study” with Adele Schepige, Patricia Morrell, and Lawrence Flick.
- 1/14/06 – Association for Science Teacher Educators (ASTE) Presentation: “Persistent misconceptions in learning and understanding electricity”.
- 1/14/06 – Association for Science Teacher Educators (ASTE) Presentation: “Reforming college teaching in science and mathematics” with Lawrence Flick, Patricia Morrell, Adele Schepige, and Emily van Zee.
- 1/8/06 – Presentation to the Hawaii International Conference on Education: “Toward learning and understanding electricity: Challenging persistent misconceptions”
- 1/5/06 – “Observational Field-based Study of Beginning Teacher Characteristics”, Association of Science Teacher Educators International Meeting - Portland, OR.
- 10/19/06 – Led student science activities for “Touch the Future”, Pacific University
- 10/15/05 – Presentation to the annual Joint Oregon/Washington Association of Physics Teachers Conference, Clark College, WA: “Challenging Students Misconceptions in Electricity”
- 8/2-3/05 – Presented 2-day workshop “CASTLE Introduction: Trainer of Trainers” at Physics Teachers Resource Agents annual meeting, Salt Lake City, Utah. (**Invited Speaker**)
- 3/4/05 – Wainwright, C., (Invited). In collaboration with Morrell, P., Flick L., Schepige, A., Park, Y., & Perkins, C., “The Development and Implementation of a Standards-Based Classroom Observation Instrument: Preliminary Results”. Scientific Reasoning Research Institute, University of Massachusetts; Amherst, MA.
- 2/26/05 – Flick, L. B., Wainwright, C., Morrell, P. D., Park, Y-S, & Pejmon Sadri, P. (2005). Standards-based reform in college-level science and mathematics teaching. Paper presented at the annual meeting of the Oregon Academy of Science, Corvallis, OR.
- 1/22/05 – Lawrence Flick, Camille Wainwright, Patricia Morrell, and Young-Shin Park: “Teaching Practices of Science and Mathematics Faculty Reflecting Standards-Based Teaching”; annual meeting of the Association for the Educations of Teachers of Science, Colorado Springs, CO.
- 1/22/05 – Young-Shin Park, Lawrence Flick, Patricia Morrell, Camille Wainwright: “Student Teachers and Beginning Teachers’ Understandings of Scientific Inquiry”;

annual meeting of the Association for the Educations of Teachers of Science, Colorado Springs, CO.

- 1/21/05 – Patricia Morrell, Adele Schepige, Camille Wainwright, Lawrence Flick: “Do Standards-Based Teaching Practices of Preservice Teachers Change as They Move from Student Teaching into their First Two Years of Teaching?”; annual meeting of the Association for the Educations of Teachers of Science, Colorado Springs, CO.
- 1/9/05 – CASTLE Core Curriculum Workshop, presented at Albuquerque, NM for the annual meeting of the American Association of Physics Teachers. Sponsored by PTRA (Physics Teacher Resource Agents).
- 11/18/04 – Wainwright, C., Morrell, P., Flick, L. “Assessing Mathematics and Science Reform-based Instructional Practices”, NSTA Annual Conference, Seattle, WA.
- 8/20/04 – Young-Shin Park, Lawrence Flick, Camille Wainwright, and Patricia Morrell. “Student teachers’ and beginning teachers’ understandings about scientific inquiry”; The Annual Meeting of the Korean Earth Science Society, Seoul, Korea.
- 1/25/04 – “The CASTLE Core Curriculum” presented to the American Association of Physics Teachers Annual Meeting, Miami Beach, Florida. Sponsored by the Committee on High School Physics.
- 1/19/04 – “Measuring Reform Teaching in Undergraduate Level Mathematics and Science Courses” presented to Association of Educators of Teachers of Science Annual Meeting, Nashville, Tennessee.
- 1/5/04 – Provided workshop (“Scientific Inquiry in Elementary Classrooms”) for all teachers in Cornelius Elementary School, Forest Grove School District.
- 10/13/03 – “Issues in Teaching Standards-Based Science” presentation to the APT Special Education Seminar.
- 10/24/03 – Led NCATE Steering Committee in beginning of 3-Year Planning session. Also facilitated 12/4/03 session on initial Conceptual Framework development.
- 9/23/03 – Presented College of Education workshop (with Elizabeth Arch) on Peer Review and Professional Portfolios.
- 8/3/03 – “Capacitor-Aided System for Teaching and Learning Electricity (CASTLE) Core Workshop” given at the American Association of Physics Teachers annual conference, Madison, Wisconsin.
- 5/15/03 – “The Status of Science Education in Oregon” presentation to the Oregon State Board of Education, Salem.
- 5/5/03 – “Famous Female Scientist” presentation to Orenco Elementary School students (Hillsboro School District).
- 4/16/03 – “Futures in Science Education” presentation to the Hillsboro AWSEM Club (Adventures for Women in Science, Engineering and Mathematics)

