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Physics Education Group
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EDUCATION

University of Maryland at College Park (UMD).

M.S. in Physics, December 1991

Ph.D. in Physics, May 1998, Advisor: Prof. Edward. F. Redish

Dissertation Title: *Beyond Problem Solving: Evaluating Introductory Physics Courses Through the Hidden Curriculum*

University of California at Irvine (UCI).

B.S. in Physics, Concentration in Applied Physics, June 1986.

United States Coast Guard Academy

Physics major, transferred without degree, 1979-1981.

PHYSICS EDUCATION RESEARCH EXPERIENCE

Assistant Professor of Physics, UCF (Fall 2000 - present)

Director and founder of the University of Central Florida Physics Education Group. The group conducts a coordinated program of research, curriculum development, and instruction to improve the teaching and learning of physics. Main projects include assessment of student learning in introductory physics classes, developing and implementing innovative activity-based physics curricula, and devising curricula to prepare K-12 teachers to use technology and inquiry to meet the NRC National Science Standards. The group is working on the Student Centered Activities for Large Enrollment Undergraduate Programs (SCALE-UP) project with the NC State Physics Education R & D group as a second research and development site. Responsibilities include overseeing adoption of the SCALE-UP curriculum in introductory chemistry and physics classes at nine diverse colleges and universities.

Postdoctoral Research Associate, NCSU (Summer 1998-Summer 2000)

Primary responsibilities include developing, evaluating and disseminating curriculum materials for the SCALE-UP project with Prof. R.J. Beichner and running day-to-day operations of the Physics Education Research & Development Group at North Carolina State University (NCSU). The latter responsibilities include supervising graduate and undergraduate students, organizing group meeting and seminars, setting up research space, and organizing a journal club.

Teaching/Research Assistant, UMD (Fall 1993-Spring 1998)

Founding member and 1st graduate student of the Physics Education Research Group at UMD, under advisor, Prof. Edward F. Redish. Research projects include:

Maryland Physics Expectations (MPEX) Project

Studies have shown that students' epistemological beliefs and attitudes (expectations) can have a profound effect of what and how students learn in classes. The goal of this project was two-fold. One goal was to determine what role expectations play in student learning in introductory physics classes. The second goal was to develop a survey to assess students' expectations to see what the students are like coming into the class and also how their expectations change by the end of the class. This study used survey data taken from introductory courses for non-majors at 15 institutions with different course formats, interviews with students at 5 of the institutions to verify the survey data, and careful examination of written students work at UMD. This project was part of my Ph.D. dissertation.

Implementing and Evaluating Research-Based Curricula

In Fall 1993 Professor Redish returned to UMD from sabbatical at the University of Washington (UW) and began implementing the *Tutorials in Introductory Physics* curriculum (see *Physics 121, 161, 262, & 263* below) that was developed there to replace discussion sections. The *Tutorials* involve groups of three or four students working on a guided conceptual worksheet to enhance conceptual understanding. My responsibilities included teaching tutorial sections, being head TA running tutorial sections for two lecture courses simultaneously, analyzing students' pretests (conceptual quizzes) for student misconceptions, and writing five tutorials using microcomputer-based laboratory (MBL) tools and group problem solving ideas from the physics education research literature. The curriculum was evaluated using multiple-choice concept tests such as the Force Concept Inventory (FCI), specially written exam questions, and interviews. Pre & post FCI results from matched data were analyzed from both tutorial & non-tutorial classes. In addition, I looked at comparable data from classes taught with traditional and other researched-based curricula (*Workshop Physics* and *Cooperative Group Problem Solving*) at eight other colleges and universities. This project was part of my Ph.D. dissertation.

UNIVERSITY/COLLEGE TEACHING EXPERIENCE

Assistant Professor of Physics, UCF (Fall 2000-present)

Teaching lecture and laboratory sections of the university physics sequence for engineers. Innovations include introducing web-based homework (WebAssign) and in-class group activities in lecture. Teaching responsibilities include TA preparation workshops before and during the academic year.

Visiting Faculty, NCSU (Fall 1998 - present)

Taught or co-taught four semesters in a one year introductory physics sequence for engineering majors and one semester of an introductory stellar astronomy classes. Three semesters of the introductory physics sequence were taught as part of the SCALE-UP project (discussed above). My

responsibilities as lead instructor for two semesters in the SCALE-UP class include supervising graduate TAs who assist with equipment set-up, teaching, and grading and developing group activities. Course activities include adaptations of *Tutorials in Introductory Physics*, *Cooperative-Group Problem Solving*, and peer evaluation of lab conclusions. The SCALE-UP students have access in class to a laptop connected to the internet and do most of their homework on WebAssign (a web-based homework system).

