UNIVERSITY OF WASHINGTON

Teaching & Learning Symposium

SESSION ABSTRACTS

Tuesday, April 25th, 2006; Mary Gates Commons

Hosted by
The Faculty Council on Instructional Quality, The Scholarship of Teaching and Learning Forum, The Center for Engineering Learning and Teaching, The Teaching Academy, and The Center for Instructional Development and Research
### Table of Contents

**Introduction** .................................................................................................................................................. 4

**Enhancing Learning in the Classroom**

**Engaging Students**

It's Not Just Fun and Games: How the Use of Games and Team Activities can Decrease Anxiety and Increase Fun in a Language Learning Classroom ........................................................................ 5
Jennifer Evans - English (MATESOL), UW ELP

A Supplementary Instruction Model for Engaging Students in Active Learning and Enhancing Metacognition ............ 6
Brian Buchwitz, Clarissa Dirks - Biology

Using Active Learning to Improve Student Performance in a Large Lecture Class .............................................. 6
Scott Freeman, Mary Pat Wenderoth - Biology

Preparing Students for Group Assignments through Performance ................................................................. 7
Diane Gillespie, Sally Rosamond - Interdisciplinary Arts and Sciences, UW Bothell

The Limits of Disciplinary-Specific Metacognitive Learning Requiring Advanced Critical Thinking and Writing Skills: Rethinking the U.S. History Survey Course ..................................................... 7
Michael Goldberg - Interdisciplinary Arts and Sciences, UW Bothell

Center for the Advancement of Engineering Education Academic Pathways Study: A Longitudinal Mixed-Methods Study of Engineering Students’ Learning and Development in the College Years .......... 8
Deborah Kilgore, Cynthia J. Atman, Theresa Barker, Jenni Light, Jason Saleem, Ken Yasuhara - College of Engineering; Reed Stevens, Partia Sabin, Lari Garrison, Daniel Amos - College of Education

Learning by Experience: Exploring Fadiman’s The Spirit Catches You and You Fall Down ................................ 9
Jerelyn Resnick - UW Bothell Nursing Program

The Computer Science Gender Gap: Students at the Threshold ........................................................................ 9
Ken Yasuhara - Computer Science and Engineering

**Examining Teaching**

Discovering Our Values as Teachers Through Our Students ............................................................................ 10
Donald Chinn - Computing and Software Systems, UW Tacoma

Using Formative Evaluations as a Student-Centered Approach to Improving the Implementation of Problem-Based Learning Modules ............................................................................ 10
Kerryn Reding - Epidemiology

The Secret Life of Engineering Education Researchers ...................................................................................... 11
Ken Yasuhara - Computer Science and Engineering

Learning to be Teachers: The Engineering Teaching Portfolio Program ........................................................... 11
YiMin Huang, Jessica Yellin, Jennifer Turns - Center for Engineering Learning and Teaching, Center for the Advancement of Engineering Education
Teaching, Learning, and Technology

E-Portfolios in Introductory Comp: Enlarging Conceptions of Composing ......................................................... 12
Janice Fournier, Cara Lane, Steven Corbett - Catalyst Research and Development, English

Podcasting at the UW: An Evaluation of Current Use ................................................................. 12
Cara Lane - Catalyst Research and Development

Creating a Video Clip Resource to Enhance Linguistics Courses ................................................................. 13
Sharon Hargus, Steve Moran - Linguistics, Language Learning Center

Interactive Lectures with “Clickers” - They’re a HITT! ................................................................. 14
R. Daryl Pedigo - Physics

Using Video Traces ......................................................................................................................... 14
Reed Stevens - Cognitive Studies in Education

Teaching Across the Disciplines

Fostering a Climate for Collaborative Undergraduate Research ................................................................. 15
Amanda Hornby, David Goldstein, Gowri Shankar, Becky Rosenberg, Jerelyn Resnick - UWB/CCC Campus Library, Interdisciplinary Arts and Sciences, Business, Teaching and Learning Center, Writing Center, Nursing

The Common Book Project ......................................................................................................................... 15
Christine Ingebritsen - Undergraduate Education

Supporting the Development of Writing-Integrated Courses through the 4x4 Writing Initiative ................................................................. 16
John Webster, Amy Reddinger, and Jennie Dorman - College of Arts and Sciences, English, CIDR

An Experiment in Interdisciplinary Team Teaching: Urban Ecology ................................................................. 17
John Withey, Dave Oleyar, Adrienne Greve - College of Forest Resources, College of Architecture and Urban Planning

Students as Researchers

Urban Archives: Collaborating with Undergraduates in Researching the City ................................................................. 18
Irina Gendelman, Giorgia Aiello, Tom Dobrowolsky - Communication

The Pre-Major in Astronomy Program (Pre-MAP) ................................................................. 18
Daryl Haggard, Eric Agol, Marcel Agüeros, Kevin Covey, Nick Cowan, Eric Hilton - Astronomy

International Undergraduate Field Research: Training Chinese and American Students to be Working Researchers ................................................................. 19
Stevan Harrell - Anthropology, Burke Museum, UW Worldwide Program

How to Engage Advanced Undergraduate Physics Majors in a Research Project with an Outreach Component ................................................................. 19
R. Jeffrey Wilkes - Physics

Supporting materials for many of these sessions are archived at http://depts.washington.edu/sotl/2006/Symposium.html
The 2006 Teaching and Learning Symposium features the work of 52 Faculty and TAs, from 30 Departments and Programs on all three UW Campuses, who are actively engaged in examining teaching and learning in their disciplines. See what your UW colleagues have been discovering about teaching and learning.