- 3/24/03 – “Reform Teaching Strategies Used by Student Teachers: A Study of Twenty Preservice Teachers” with L. Flick & P. Morrell; National Association for Research in Science Teaching (NARST) Annual Conference, Philadelphia, PA.
- 2/11/03 – “Reform-Oriented Strategies for Early Career Educators” and “Evaluating Professional Competencies for Early Career Educators”; Pre-OAS Conference, Linfield College.
- 1/31/03 – “Reform-Based Teaching in Undergraduate Mathematics and Science Courses: A Study of Fifteen Faculty Members” with L. Flick & P. Morrell; Association for the Education of Teachers of Science (AETS) Annual Meeting, St. Louis, MO.
- 12/5/02 – “Early Field Experiences for Prospective Teachers: A Guide”; Pre-Education Advising Conference, Clackamas Community College
- 11/19/02 – “Teacher Preparation Options”; presentation to the Intel Corporation Career Resources Center
- 11/15/02 – “Evaluation of OCEPT Progress Through Surveys, Interviews and Observation Instruments”; NSF Collaborative for Excellence in Teacher Preparation annual conference, University of Minnesota; Minneapolis, MN.
- 11/13/02 – “Assessing Mathematics and Science Reform-based Instructional Practices” at NSTA Western Regional Convention, Portland, OR.
- 10/21/02 – “Issues in Teaching Standards-Based Science” presentation to the APT Special Education Seminar.
- 10/19/02 – “The Joy of Teaching with Technology: Real-Time Data Collection”; *Future Teachers Conference*, Portland Community College/Sylvania Campus.
- 10/12/02 – “Assessing Effective Mathematics Classrooms” with Linda Samek and Cathy Brown, NorthWest Council of Teachers of Mathematics Annual Meeting. (Invited)
- 10/10/02 – “An Observational Tool for Mentoring New Teachers: O-TOP” at the NorthWest Council of Teachers of Mathematics New Teachers Conference.
- 9/21/02 – “Using Probes for Real-Time Data Collection” at *Inspiration in the Integration of Technology into Your Teaching Conference*, OTEN, University of Portland.
- 6/21/02 – “School District and University Collaboration: Managing the Hard-to-Fill Positions (Mathematics, Science, Special Education)”, at the Confederation of School Administrators Annual Conference (with Jim Biller/Hillsboro and Mary Smith/Beaverton).
- 6/19/02 – “Observing and Evaluating Exemplary Classroom Teaching in Mathematics and Science”, at the Teachers of Teachers of Mathematics summer meeting.
- 5/9/02 – “Mathematics and Science Curriculum Trends” presentation to the APT Special Education Seminar.