Teaching Assistant, UMD (Spring 1998, Spring 1994-Fall 1996, Fall 1986-Spring 1989)
UMD Physics and Astronomy Department introductory courses including:

ACTIVE LEARNING WITH COOPERATIVE GROUPS:

Physics 121, one semester algebra/trig-based general physics course for non-majors. Responsibilities included teaching *Tutorials* (see research projects at UMD) & laboratory sections and grading assigned problems & lab reports as well as facilitating group problem solving in lecture. This experimental section emphasized conceptual understanding, problem solving, and linking physics to the real world. (1 semester)

Physics 117 (Co-Instructor), one semester course for pre-service elementary school teachers. Responsibilities include planning classes, leading class discussions, Socratic questioning, and grading. All responsibilities were shared with a Co-Instructor. All laboratory class where students learn from hands-on laboratory activities and class discussions with no textbook. Instructors question students both in groups and as a class to help build and extend student understanding. Laboratory exercises use MBL experiments and simple tabletop experiments. (1 semester)

Physics 161, 262, & 263, three-semester calculus-based introductory physics course for engineering students. Responsibilities include teaching *Tutorials*, grading homework, and grading exams. The *Tutorials* emphasize conceptual understanding and linking physics to the real world. (6 semesters)

TRADITIONAL INSTRUCTION:

Physics 121-122, algebra-based general physics course for non-majors. Responsibilities included teaching discussion and laboratory sections & grading assigned problems, lab reports, and exams. Emphasized having the students write coherent conclusions in lab reports which summarized what the students were trying to do, the results they determined, and why the result was reasonable. (3 semesters)

Astronomy 110, non-major astronomy laboratory class using computer simulations and direct observations in addition to bench top experiments. Responsibilities included teaching and grading all aspects of laboratory course. (2 semesters)

Physics 263A, third semester laboratory course for engineering majors with emphasis on electricity and magnetism. Responsibilities included teaching and grading all aspects of the laboratory course. (1 semester)

Adjunct Faculty, PGCC & Montgomery College (September 1993 - Spring 1997)

Sole instructor for five algebra/trig based introductory physics courses for non-majors at both Prince Georges Community College & Montgomery College. Responsibilities included teaching lectures, discussion sections and laboratories for all five classes. My last course field-tested the *Tools for Scientific Thinking* labs for the calculator-based laboratory interface and *Tutorials in Introductory Physics*.

Physics Instructor, University of Washington at Seattle (Summer 1995)

Team taught intensive six-week “Physics by Inquiry” course for in-service high school science and math teachers with Lillian McDermott’s Physics Education Group at the University of Washington, Seattle under Greg Francis. Course emphasizes having students build understanding from firsthand experience with classroom activities.

PHYSICS OUTREACH PROGRAMS & TUTORING

Physics is Phun Volunteer, UMD (Fall 1986-Spring 1998)

This is a demonstration lecture program opened to community by the physics department. High school physics students are particularly encouraged to attend the four shows Professor Richard Berg and the UMD lecture demonstration facility put on each year. Volunteers run hands-on demonstrations for the crowd before the main lecture.

Faculty Physics Tutor, PGCC (Spring 1994 - Spring 1996)

Individual and group physics tutor for all physics classes at Prince George Community College tutoring service. Charles Hansborough, Director.

Physics Instructor, Montgomery College (Summer 1994)

Sole physics instructor for Science Alive Program at Montgomery College. This is a two week program in chemistry and physics for 7-8 year olds sponsored by the Office of Continuing Education. Designed and taught two sections of a hands-on physics laboratory course around a theme of energy including guest speakers and field trips.

Private Physics Tutor, UMD (September 1989 - September 1994)

Private tutoring for introductory physics and related classes for non-majors. Mainly one year algebra/trig-based physics course at UMD.

Physics Instructor, UMD (Summer 1991)

Academic Champions of Excellence (ACE) summer program, UMD. Human Resources Department, College of Education, UMD. Physics Program Coordinator: Dr. Richard Berg.

- Head Instructor (supervised 5 assistant instructors) of 10th grade section for 5 week program.
- Developed hands-on laboratory curriculum to teach basic physics through resonance and wave experiments including use of oscilloscopes and synthesizers.