3:00 p.m. – 3:15 p.m. Welcome and Introduction
Opening Remarks, UW Provost Phyllis Wise

3:15 p.m. – 4:30 p.m. Concurrent Poster Sessions

For more information about the Scholarship of Teaching and Learning, visit:
http://depts.washington.edu/sotl/
Enhancing Learning in the Classroom

Engaging Students

It's Not Just Fun and Games: How the Use of Games and Team Activities Can Decrease Anxiety and Increase Fun in a Language Learning Classroom.
Jennifer Evans - English (MATESOL), UW ELP

I'm always looking for ways to infuse my teaching with fun and variety. This is sometimes a difficult task when teaching subjects such as English grammar. What I wanted to do was create a collection of language learning games that could be easily adapted to different courses and a variety of learning outcomes. In addition, I wanted to ensure that my use of games was not simply a filler activity, but something students could look forward to and use to reflect on how much English they had already learned.

I am a student in the English department MATESOL program and teach in the UW Intensive English Language Program. In this program students take different courses that specifically focus on a certain English skill. I taught an intermediate reading course in the fall and I have just finished teaching a beginning/intermediate writing course. My classroom is a diverse mix of students with a majority of students from Asia and the Middle East. Though most of our students are between the ages of 18-24, we commonly have a few older adult students each quarter.

The particular challenge of my classroom is to create a comfortable atmosphere in which students learn to communicate and work closely with one another on a daily basis while meeting curricular learning outcomes for the course. Additionally, students are hoping to not only learn English but form friendships with other American and international students, learn about American culture, and have a rewarding learning experience that they could not have had if they studied in their home country.

What I found through observation and student feedback on questionnaires was that the games transformed their personalities within the classroom. The element of fun and the excitement of a timed situation where they were battling against other classmates changed usually docile and quiet students into energetic, talkative participants. Every game called upon them to reflect on what we had learned in class and apply it to the strategy of winning the various games or activities. As the teacher I was able to see what topics students struggled with and what came easily to them. Following the game day I could create a minilesson to review the topics that needed more attention.

Immediately the energy level of the classroom skyrocketed. Following games, students felt more comfortable talking to the whole class, and particularly in small group and partner situations. My persona as ‘gameshow host’ created an easy rapport with students who felt awkward about talking
previously. The simple act of having all of the students moving around and smiling infused our time together with a new life. I believe that the games I have created and collected can be applied to any language learning classroom and easily adapted to other academic subjects.

A Supplementary Instruction Model for Engaging Students in Active Learning and Enhancing Metacognition
Brian Buchwitz and Clarissa Dirks - Biology

How can we encourage students to pursue learning in an active, self-monitoring manner that can be incorporated into their daily study habits? To address this, we have developed a supplementary instruction model and related materials corresponding to the Introductory Biology Series courses (Biology 180, 200, and 220). Students in these courses are challenged to learn a large amount of information and must properly structure that information such that they can apply their knowledge and skills to new situations. Accordingly, we would like to emphasize active learning strategies that give students practice at working with biological content at different levels of Bloom’s taxonomy, particularly at the application, analysis, and synthesis levels. Thus, we have designed modules that aim to both test and teach biological content in a hierarchical manner. Each module contains a pre- and post-test composed of questions corresponding to different levels of Bloom’s taxonomy, and numerous activities from which students may select to best help them learn the material. These activities span Bloom’s taxonomy, cater to different learning styles, and provide a mechanism by which a mentor can work with a group of students having different levels of preparation.

By surveying students at various points during their use of the supplementary materials, we have learned that this model encourages students to reevaluate their understanding as they progress through the materials. Thus, in addition to increasing their familiarity with course topics and active learning techniques, the supplementary materials provide an opportunity to assist students in the development of metacognitive skills. The model also assists mentors in helping groups of students who are at different levels with respect to their understanding of the material. Therefore, this approach can be broadly applicable to a variety of settings and disciplines.

Using Active Learning to Improve Student Performance in a Large Lecture Class
Scott Freeman and Mary Pat Wenderoth - Biology

Biology 180 initiates the year-long introductory sequence for prospective majors. In an attempt to reduce the high failure rate, we implemented a series of new course designs. In spring and fall quarters of 2005 we split the course into 2 sections that were taught back-to-back, from identical notes. Each section, and sometimes students within each section, answered in-class questions in a different manner (e.g. clickers versus cards) and did a weekly practice exam in a different manner (e.g. individually or as part of a group). Performance on identical or functionally equivalent
exam questions indicated that 1) all students did better on exams compared to previous quarters, 2) attendance was highest when in-class questions were graded, and 3) students who were at highest risk of failing benefitted most from the graded clicker-question design.