- 4/25/02 – "Pacific University Initiatives in Science Teacher Preparation" at the *Arts and Science Summit on Education*, Salem.
- 2/22/02 – "The Natural Science Education Advisory Group: Processes and Products" presentation to the Oregon Academy of Science annual conference. (With Bill Jordan and Michael Boardman)
- 2/21/02 – "OCEPT's Teacher Observation Protocol: Practice and Applications in a Classroom Setting" presentation to the OCEPT Showcase 2002 Conference. (With Patricia Morrell and Lawrence Flick)
- 2/21/02 – "Pre-Ed Advising and Articulation" presentation to the OCEPT Showcase 2002 Conference.
- 1/13/02 – "Assessing the Impact of Undergraduate Mathematics and Science Instruction on Beginning Teachers' Instructional Practice" presentation at the Association for the Education of Teachers of Science (AETS) annual conference, Charlotte, NC.
- 1/12/02 – "A Comparison of Two Innovative Alternative Programs in Science Teacher Preparation" presentation at the Association for the Education of Teachers of Science (AETS) annual conference, Charlotte, NC.
- 12/7/01 – "The Natural Sciences Education Advising Committee" presentation to the Advising and Articulation Conference (with Mary Fehrs, Bill Jordan, Lori Rynd), Salem.
- 12/6/01 – "Advising and Articulation; the Pacific University Approach" presentation to the Pre-Education Advising Institute, Salem.
- 11/16/01 – "Alternatives Pathways to Teaching: Evaluation of the First Year" presentation to Teacher Standards and Practices Commission, Salem.
- 10/22/01 – Presentation at the Natural Sciences Division Education Career Night: "Becoming a Teacher in Oregon -- the Essentials".
- 10/12/01 – "Outcomes Research Study" presentation at the Oregon Science Teachers Association annual conference.
- 10/11/01 – Presentation to the Natural Sciences Division on "Advising and Teacher Preparation in Oregon".
- 9/22/01 – "Discrepant Events to Promote Reasoning and Problem-Solving" presentation to the Tutor Training Program, Willamette University.
- 6/19/01 – Presentation ("The Alternative Pathway to Teaching program") and served as site facilitator for OCEPT Showcase 2001.
- 6/2/01 – Presented / facilitated a Writing Session for the Science Instructional Framework: Lessons to Support the Oregon Standards, to be published by the Oregon Department of Education.

- 3/25/01 – "Understanding and Teaching Scientific Inquiry: An Evaluation Study of a Statewide Professional Development Program"; presented at the National Association for Research in Science Teaching annual conference, St. Louis, MO.
- 2/24/01 – "Oregon Science Education Council's Recommendations for the Science Preparation of Teachers", Oregon Academy of Science Annual Meeting, University of Portland.
- 1/8/01 – Presentation to the Association of Educators of Teachers of Science Annual Convention "Just in time: An alternative pathway to teaching science (APT)", Akron, Ohio.
- 1/7/01 – Presentation to the Association of Educators of Teachers of Science Annual Convention "Shedding Light on Science Video Workshops", Akron, Ohio.
- 10/13/00 – "Discrepant Events for K-12 Science", presented at the Oregon Science Teachers Association annual conference, Newport, Oregon.
- 8/1/00 – Presentation of "Reasons for Seasons: Probing for Misconceptions" at Professional Development: Teacher Enhancement for Achievement in Mathematics Institute.
- 6/13-15/00 – Worked with OCEPT Management Team to plan, facilitate and present at OCEPT Showcase 2000
- 5/24/00 – Presentation at Pre-Education Advising Workshop: "Using the Advising Guide for Prospective Teachers", Portland Community College Cascade Campus.
- 3/15/00 – Presentation to National Science Foundation: "OCEPT at Year Three: Plans for Institutionalization", Washington, DC.
- 2/26/00 – Presentation to the Oregon Academy of Science Annual Conference: "Natural Science Peer Tutor and Mentor Training at Pacific University".
- 12/13/99 – Invited Paper at the annual meeting of the American Optometric Association: "Instruction and Assessment Strategies for Active Learning"; Seattle, WA.
- 12/9/99 – Presentation to the Oregon Department of Education Science Leadership Cadre workshop: "Modified Strategies to Promote Curriculum Alignment".
- 12/1/99 – Invited presentation to AmeriCorps for teacher recruitment: "Engaging Strategies for Teaching Mathematics and Science".
- 11/20/99 – Presentation to the OCEPT National Visiting Committee on the status of the Advising Guide, Pre-Education programs and the activities of the Teacher Education Mentor Team.
- 10/22/99 – Presentation at Pacific University Faculty Forum: "Project-Based Learning Strategies in Professional School Curricula".