Tutor, UCI (Fall 1981 - Spring 1983)

Group tutor for UC Irvine Tutorial Assistance Program. Tutored groups in lower division Physics and first year calculus.

PHYSICS RESEARCH EXPERIENCE

Graduate Research Assistantship (January 1993 - July 1993)

University of Maryland Laboratory for Plasma Research with Prof. Fred Skiff. Bench testing of microwave plasma diagnostic and integrating digital data acquisition system using GPIB interface to connect PC to CAMAC transient recorders.

Graduate Research Assistantship (January 1991 - October 1992)

University of Maryland Condensed Matter Group with Prof. Bhagat. Research into DC magnetic properties of High Temperature Superconductors using a Faraday balance.

Graduate Research Assistantship (July 1989 - December 1990)

NASA Goddard Spaceflight Center Laboratory for High Energy Astrophysics. Instrument development including calibration of radiation detectors, developing coincidence trigger, signal analysis, and electronics trouble shooting.

Laboratory Assistant (May 1985 - June 1986)

University of California, Irvine Beam Physics Group with Dr. Hiroshima Ishizuka. Experimental development and computer modeling of Stelatron Accelerator to obtain 1 Kamp 10 MeV electron beam.

RELATED EXPERIENCE

Summer Orientation Counselor (1982 - 1984)

Student Services, UC Irvine. Live-in counselor for weekend and week long orientation programs for incoming students and their parents.

Peer Academic Advisor (Summer 1982)

Undergraduate Studies Office, UC Irvine. Advised students without a declared major on developing their academic program and their class schedules.

COMPUTER SKILLS

Extensive Experience with:

DOS/Windows & Windows 95/98 Operating Systems

Word Processors (*Word* and *Word Perfect*)

Spreadsheets (*Quattro Pro*, *Excel*, and *Lotus 1-2-3*)

Interactive Physics

VideoPoint

EM Fields physics simulation software

WebAssign web-based homework system

Calculator Based Laboratory (CBL) with motion detectors and TI-82 calculators

Microcomputer-based laboratory interfaces from PASCO & Vernier with motion detectors, force probes, and temperature probes

Data Logger & Logger Pro (Software for Vernier ULI interface)

DataStudio (Software for PASCO Interface)

PROFESSIONAL AFFILIATIONS

American Association of Physics Teachers

American Physical Society

National Association of Research in Science Teaching

American Society for Engineering Education

American Association for the Advancement of Science

Board member of the Florida Higher Education Consortium for Mathematics and Science

PROFESSIONAL SERVICE & AWARDS

Best Paper Award at ASEE 2000 Conference, Professional Interest Council IV

Co-PI on SCALE-UP Dissemination Grant from DOE FIPSE, 2000-2003

UCF Undergraduate Physics Committee

AAPT Session Organizer and Presider

Referee for *Physics Education Research Supplement to Am. J. Physics*

Physics textbook proposal reviewer for W.H. Freeman

Consultant for NSF laboratory development project at Duke University, 1999-2000.

Outside evaluator for FIPSE *Workshop Physics* dissemination project, 1995-1998

Vice President, Physics Graduate Student Association, UMD, 1989-1990.

Graduate Student Advisor, Society of Physics Students, UMD, 1986-1990.

Physics Representative to Graduate Student Assembly, UMD, 1986-1988.

Co-President, Society of Physics Students, UC Irvine, 1984-1985.

Outstanding Chapter Award from national SPS, 1985

Best Academic Club at UCI, 1985

PUBLICATIONS AND PRESENTATIONS

Books and Chapters

R. McGrew, J. Saul, and C. Teague, *Instructor's Manual with Solutions* for R.A. Serway and R.J. Beichner, *Physics for Scientists and Engineers*, 5th Ed. (Saunders College Publishing, Philadelphia PA, 2000).

R. Serway, J. Saul, and R. Allain, *Hints, Tips and Problems for Teaching Calculus-based Physics* (Saunders College Publishing, Philadelphia PA, 2000).

R.J. Beichner and J.M. Saul, "Assessment" in E.F. Redish (ed.), *Introduction to Physics Education Research*, in progress (to be completed Spring 2002).

Published Papers in Refereed Journals & Conference Proceedings

D.S. Abbott, J.M. Saul, G.W. Parker, and R.J. Beichner, "Can one lab make a difference?," *Physics Education Research Supplement to Am. J. Phys.*, accepted for publication (April 2000).