**Preparing Students for Group Assignments Through Performance**  
Diane Gillespie and Sally Rosamond - Interdisciplinary Arts and Sciences, UW Bothell

Faculty and student researchers investigating the group-work experiences of undergraduate, Interdisciplinary Arts and Sciences students at the UW-Bothell campus present a classroom pedagogy intended to prepare students for working in groups. The exercise presented intends to give students an opportunity to reflect on and critically examine group interactions and conflicts. The pedagogy draws from Augusto Boal’s Forum Theatre; a performance technique where an audience views a short interaction of oppression or conflict from their community and members of the audience attempt to change the outcome of the script by becoming (replacing) the characters and using different actions. Through multiple replays of the script and discussion about the effectiveness of audience-generated changes to the script, facilitator and audience consider how to bring about a desired outcome of the event being depicted.

For this use of Forum Theatre, several short scenes of student group conflict in undergraduate student group experience have been developed from interviews with undergraduates who have had groups in many of their classes. The scripts have been piloted with students in a 400 level interactive learning course on the UWB campus and presented at the 2004 Annual Pedagogy and Theatre of the Oppressed conference to a small group of instructors. In both of these sessions, participants expressed a greater understanding of the academic and social pressures experienced in student groups.

Discussion will include the findings of the UWB small group research that supports the need to train students in strategies for participating in groups research as well as the lessons-learned from the use of the scripts with student and faculty audiences. Script sets, and other materials to support instructors’ investigations of the dynamics of student groups in their own classrooms will be available.

**The Limits of Disciplinary-Specific Metacognitive Learning Requiring Advanced Critical Thinking and Writing Skills: Rethinking the U.S. History Survey Course**  
Michael Goldberg - Interdisciplinary Arts and Sciences, UW Bothell

In an attempt to shift from teaching historical content and analysis to teaching metacognitive historical thinking skills in my upper-division U.S. history survey courses, I identified key concepts (continuity and change, historical agency, historicity, etc.) and developed a plan to teach them using scaffolding, collaborative learning, problem-solving and formative assessment. The class was designed so that students came to class having read the assigned material (including a survey textbook and a problem-based textbook of primary sources) and having completed participation forms meant to develop basic thinking outcomes (comprehension and application).

The course had a strong accountability component that included formative assessment and group member assessment to improve the quality of the completed forms without burdening the instructor. In class, after hearing a short lecture that reviewed the assigned material and set up the problem,
students met in permanent groups to combine their findings in order to address the next step of the problem (analysis). The groups then reconvened as a class to work towards a more advanced learning goal (synthesis or evaluation). There were four summative assessment assignments: a short writing assignment, a midterm, a longer writing assignment, and a final, all requiring higher-order thinking (analysis and above) and advanced writing skills (argumentative analytical essays requiring emergent theses). All assignments used the same scoring rubric that identified key disciplinary knowledge areas and skills as well as writing skills, so that students would be able to identify areas of weakness, address those problems and improve their grade.

After two courses using this approach, I found first that students did indeed acquire a more nuanced and more easily transferable understanding of history. At the same time, students without the underlying critical thinking and writing skills were unable to progress much unless these skills were taught as well, which created a heavy burden for the instructor and an annoying redundancy for students who already had a command of these skills.

Center for the Advancement of Engineering Education Academic Pathways Study: A Longitudinal Mixed-Methods Study of Engineering Students’ Learning and Development in the College Years
Deborah Kilgore, Cynthia J. Atman, Theresa Barker, Jenni Light, Jason Saleem, Ken Yasuhara (College of Engineering); Reed Stevens, Portia Sabin, Lari Garrison, Daniel Amos (College of Education)

The Center for the Advancement of Engineering Education (CAEE) was founded in January 2003 with a five year grant from the National Science Foundation (ESI-0227558). This grant brings together a team of scholars with diverse backgrounds and disciplines from five campuses: Colorado School of Mines (CSM), Howard University (HU), Stanford University (SU), the University of Minnesota (UM), and the University of Washington (UW), the lead institution. The focus of our proposal is on research being conducted by UW researchers for the Academic Pathways Study (APS), a mixed-methods longitudinal study of engineering student learning and development across the participating institutions. The APS consists of four primary investigative tools: in-depth interviews (both structured and unstructured), surveys, ethnographic observations, and performance tasks, in which student participants are asked to complete a small engineering problem. Each tool complements the others, with the goal of achieving a rich, holistic understanding of engineering student learning and development in the college years. Forty UW student participants were recruited in 2003 by advertising the study in first-year courses identified as prerequisites for the engineering programs, as well as engineering student associations and interest groups for students intending to study engineering. Now in their junior year, participants continue to share their perspectives on UW engineering education, their understanding of engineering as a course of study and a profession, and their ways of thinking about, learning, and doing engineering.