- 10/9/99 – "The Administrator's Role in Standards-Based Science Teaching", Science Summit, Hood River, Oregon
- 10/8/99 – "The Development of a K-12 Science Curriculum Framework", Oregon Science Teachers Association Annual meeting, Hood River, Oregon
- 9/25/99 – "Teacher Preparation Issues", *The Transitions Institute*, Seven-College Consortium, University of Portland. (Invited)
- 8/17/99 – "Instructional Alignment for Standards-Based Teaching", Science Professional Development Institute, The Dalles, Oregon
- 8/5/99 – "The Relation Between Confidence and Academic Achievement: A Comparison by Sex and Method of Instruction"; invited speaker in Symposium on Capacitor-Aided System for Teaching and Learning Electricity, American Association of Physics Teachers Meeting, San Antonio
- 7/29/99 – "Misconceptions Research: *A Private Universe*", presentation to the Oregon Collaborative for Excellence in Preparation of Teaching Fellows.
- 6/26/99 – "Models of Effective Staff Development", Science Leadership Institute, Newport, Oregon
- 6/24/99 – "Project 2061 Instructional Alignment Procedures", Science Leadership Institute, Newport, Oregon
- 5/18/99 – "Education in the Next Millenium", presented to the Kiwanis Club Annual Awards Banquet, Hillsboro, Oregon
- 5/7/99 – Facilitator for Project Kaleidoscope "K-16 Connections" workshop, George Fox University, and presenter: "Standards-Based K-12 Education in Oregon" and "Early Field Experiences for Service Learning in Science Content Classrooms"
- 4/2/99 – "Project 2061 Curriculum Alignment Procedures", presented to the Science Standards Professional Development Planning and Product-Development Group, Oregon Department of Education, Salem
- 3/5/99 – Conference Planner for the Oregon Association of Teacher Educators Annual Meeting; presented.
- 3/3/99 – "Mathematics Results from the Third International Mathematics and Science Study", Pacific University Sigma Xi Chapter
- 2/27/99 – "Recruiting for Excellence Among Oregon's Mathematics, Science and Elementary Teachers", Oregon Academy of Science Annual Meeting, Willamette University.
- 1/6/99 – "Do Students Learn What we Teach? Thoughts on Assessment and Instruction", Professional Development Conference, Pacific University College of Optometry (invited).