J.M. Saul, D.S. Abbott, R.J. Allain, D.L. Deardorff, and R.J. Beichner, "Evaluating introductory physics classes in light of the ABET criteria: An example from the SCALE-UP project," accepted for publication in the *Proc. of the 2000 meeting of the American Society for Engineering Education*, Winner of the ASEE 2000 Best Paper Award for Professional Interest Council IV.

R.J. Beichner J.M. Saul, , R.J. Allain, D.L. Deardorff, and D.S. Abbott, "Introduction to SCALE-UP: Student Centered Activities for Large Enrollment University Physics," accepted for publication in the *Proc. of the 2000 meeting of the American Society for Engineering Education*.

R.J. Beichner J.M. Saul, , R.J. Allain, D.L. Deardorff, and D.S. Abbott, "Promoting collaborative groups in large enrollment classes," accepted for publication in the *Proc. of the 2000 meeting of the American Society for Engineering Education*.

E.F. Redish, J.M. Saul, and R.N. Steinberg, "Student Expectations in Introductory Physics," *Am. J. Phys.* **66** (3), 212-224 (1998).

E.F. Redish, J.M. Saul, and R.N. Steinberg, "On the effectiveness of active-engagement microcomputer-based laboratories," *Am. J. Phys.* **65** (1), 45-54 (1997).

J. Saul, M.X. Huang, and S.M. Bhagat, "Evaporation of trapped fluxons from micron sized powders of Bi-2223 CuO superconductors," *Solid State Communications* **92** (7), 553-557 (1994).

Papers in Preparation

R. J. Beichner, J.M. Saul, D.S. Abbott, D.L. Deardorff, R.J. Allain, S.W. Bonham, J. Morse, and J. Risley, "The Student Centered Activities for Large Enrollment Undergraduate Programs (SCALE-UP) project. Part I: Incorporating active learning in large classes", to be submitted to the *Am. J. Phys.* in Spring 2001.

J.M. Saul, R.J. Beichner, D.S. Abbott, R.J. Allain, D.L. Deardorff, S.W. Bonham, J. Morse. And J.S. Risley, "The Student Centered Activities for Large Enrollment Undergraduate Programs

(SCALE-UP) project. Part II: Objectives, outcomes, and learning what works,” to be submitted to *Am. J. Phys* in Spring 2001.

J.M. Saul and E.F. Redish, “Evaluating the effectiveness of introductory physics instruction at undergraduate institutions adopting the Workshop Physics curriculum,” to be submitted to *Physics Education Research Supplement to Am. J. Phys.* in Spring 2001.

J.M. Saul and E.F. Redish, “Epistemological beliefs of Workshop Physics Students,” to be submitted to *J. Res. Sci. Teach.* in Summer 2001.

Invited Papers Presented at Conferences

J.M. Saul, “Using technology to create an active learning environment for large introductory physics classes: The SCALE-UP project,” Dell Compute sponsored Campus One: Summit on Campus Computing Initiatives (proceeding available from <http://www.dell.com/hied/CampusOne>) at University of Central Florida, Orlando FL, February 1-2, 2001.

J.M. Saul, “Active learning in large classes: Lessons from the SCALE-UP project,” *AAPT Announcer* **30** (2), 132 (2000).

J.M. Saul, “Teaching Assistant Preparation: The Graduate Student Perspective,” *AAPT Announcer* **26** (4), 68 (1996).

E.F. Redish, R.N. Steinberg, and J.M. Saul, “The Distribution and Change of Student Expectations in Introductory Physics,” in *AIP Conf. Proc. No. 399: The Changing Role of Physics Departments in Modern Universities: Proceedings of the International Conference on Undergraduate Physics Education*, edited by E.F. Redish and J.S. Rigden (AIP, Woodbury NY, 1997).

Seminars and Colloquia

“Physics Education Research at the University of Central Florida: A Mechanism for change,” after dinner talk to the Florida Section of the AAPT at St. Petersburg Junior College, Palm Harbor FL, October 6, 2000.

“Active learning in large classes: Lessons from the SCALE-UP project,” in special seminar to PASCO Scientific Roseville CA, September 1, 2000.

“Creating an active-learning environment in large classes: Lessons from the SCALE-UP Project,” in special seminar to the Physics Department at the United State Naval Academy, Annapolis MD, April 13, 2000.