We propose to present two posters summarizing our current findings from the performance task experiments conducted at UW in the first year of the APS and the ethnographic interviews and observations conducted at UW in the first three years of the APS. These two methods provide insights into how engineering students think about and practice engineering, as well as how they perceive the UW engineering education context. We will also discuss how these insights can inform instructional design and educational program planning.
**Learning by Experience: Exploring Fadiman’s The Spirit Catches You and You Fall Down**  
Jerelyn Resnick, PhD, RN - UW Bothell Nursing Program

In Social and Cultural Issues in Health Care, RN-to-BSN students encounter the concepts of ethnocentrism, explanatory models, culture, health beliefs, interpretation and communication. Students read Fadiman’s *The spirit catches you and you fall down*, the tragic story of the collision of western medicine and a Hmong family. Instead of requiring the standard cognitive paper, I wanted students to experience affective and cognitive learning, application and empathy. Small groups are assigned to represent in a debate either the family or the doctors’ perspective by connecting “evidence” from the book to course concepts. The next week, students submit individual papers, intended to expand and solidify their small group experience. The papers explore the side they choose to support, how they would bridge the gap between the family and doctors if they were in such a situation, and address their affective responses to the story and to having to represent a side that might be at odds with their own health beliefs.

Formative evaluation of the small group preparation and debate revealed that students very quickly and sometimes rather loudly combined affective and cognitive learning as they explored this heartbreaking story. During the debates, many students emotionally presented their evidence. Some students slipped into character, heightening the affective component.

In their papers, beyond successfully connecting concepts to “evidence,” students demonstrated that they could very creatively place themselves in situations requiring a culturally competent broker. Perhaps most meaningful for me as a teacher and nurse was how much emotion came through in their writing. Students found empathy even for the side they disagreed with while sometimes remaining angry at that side. Many said they would incorporate their new skills into their nursing practice to prevent the escalation of such unfortunate events in health care encounters. The unexpected outcome? Students wanted to learn more.

**The Computer Science Gender Gap: Students at the Threshold**  
Ken Yasuhara, Computer Science and Engineering

We will presents results from a descriptive study of introductory computer science students’ perceptions of computer science (CS). This study informs the design of an alternative or supplemental approach to teaching introductory CS, where the main goal will be to increase the participation of women in CS and computing-related fields.

The main research questions are (1) What are introductory CS students’ perceptions of CS as a discipline and as a career area? and (2) What aspects of the CS major do they find attractive and unattractive? Our analysis focuses on ways in which women’s and men’s perceptions and interests are similar and different. The studied population is students in CSE 142, the first introductory CS course, which is required of all engineering students, as well as prospective majors in CS, Informatics, and related programs.

In an attempt to capture students initial perceptions, CSE 142 enrollees were asked to complete a survey during the first week of class in spring quarter of 2004. We present analyses based on the 205 participants who were first- or second-year students (and hence less likely to be committed to a major). We will also present preliminary findings from a set of semi-structured, individual interviews conducted at the start
of winter quarter 2006. Our findings highlight the dominant role that programming plays in students’ perceptions of CS, regardless of gender. Given women have less experience with programming, we suggest that these perceptions have differential impact on self-confidence and decisions to major in CS. We also found that women cited creativity and math/logic as attractive aspects of CS more than men. We discuss implications on introductory CS curriculum and pedagogy. This study is supported in large part through the Center for the Advancement of Engineering Education’s Institute for Scholarship on Engineering Education.

**Examining Teaching**

**Discovering Our Values As Teachers Through Our Students**
Donald Chinn, Computing and Software Systems, UW Tacoma

In his book, What We Really Value: Beyond Rubrics in Teaching and Assessing Writing, Bob Broad from Illinois State discusses his quest for understanding how our values as teachers and scholars manifest themselves in the classroom. What he proposes is something called Dynamic Criteria Mapping (DCM). Instead of simply writing down what we think we value as teachers, Broad suggests that we should ask students what they think we as teachers value, based on our written feedback on their work. He visited the UW Tacoma campus to discuss his ideas and to conduct a DCM exercise in my class.

The context of the experiment was in the Computers, Ethics, and Society course at UW Tacoma (27 students). Students in the course were expected to read articles on computer technology and write summaries for them. They also participated in “public discussions” of some issue involving computer technology, where they prepared position papers both before and after the discussion. There was also a term paper on a topic of their choice.

During a class period just after one of the public discussions, Broad asked the class, “What do you think Dr. Chinn values in your work, based on his written feedback?”

What I found was that students were interpreting my written comments in almost exactly the way I had intended them to be interpreted. For example, among the values they inferred from my written comments were “Support your claims,” “Don’t be vague in summarizing an article; focus on the details,” and “Draw on all the readings and synthesize them to support your point of view.”

During this process, something unexpected happened. The students felt that the discussion was one-sided in that the feedback is useful to the teacher, but it did not really provide a voice for the students to express what they valued in a teacher.