- 11/13/98 – "The Oregon Collaborative for Excellence in the Preparation of Teachers", poster session at the Sigma Xi International Conference, Vancouver, British Columbia.
- 10/9/98 – "The TIMSS Study - So What?" and "Beyond the Splintered Vision", Oregon Science Teachers Association Annual Meeting, Hillsboro, Oregon
- 7/ 20/98 – "The Third International Science and Mathematics Study: Implications for Higher Education"; Oregon Collaborative for Excellence in Preparation of Teachers Institute, Central Oregon Community College
- 4/21/98 - "The Relation between Academic Achievement and Self-Efficacy: A Comparison by Sex and Method of Instruction"; National Ass'n for Research in Science Teaching annual conference, San Diego, CA.
- 4/18/98 – "Coordinating School-based Field Experiences with College Science Courses", joint meeting of the American Association. of Physics Teachers/Oregon Section and OR Collaborative for Excellence in Preparation of Teachers
- 4/18/98 – "Shortchanging Girls, Shortchanging America", Soar With Your Dreams conference for middle school girls, Forest Grove, OR.
- 1/4/98 - "The Relation between Academic Achievement and Confidence: A Comparison by Sex and Method of Instruction", American Association of Physics Teachers annual meeting, New Orleans, LA.
- 11/19/97 – "EDUCOM'97 and OCEPT", presentation as part of the Pacific University Faculty Forum series.
- 10/28/97 - "The Eisenhower National Clearinghouse: A Virtual Resource"; EDUCOM'97, Minneapolis, MN.
- 9/19/97 – "Eisenhower National Clearinghouse Access Sites – How they Benefit Teachers", Integrating Technology into the Teacher Education Curriculum: Issues and Ideas conference sponsored by NWREL
- 9/26/98 – "Using the AAAS Project 2061 Curriculum Analysis Procedure", workshop for Gaston School District elementary and science teachers, Gaston, OR.
- 3/5/97 - "Shortchanging Girls, Shortchanging America"; presentation to the Math/Science/Technology Conference for Middle School Girls, NW Regional Education Service District.
- 3/8/97 - "Research on Misconceptions in Physics: Comparison of CASTLE Classrooms and Traditional Teaching of Electricity", OR AAPT Section, Lewis & Clark College, Portland, OR.
- 12/10/96 - Presentation on Eisenhower National Clearinghouse to OR State Advisory Board of the Science-Mathematics Consortium for NorthWest Schools, Charbonneau, OR.

- 11/8/96 - "Electricity Visualized", Virginia State Science Teachers Annual Conference, Roanoke, VA.
- 11/9/96 - "Metric Literacy for All", Virginia State Science Teachers Annual Conference, Roanoke, VA.
- 8/26/96 - Pacific University Pre-School Retreat: "Multiple Intelligences, Concept Attainment and the New American Lecture".
- 7/17-19/96 - "Training in the CASTLE Curriculum", presented to the Comprehensive Concepts & Curriculum in Physics group, Univ. of Dallas.
- 7/1-3/96 - "Modeling Instruction: the CASTLE Approach"; program offered at University of Arizona, Tempe. (Invited)
- 6/25-27/96 - Workshop in Tillamook, OR: "Technology Across the Curriculum".
- 3/16/96 - "Developing Girls' Interest, Confidence and Achievement in Science, Mathematics and Technology: Programs Designed to Bring Girls into High Risk Educational Endeavors", annual American Women in Psychology Conference, Portland, OR.
- 10/14/95 - "Science in the Real World: Metallurgy" presentation on the steel-making industry for Oregon Science Teachers Association Annual Meeting, including steel mill tour.
- 9/9/95 - "The Impact of the NCTM Standards" at the Teachers of Teachers of Mathematics (TOTOM) Annual Meeting, Eugene, OR.
- 8/95 - Coordinated and taught two-week workshop (Eisenhower grant): "Teachers as Leaders: Mathematics, Science and Technology for Elementary Teachers".
- 6/95 - Coordinated and taught a CASTLE Teacher Training Workshop at Pacific University (June 29 - 3, 1995).
- 6/95 - Coordinated and taught a CASTLE Teacher Training Workshop in Willmar, Minnesota (June 21 - 23, 1995).
- 5/5/95 - "PASS: Portfolio Admissions Selection System", presented as part of the Invitational Conference on Assessment, Pacific University.
- 4/22/95 - Directed and coordinated a Mathematics Symposium for high school and college math instructors at Pacific University. Presented a session on "PASS: Portfolio Admissions Selection System".
- 3/31/95 - Pacific University TLT Roundtable presentation: "Strategies for Improving Undergraduate Teaching with Technology."
- 2/25/95 - Multimedia presentation for the Oregon Academy of Science annual meeting: "CASTLE and the NDN".