“Student Centered Activities for Large Enrollment University Physics: The SCALE-UP Project,” in colloquium to the Physics Department at the University of Central Florida, Orlando FL, April 6, 2000

“What Physic Education Research can tell us about teaching introductory physics,” as TA seminar to the Physics Department at Western Maryland College, Westminster MD, March 31, 2000.

“Introduction to SCALE-UP: Student-Centered Activities for Large Enrollment University Physics,” in seminar to the Department of Physics and Astronomy at Rutgers, the State University of New Jersey, New Brunswick NJ, March 1, 2000.

“Assessment, Physics Education Research, and ABET 2000,” in seminar to the Department of Aeronautics & Astronautics at the Massachusetts Institute of Technology, Cambridge MA, February 1, 2000.

“The role of the hidden curriculum or what physics education research can teach us about the introductory physics course,” in colloquium presented at Duke University, Durham NC, August 27, 1998.

“Beyond Problem Solving: The Role of the Hidden Curriculum in Introductory Physics Courses,” presented at following institutions:

- colloquium to the Physics Department at University of Missouri-Kansas City, April 23, 1998.
- seminar to the Physics Department at Salisbury State University, Salisbury MD, April 3, 1998.
- colloquium to the Physics Department at Bryn Mawr University, Bryn Mawr PA, April 1, 1998.
- colloquium to the Physics Department at Howard University, Washington DC, March 11, 1998
- seminar to the Physics Education Research & Development group at North Carolina State University, Raleigh NC, March 4, 1998.
- colloquium to the Physics Department at Washington State University, Pullman WA, February 26, 1998.

“Student Expectations in Introductory Physics,” in seminar to the physics education group at University of Washington, Seattle WA, July 26, 1995.

“The Distribution of Student Expectations and Attitudes in Introductory University Physics,” in seminar to the physics education group at the Ohio State University, Columbus OH, March 6, 1995.

Contributed Papers Presented at Conferences

E. Dick and J.M. Saul, “Comparing microcomputer-based laboratory interfaces: Vernier vs. PASCO,” Florida Section Meeting of the AAPT, Central Florida Community College, Ocala FL, April 2001.

J. Saul, R.J. Beichner, D.S. Abbott, D.L. Deardorff, and R.J. Allain, “Adapting research-based collaborative-learning activities for the SCALE-UP curriculum,” North Carolina Section Meeting of the AAPT, Davidson College, Davidson NC, March 2000.

J. Saul, R.J. Beichner, D.S. Abbott, D.L. Deardorff, and R.J. Allain, “Adapting research-based collaborative-learning activities for the SCALE-UP curriculum,” *AAPT Announcer* 29 (4), 82 (1999).

A.K. Hodari, B. Hufnagel, and J. Saul, “Student cognitive expectations in non-traditional settings,” *AAPT Announcer* 29 (4), 78 (1999).

J.M. Saul and E.F. Redish, “A comparison of pre and post FCI results for innovative and traditional introductory calculus-based physics classes,” *Bulletin of the APS: Program of the 66th Annual SE Section Meeting of the APS* 44 (6), 37 (1999).

D. Abbott, G. Parker, J. Saul, and R. Beichner, "Can one lab make a difference?," *Bulletin of the APS: Program of the 66th Annual SE Section Meeting of the APS* **44** (6), 38 (1999).

J.M. Saul, "Incorporating education research into large introductory physics classes: The SCALE-UP Project," poster presented at the FIPSE Project Directors Meeting in Washington D.C., October 1999.

J.M. Saul, D.S. Abbott, R.J. Allain, M.H. Dancy, and D.L. Deardorff, "Evaluation of PER-based group activities in large lecture classes: Lessons from the SCALE-UP Project," *AAPT Announcer* **29** (2), 112 (1999).

J.M. Saul and E.F. Redish, "Issues in secondary implementations of Workshop Physics," *AAPT Announcer* **28** (4), 81 (1998)

D.S. Abbott, R.J. Beichner, J.S. Risley, J.M. Saul, and R.H. Allain, "A progress report on the Student Centered Activities for Large Enrollment University Physics (SCALE-UP Project) at North Carolina State," *AAPT Announcer* **28** (4), 90 (1998).

J.M. Saul and E.F. Redish, "A comparison of pre- and post-FCI results for innovative and traditional introductory calculus-based physics classes," *AAPT Announcer* **28** (2), 80-81 (1998).

A.K. Hodari, J.M. Saul, and E.F. Redish, "Factors affecting the drop-out rate of female engineering students," *AAPT Announcer* **28** (2), 100 (1998).