**Using Formative Evaluations as a Student-Centered Approach to Improving the Implementation of Problem-Based Learning Modules**
Kerryn Reding - Epidemiology

Goal: In implementing 4 problem-based learning (PBL) modules into an introductory undergraduate epidemiology course, a primary objective was to incorporate student feedback throughout the course to shape the format of modules using a learner-centered approach.
Methods: We used formative assessments of PBL modules, enabling us to change the format of the modules. Students answered the questions “what is the most important thing you learned from this exercise?” and “what would you suggest be done differently in this exercise to better enhance your learning?” after a new PBL module was implemented. Summative assessments administered at the end of the quarter allowed us to evaluate the modules, as a whole, and to ask more in-depth questions, although the student responses could not be used in the current quarter.

Results: The responses from the formative assessments allowed us to make modifications to the format of the modules during the current quarter, with most of the changes affecting the activities of the final module. On the summative assessments, students ranked the activities of the final module higher than the activity done in the three previous modules. The small group discussion, group presentations, and in-class discussions received scores of 4, 3.9, and 3.6 out of 5, respectively. The question addressing the instructor’s responsiveness to feedback ranked the highest of all questions on the summative assessment (4.6 out of 5).

Conclusion: Overall, we feel the formative assessments enabled us to achieve our goal of using student feedback to improve the implementation of new PBL modules.

The Secret Life of Engineering Education Researchers  
Ken Yasuhara, Computer Science and Engineering

This poster focuses on the personal experience of a young researcher in engineering education, providing a “behind the scenes” view of the challenges and risks (as well as joys) involved in doing research on teaching and learning, especially as a graduate student. The poster provides advice for new researchers in engineering education and discusses education research as a critical component of larger efforts to improve teaching and learning. In contrast to conventional accounts of research, which focus on the research questions, methods, data, and findings, this presentation openly discusses the personal and practical realities of scholarship of teaching and learning, e.g., its interdisciplinary nature and how it fits (and doesn’t fit) with traditional academic culture.

Learning to be Teachers: The Engineering Teaching Portfolio Program  
YiMin Huang, Jessica Yellin, and Jennifer Turns - College of Engineering, Center for the Advancement of Engineering Education (CAEE), and Center for Engineering Learning and Teaching

Our work focuses on using teaching portfolios as a learning intervention in engineering education. Our studies include investigations of graduate students and postdoctoral fellows who develop teaching portfolios that help them reflect about their teaching, share strategies about teaching science and engineering, and document their teaching in a format that they can use in faculty job applications.
We developed an eight week curriculum - the Engineering Teaching Portfolio Program (ETPP) in which peer-focused groups of engineering and science graduate students and post-docs create teaching portfolios that they can use in faculty job searches. Since Summer Quarter 2003, we have run 8 offerings of this workshop. Graduate students and post-docs from the Colleges of Arts and Sciences, Education, and Engineering, the School of Public Health and Community Medicine, and the Information School have participated in these workshops. On the UW campus, we will offer another ETPP for Summer Quarter 2006. The College of Engineering at the University of Florida - Gainesville has also used our materials to run 2 offerings of ETPP during the 2004-5 academic year through their student chapter of the Society of Women Engineers.

A key goal of ETPP has been to learn about both the process and impact of the sessions on participants. The team has pursued this goal through scholarly analysis of the offerings. The team has also been characterizing the nature of teaching portfolio initiatives around the nation and the distinctive features of the ETPP initiative. We will also present some of our research findings about ETPP such as finding about the impact of constructing a teaching portfolio and the processes and mechanisms that participants use in creating teaching portfolios and learning about faculty careers.

**Teaching, Learning, and Technology**

**E-Portfolios in Introductory Comp: Enlarging Conceptions of Composing**
Janice Fournier, Cara Lane, Steven Corbett - Catalyst Research & Development, English

As a participant in the National Coalition on Electronic Portfolio Research, Catalyst Research and Development has been investigating how students learn to think and compose in the format of a portfolio. This year, we’ve partnered with the Expository Writing Program in English, which currently uses a well-developed paper portfolio assignment as part of its introductory composition course. Within this context, we’re studying what effects the transition from paper to electronic portfolios has on teaching and learning. Graduate student instructors (TAs) piloted the use of e-portfolios in 3 sections of English 131 in winter 2006, and will use e-portfolios in 6 sections in the spring. Students in these sections are using Catalyst Portfolio to assemble and comment on their writing for the course. English 131: Introduction to Expository Writing is built around four course learning objectives. For the portfolio, students are required to choose 5-7 papers and then write about how these works demonstrate achievement of the objectives. Currently, for the paper portfolio, students write their argument in the form of a cover letter to their instructor. One challenge has been translating the genre of a cover letter to a multi-page online portfolio format and encouraging the use of a wider range of artifacts as evidence for a claim. Using data from student surveys, interviews with instructors, and a review of student work, we’ll share preliminary findings on how the use of e-portfolios is affecting teaching and learning practices in regard to composing.