- 2/12/95 - Multimedia presentation: "The CASTLE Teacher Training Project"; annual US Dept. of Education NDN National Conference, Washington, DC.
- 10/14/94 - "A Modest Proposal: Metric Literacy for All", National Science Teachers Association Annual Meeting, Portland, Oregon.
- 10/5/94 - President's Lecture: "Education with a Capital E", a multimedia presentation focused on school reform and impacts on higher education.
- 8/22/94 - *Technology in Support of Teaching and Learning at Pacific* (with other A&S faculty presenters) for Pacific University Pre-School Conference.
- 4/23/94 - "Mathematics Symposium for High School and College Teachers", Pacific University (Coordinator and presenter)
- 2/9/94 - "Research and Development of a Conceptual Physics Curriculum: the CASTLE Project", Sigma Xi, Pacific University.
- 12/3/93. Presentations to federal evaluator at PSU included an overview of the "ISMTE" grant and the "Enhancing Science, Mathematics & Technology Instruction for Elementary Teachers" grant.
- 9/17/93 - "Mathematics Education Through Interdisciplinary Teaching", Teachers of Teachers of Mathematics Fall Conference, Wallowa, Oregon.
- 8/9 - 8/19/93 - "Enhancing Science, Mathematics and Technology Instruction for Elementary Teachers" Workshop (Organizer and Presenter), Pacific University
- 8/6/93 - "Interdisciplinary Science/Mathematics/Technology Symposium" (Organizer and Presenter), Pacific University, Forest Grove, Oregon.
- 6/29 - 7/1/93 - "CASTLE Regional Training Workshop", Green River Community College, Auburn, Washington.
- 1/5/93 - Use of Model-Building in Physics Instruction", Jerusalem Physics Teachers Association, New Hebrew University, Jerusalem, Israel.
- 1/6/93 - "Interdisciplinary Science/Mathematics/Technology Education" UNESCO International Science Education Conference, Jerusalem, Israel.
- 11/3/92 - Authentic Teaching Through Teamwork, Partnerships and Integrated Programs - "Work Now and in the Future" Conference, Portland, Oregon.
- 10/15/92 - "Introduction to CASTLE", National Science Teachers Association Annual Meeting, Fort Worth, Texas.
- 10/9/92 - "Electricity Visualized", Oregon Science Teachers Association Conference.
- 10/1/92 - "Interdisciplinary Science/Mathematics/Technology Education -- Impact on Teaching Methods", Oregon Education Research Association.

6/30 - 7/2/92 - CASTLE Workshop Coordinator/Presenter, St. Paul, MN.

6/6/92 - CASTLE Workshop for "Mechanical Universe" Trainees, Dallas, Texas.

3/18/92 - "Choosing Software & Videodiscs", Dakota County Teachers Association.

1/4/92 - "CASTLE Teacher Training Workshop", AAPT Annual Conference, Orlando, Florida.

12/4/91 - "Technology in Science Education", workshop for Metro ECSU.

9/28/91 - "CASTLE Project Workshop", State Physics Teachers, St. Paul, Minnesota.

6/24/91 - "Electricity for the Right Side of the Brain", AAPT Annual Conference, University of British Columbia, Vancouver, B.C.

4/13/91 - "The CASTLE Project", Minn. Science Teachers Ass'n. Spring Conference.

11/17/90 - Coordinated "Steel in Society" teacher workshop and tour of North Star Steel Mill, Minn.; presented metallurgy curriculum and resource materials.

6/27/90 - "Physics Devices & Demos", Poster Session, AAPT Summer Conference.

5/8/90 - "Humor in Chemistry", Minnesota Chemistry Teachers Association.

4/20/90 - Coordinated NSP Nuclear Power Plant Tour for Minnesota Science Teachers Association Spring Conference.