J.M. Saul, R.N. Steinberg, and E.F. Redish, "Are reform physics curricula worth the effort? An evaluation of pre/post FCI and expectation survey results," presented to the Chesapeake Section of the AAPT, November 8, 1997.

J.M. Saul, R.N. Steinberg, and E.F. Redish, "Student expectations, Workshop Physics, and the MPEX survey," *AAPT Announcer* **27** (2), 77 (1997). (Presented by E. F. Redish)

J.M. Saul, R.N. Steinberg, and E.F. Redish, "A comparison of student expectations in introductory calculus-based physics courses," *AAPT Announcer* **26** (2), 98 (1996).

E.F. Redish, R.N. Steinberg, and J.M. Saul, "Student difficulties with math in physics: Giving meaning to symbols," *AAPT Announcer* **26** (2), 70 (1996).

J.M. Saul, R.N. Steinberg, and M.C. Wittmann, "Student difficulties with math in physics: Why can't students apply what they learn in math class?," *AAPT Announcer* **26** (2), 70 (1996). (Presented by R.N. Steinberg)

E.F. Redish and J. Saul, "How much MBL do you need to get good results?" *AAPT Announcer* **25** (2), 71 (1995). (Presented by J. Saul)

J. Saul and E.F. Redish, "Evaluation of student expectations in introductory university physics and development of the expectation survey," *AAPT Announcer* **25** (2), 59 (1995).

J. Saul, "The distribution of student expectations and attitudes in introductory university physics," *AAPT Announcer* **25** (2), 126 (1995). (presented at the Chesapeake section meeting of the AAPT April 8, 1995)

E.F. Redish and J. Saul, "The distribution of student expectations and attitudes in introductory university physics," *AAPT Announcer* **24** (4), 77 (1994). (Presented by J. Saul)

J. Saul and E.F. Redish, "Student misconceptions about waves on strings," *AAPT Announcer* **24** (4), 85 (1994). (Presented by E.F. Redish)

J. Saul and S.M. Bhagat, "Temperature dependencies of field induced magnetization in a concentrated spin glass and thermoremanent magnetization of micron sized powders of cuprate superconductors," *Bulletin of the APS* **37** (1), 119 (1992).

J. Means, S. Katal, J. Saul, H. Ishizuka, A. Fisher, and N. Rostoker, Characteristics of high current electron beams in the UCI stellatron," *Bulletin of the APS* **30** (9), 1582 (1985).

Workshops and Other Presentations

Using technology to Teach Introductory Physics, Poster presented at the 3rd Annual University of Central Florida Technology Showcase and Expo (April 3, 2001).

The Student Centered Activities for Large Enrollment Undergraduate Programs (SCALE-UP) Physics Curriculum, workshops given by Robert Beichner and Jeff Saul at the Winter and Summer National Meetings of the AAPT (Winter and Summer 2000-2001).

SCALE-UP for Adoptors, workshop given by Robert Beichner and Jeff Saul at North Carolina State University (December 15-16, 2000).

Student Centered Activities for Large Enrollment University Physics (SCALE-UP), poster given by Robert Beichner and Jeff Saul at the North Carolina State University Technology Exposition (September 1999).

Student Centered Activities for Large Enrollment University Physics (SCALE-UP), poster given by Jeff Saul and Duane Deardorff at the North Carolina State University Technology Exposition (September 1998).

An Active Learning Approach to Basic Geometric Optics invited sample class given at Joliet Junior College, Joliet IL, April 10, 1997.

Tutorials in Introductory Physics Sample Class given by Paula Heron, Karen Wosilait, and Jeff Saul at the Physics Department Chairs meeting sponsored by APS/AAPT (May 1997)

1996 Summer Seminar at Dickinson College: Teaching Introductory Physics Using Interactive Methods and Computers given by Patrick Cooney, John Garrett, Priscilla Laws, David Sokoloff, Ronald Thornton, Maxine Willis, and Jeff Saul (June 1996).

Integrating Video Analysis, MBL, and Spreadsheet Modeling by Priscilla Laws, Patrick Cooney, Curtis Hieggelke, Mark Luetzelschwab at the Summer Meeting of the AAPT (August 1995).

Electrostatics given by Robert Morse and Jeff Saul at the Summer Meeting of the AAPT (August 1995).

Beginning Spreadsheet Modeling given by Patrick Cooney and Edward F. Redish at the Winter Meeting of the AAPT (January 1994)