**Podcasting at the UW: An Evaluation of Current Use**
Cara Lane - Catalyst Research & Development

Recently the Seattle campus introduced podcasting in several classes in Kane Hall. This poster presents trends from a short student survey that evaluated the use of podcasting in these courses. It also offers suggestions and raises questions about future uses of this technology to support teaching and learning. A report is also available online: http://catalyst.washington.edu/projects/
Creating a Video Clip Resource to Enhance Linguistics Courses
Sharon Hargus (Linguistics) and Steve Moran (Linguistics, Language Learning Center)

This project results from Hargus’s experience at the 2005 Institute for Teaching Excellence. A number of presenters there (e.g. Baldasty, Communication Studies) made the point that video clips can be an effective enhancement of the classroom experience, for at least two reasons. First, for some points to be taught, one clip is worth a thousand words. Secondly, one or more video clips help break up a 50-minute lecture.

Prior to the development of this resource, some Linguistics teachers were already using video in their classrooms to a certain extent, but there was no central departmental resource and much ignorance about potentially interesting clips.

Through server space and Student Assistant time provided by the Language Learning Center (LLC), we have been building an online repository of streamable video clips for use in Linguistics classes. This resource has the benefit of being accessible via the internet, which allows teachers to take full advantage of computers and projectors in many classrooms and facilities on campus. Problems which are being surmounted in creating this resource include: obtaining permission from publishers to reproduce copyrighted materials, time (to review video, decide what an effective clip would be), digitizing video, and converting it into web accessible formats. The LLC has provided access to specialized hardware needed for digitization of VHS, as well as the technological know-how for software needed for the editing and conversion processes.

The effectiveness of video clips has been informally assessed as follows. Hargus gave virtually the same guest lecture (‘Endangered Languages’) in two introductory linguistics classes (LING 200 Aut 2005 and LING 200 Win 2006). The second lecture included two video clips streamed from the LLC web site. The level of student interest during and after the lecture was much greater for the Winter 2006 guest lecture than the Aut 2005 version.

Interactive Lectures with “Clickers” - They are a HITT!
R. Daryl Pedigo - Physics

Active learning in the large lecture hall is difficult to achieve; the same small group of students tends to answer the lecturer’s questions every day. In an attempt to engage the entire class (150 to 250 students) in active learning, infrared student response technology has been employed in freshman level physics classes here at UW since the spring quarter of 2003. Each student purchases a hand-held remote transmitter (“clicker”) from the bookstore and uses it to answer multiple choice questions posed by the lecturer during class. Individual responses are collected and stored so that the instructor has a complete record of how each individual responded, but the class sees only a histogram displaying the percentage of students selecting each possible answer. This allows students to avoid the embarrassing scenario of being the only one with a hand in the air, encourages full participation, and provides immediate
feedback to both instructors and students regarding the level of understanding of the topic at hand. Typical lecture structure for best engagement will be discussed. Selected interactive lecture worksheets, sample questions and results, and student attitude survey data will be presented.

Using Video Traces
Reed Stevens, Cognitive Studies in Education

Our session. In this poster and demonstration, we will present Video Traces as a tool for learning and teaching in higher education. It has been used in a variety of educational contexts at UW over the last five years and in this session we will share examples and discuss future opportunities. We invite visitors to our session to bring their own ideas about how they might use Video Traces in their own learning and teaching.

What it is. Video Traces is a digital annotation medium with which people capture and circulate ideas in a particular digital form. The objects that people make and circulate within Video Traces are called traces. The basic conceptual formula for composing traces can be expressed by the formula: base + annotation = trace. The base is a still digital image or a segment of digital video. The annotation is made with ordinary modes of communication: speaking, pointing and drawing. Base and annotation get layered together to make a trace.

What we want to accomplish. The goal of Video Traces is to support an approach to educational practice that actively engages people as critical collaborators, makers, revisers, and producers of ideas. Video Traces is a representational medium that seems to be a relatively natural and straightforward one for learners to generate ideas, to critically reflect on them, to revise them, and to get feedback on these ideas from many others.

Where we’ve been. Since 2001, Reed Stevens has led a group conducting design experiments from the College of Education using Video Traces. Researchers have studied traces in a wide variety of contexts: coaches with athletes, choreographers with dancers, professors with students, nurses with patients, future teachers and teacher educators, and learning science researchers in an interdisciplinary center for learning research. Our experiments suggest traces are a potentially effective approach for making learning and teaching more concrete, visible, and compelling by allowing distributed conversations over what we call ‘common objects’. We are also exploring how Video Traces can support productive ‘conceptual collisions’ in interdisciplinary research and, more generally, support conversations that allow for different perspectives to be represented.

Where we are headed. We are interested in building a consortium of educators at UW and elsewhere in the region who wish to join our early adopters in a network of users of Video Traces. Please stop by if you are interested.