3/17/90 - "High-Tech Workshop" for SW-ECSU Teachers, Slayton, Minnesota.

2/16/90 - "Science Cracker-barrel" Chair, Minnesota Ass'n. of Independent Schools.

10/20/89 - "High Tech Demos", Fall MSTA meeting, Minneapolis, MN.

10/20/89 - "Demos and Motivators from ChemEd '89", MSTA Fall Conference.

8/16/89 - "The Lighter Side of Chemistry", ChemEd '89, Kingston, Ontario.

8/15/89 - "Chemistry Demos Stolen from Physics Teachers", ChemEd '89.

7/28/89 - "Technology in Science Teaching", Workshop on Educational Technology, Hamline University, St. Paul, MN.

4/22/89 - "Inexpensive Computer Interfacing", MSTA Spring Conference.

2/4/89 - Workshop: "Demonstrations and Motivators", Minnesota Physical Science Teachers Association, Mounds Park Academy, St. Paul, MN.

10/21/88 - "LASERS - Not for Physics Only!", MSTA Annual Conference.

1/26/88 - "Student-Developed Software for Vector Analysis", PTRM Meeting, Univ. of Maryland.

2/6/88 - "A Music Machine: Keyboards and Oscilloscopes", Go4St8 Physics Meeting.

4/23/88 - "High Tech Workshop -- Videodiscs", MSTA Spring Conference.

4/23/88 - "String and Sticky Tape Workshop", MSTA Spring Conference.

11/14/87 - "Experimental Determination of Planck's Constant", Area Chemistry Teachers Meeting, Minneapolis, MN.

2/28/87 - "Microcomputer Laboratory Interfacing", Community College Workshop.

4/28/86 - "Research on Computers in Science Learning", NARST, San Francisco.

3/3/86 - "Interfacing the Computer", University of Minnesota (Guest Lecturer).

5/21-24/85 - Colleges of Mid-America Science Workshop Coordinator/Instructor, Central Iowa State College.

4/27/85 - "Effectiveness of a CAI Package", Minnesota Academy of Science, St. Paul.

4/16/85 - "Research on the Effectiveness of CAI in Science Teaching", NARST Annual Conference, French Lick, Indiana.

3/30/85 - "Make and Take Workshop for Technology in Science", MSTA Workshop

3/15/85 - "Use of Computers in Secondary Science", OIS Workshop, Duluth, MN.

7/1/84 - "Microcomputer Applications in Science Classrooms" Univ. of St. Thomas

3/26/84 - "Exemplary Science Software", Mankato Secondary Science Teachers.

10/21/83 - "The One-Computer Science Classroom", MSTA Fall Meeting.

5/6/83 - "Automated Data Collection and Manipulation", MECC Workshop.

COURSES TAUGHT

Graduate courses taught each year:

Mathematics/Science/Health Methods for Early Childhood/Elementary Teachers
 Mathematics/Science/Health Methods for Elementary/Middle School Teachers
 Special Methods: Secondary Science
 Educational Research Project (Research Project Advising)

Graduate courses taught occasionally:

Special Methods: Integrated Mathematics and Science for Secondary Teachers
 Introduction to School and Society
 Technology Across the Curriculum
 Methodology for Middle School Teachers

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PROFESSIONAL AFFILIATIONS

- ◆ Association of Science Teacher Educators
- ◆ American Association of Physics Teachers
- ◆ American Association of University Professors
- ◆ National Association for Research in Science Teaching
- ◆ National Council of Teachers of Mathematics
- ◆ National Science Teachers Association
- ◆ Oregon Association of Colleges of Teacher Education
- ◆ Oregon Council of Teachers of Mathematics
- ◆ Oregon Science Education Council
- ◆ Oregon Science Teachers Association
- ◆ Sigma Xi National Scientific Research Association
- ◆ Teachers of Teachers of Mathematics (Oregon)
- ◆ Teachers of Teachers of Science (Oregon)