For a recent UWeek article, see http://uwnews.org/uweek/uweekarticle.asp?cachecommand=create&articleID=21782
Teaching Across the Disciplines

Fostering a Climate for Collaborative Undergraduate Research
Amanda Hornby, (UWB/CCC Campus Library), David Goldstein (Interdisciplinary Arts and Sciences), Gowri Shankar (Business), Becky Rosenberg (Teaching and Learning Center), Jerelyn Resnick (Nursing) - UW Bothell

UW Bothell is a core member of a national school consortium sponsored by the Carnegie Academy for the Scholarship of Teaching and Learning Campus Program. Within this consortium our focus is “Sustaining Student Voices in the Scholarship of Teaching and Learning.” To foster a supportive climate for undergraduate research, we created the Collaborative Undergraduate Research Program (CURP). Our program flows from our campus’s interdisciplinary focus and value of inclusiveness, in which “students, staff and faculty are all learners and teachers engaged in a collective effort.” CURP works to adapt UWB’s formal and informal processes and structures to help ensure that students are included as partners in faculty research. In our first funding year, we began a program with faculty-initiated research projects. We mistakenly assumed that the opportunity to engage students in faculty research would outweigh demands on faculty time and resources for training and mentoring student researchers. Few faculty applied. This year, with additional internal funding, we have been able to provide four faculty research projects with $2,000 each and to provide each participating student with a $150 quarterly stipend to attend cohort meetings. Students also receive course credit or are paid with grant funds. Twelve proposals were submitted for this competitive grant. The selected projects come from all areas of the curriculum and include: (1) Business -- global market integration, (2) Nursing -- newspaper articles on substance abuse community strategies, (3) Master’s in Policy Studies -- global climate change and cities, and (4) Interdisciplinary Arts and Sciences -- small group work in IAS. Through this collaborative and iterative process, CURP learned (1) funding is critical for busy faculty, (2) faculty are interested in working with students as co-inquirers and (3) faculty need to understand the difference between co-inquiry with students and hiring students. This knowledge will help inform future UWB research programs.

The Common Book Project
Christine Ingebritsen, Office of Undergraduate Education

The common book was chosen by a committee led by Christine Ingebritsen, acting dean of undergraduate education. Subtitled The Quest of Dr. Paul Farmer, a Man Who Would Cure the World, the book tells the true story of a Harvard Medical School professor’s efforts to bring the tools of modern medicine to people around the world. Its choice reflects the desire to inspire students to become scholars and active participants in shaping an equitable global society.

Having a common book provides an occasion to teach incoming students about important diversity and social justice themes. Mountains Beyond Mountains provides an opportunity to reflect on different perspectives related to global health inequities, including postcolonialism, structural inequalities, social justice, claims of international morality, etc. In building learning communities around the book, we can also explore new models of social and intellectual engagement and pedagogical practices.

This year’s Common Book introduces the idea of the impact that one person may have in the solution of problems, whether they are global or local. This initiative supports faculty and staff to help students
connect their academic learning with experiences in the local community, to provide global learning opportunities, or to engage students in addressing problems that challenge current knowledge. Experiential learning – e.g. service learning, research projects, study abroad – helps students to deepen their understandings, skills, and abilities by practicing and extending their learning in new situations.

As a result, students may:

- See themselves as members of a larger community at and beyond the University of Washington and envision their future civic involvement;
- Deepen their academic learning through application and extension of knowledge in a different context;
- Increase their understanding of and appreciation for different sources of expertise and diverse ways of problem-solving, in particular with regard to global health issues;
- Become more active learners;
- Practice skills of collaboration and communication;
- Develop personal goals and future vision;
- Explore career pathways, informed by both their experiential “work” as well as exposure to the context and day-to-day activities of professionals with whom they work.

**Supporting Development of Writing-Integrated Courses Through the 4x4 Writing Initiative**

John Webster (College of Arts & Sciences Writing Program), Amy Reddinger (English), and Jennie Dorman (CIDR)

Sponsored by the College of Arts and Sciences, the 4x4 Initiative is a program to support faculty in developing writing-integrated courses. The initiative engages faculty from up to four departments at a time, with up to four faculty from each of the participating departments. These faculty members work together through a set of workshops to plan new ways of integrating writing into their undergraduate courses. For more information on such writing-integrated courses see our Designing Writing-Integrated Courses page.

Faculty from participating units take different paths to address their department's writing needs: some focus on a single set of existing undergraduate courses; others develop new undergraduate courses designed to fit within an existing department curriculum; and others create an unrelated set of courses to be taught by individual faculty members.

This year, the faculty in the 4x4 initiative participated in six sessions in the Fall quarter, which focused on the following topics:

- Introduction to the 4x4 Project
- Assignment Design
- Creating Rubrics and Assessing Grading
- Handling the Paper Load
- Working with TAs and Using Writing Centers & Peer Review
- Proposals of Classes Faculty Plan to Teach
Faculty met again in the Winter to provide updates on their courses and ask questions, and a final meeting is scheduled for Spring Quarter so that participants can share their written descriptions/reflections of their courses.

An Experiment in Interdisciplinary Team Teaching: Urban Ecology
John Withey, Dave Oleyar and Adrienne Greve - College of Forest Resources, College of Architecture and Urban Planning

What happens when nine PhD students from four different programs are asked to design and team-teach a 200-level interdisciplinary course in urban ecology? Among other things, it creates an opportunity to experiment with and learn about teaching. We faced two very different interdisciplinary challenges: (1) to design a course as part of an interdisciplinary team; and (2) to teach a course that included widely varying topics from social justice to terrestrial ecology. We organized ourselves into nine defined roles: one ‘master of ceremonies’, four guest lecturers, three discussion section leaders, and one webmaster. Our Urban Ecology course had 24 students, from 1st-years to seniors with backgrounds from the natural sciences to social sciences including philosophy and planning. Student comments from a mid-course assessment (SGID) and final course evaluations showed that this arrangement was successful. Most of the challenges of this arrangement were ‘behind the scenes’ and the students were presented with a well-organized course. Because the course covered extremely diverse topics, we began by introducing a systems approach to provide a tool for students to situate these topics in relation to each other. We defined urban ecology as a field that examines multiple systems (economic, social, built, biophysical, ecological) that interact in cities. Another structure we used to unify the course for students was for each of them to choose a city that became the focus of a weekly assignment and the course’s final project. We learned that students (1) were able to use systems language to describe urban ecological issues, in some cases with very high-level analytical ability, (2) appreciated field trips to observe and discuss real-life applications of concepts in urban ecology, and (3) wanted additional opportunities to express their understanding of urban ecology than those we provided (exams, assignments, and final project).
Students as Researchers

Urban Archives: Collaborating with Undergraduates in Researching the City
Irina Gendelman, Giorgia Aiello, Tom Dobrowolsky - Communication

Urban Archives is an attempt to develop a cross disciplinary pedagogical curriculum that gives undergraduate students an opportunity to apply theory and methods through fieldwork, turning their city into a laboratory for the study of urban communication. We have been collaborating with several departments across campus such as the Information School, CHID, Communication and Landscape Architecture. Working as research assistants and in their classrooms undergraduate students participate in collaborative and experiential learning. Students use ethnographic methods, photography and archival research as tools to examine a variety of topics pertaining to the greater local community.

Since Fall of 2004, students have worked on topics such as highway culture in the city, political graffiti, political and public art, historic preservation, the effects of laws on public space and commercial archaeology. We have found that students are eager to take on the independent task of researching their own surroundings if they are given basic theoretical and methodological skills and an opportunity to see their research outcomes as part of a larger collaborative and public project. Urban Archives publicly exhibits the data that students collect through the UW Digital Collections database. Although the research collaboration is highly independent and thus requires initiative on the part of the undergraduates, we have been impressed by the quality, precision and depth of the students’ work. By means of assessing their work (data, journals, research papers, student feedback), we recognize that the pedagogical instruments adopted in Urban Archives stimulate students to engage in public scholarship within the Seattle community.

The Pre-Major in Astronomy Program (Pre-MAP)
Daryl Haggard, Eric Agol, Marcel Agüeros, Kevin Covey, Nick Cowan, Eric Hilton - Astronomy

The Pre-Major in Astronomy Program (Pre-MAP) is a new initiative housed in the University of Washington Astronomy Department. Pre-MAP is designed for entering UW students who are interested in math and science and who are traditionally underrepresented in astronomy: women, African Americans, Latinos, Native Americans, Southeast Asians, Pacific Islanders, and first-generation college students. The program introduces students to astronomical research techniques and guides them in applying these techniques to projects that involve the use of cutting-edge facilities and/or data available to UW astronomers. Every Pre-MAP student also receives one-on-one mentoring and peer support for at least the duration of the academic year, and has an opportunity to continue or expand their research project. Pre-MAP is made possible in part by a two-year grant from the University of Washington's Diversity Appraisal Implementation Fund.
International Undergraduate Field Research: Training Chinese and American Students to be Working Researchers
Stevan Harrell - Anthropology, Burke Museum, UW Worldwide Program

For four years now, I have been involved with the UWWorldWide Sichuan University Exchange (depts.washington.edu/uwww/), which sends a group of University of Washington Students to Sichuan University in Chengdu for the academic year, and brings a comparable group from SU to Seattle. While students are on the exchange program, in addition to taking classes at the host university, they engage in individual and/or team research projects related to the environment, from science or social science perspectives. Teaching in this program has involved supervising students at a distance and also supervising cooperation and collaboration between Chinese and American faculty, students, and administrators. We set out to determine whether this kind of model was an effective way of teaching students through hands-on involvement in scientific research. We have found through observing three and a half classes worth of students at both universities that undergraduates are far better able to design projects and collect data than we had imagined, but at the same time find it much more difficult than we had imagined to write up or otherwise present their research.

How to Engage Advanced Undergraduate Physics Majors in a Research Project with an Outreach Component
R. Jeffrey Wilkes - Physics

We are engaged in a project to put cosmic ray detectors in high schools around the Seattle area, and connect them in a network. Physics majors are required to do PHYS 400 (independent study) and this project provides an interesting subject for them. We have them do laboratory work in support of the project, and also meet with and mentor high school groups. But this must be done in the context of a one-quarter or at best few-quarters independent study course. We’ve accumulated some experience in how to get students involved quickly and effectively.