

Poster #1
Improved Mental Models through Guided Lab Exercises

Stephanie E. August
Electrical Engineering and Computer Science

To be fully literate, students must be able to view and understand their work at many levels of abstraction. This project investigates the use of guided lab experiments to enhance a student's ability to develop mental models of course concepts. Experiments include exemplars, structured exercises, and creative challenges. Students will complete "elevator statements" or brief explanations of the experiments geared toward both technical and non-technical audiences. We will evaluate the statements to determine whether there is a correlation between performing well on the elevator statements and success in other aspects of the course that relate to developing mental models.

Poster #2
Connecting Community and Communication in Mathematical Problem Solving to Liberal Learning

Curt Bennett and Jackie Dewar
Mathematics

NOTE: This poster describes one of two "paired projects" undertaken by Curt Bennett and Jackie Dewar as 2003-4 Carnegie CASTL scholars.

A desire to understand how mathematics might contribute to liberal learning led to an in-depth study of the freshman math major workshop course sequence MATH 190/191. The building of a mathematical community of practice is critical to this course and to enhancing success in the major. Researchers found that mathematics problems with particular characteristics and certain types of group problem solving experiences are central to this community. Evidence gathered from interviews, focus groups, and student work indicated that math majors see themselves as transferring certain habits of mind to other courses and their daily lives as opposed to the expected "numerical reasoning skills."

Poster #3
Applying Expertise Theory to Chart Progress on the Path to Proficiency in Proof

Curt Bennett and Jackie Dewar
Mathematics

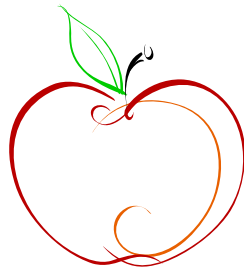
NOTE: This poster describes one of two "paired projects" undertaken by Jackie Dewar and Curt Bennett as 2003-4 Carnegie CASTL scholars.

A frustrating teaching/learning problem led to a scholarly investigation of math majors' understanding of mathematical proof. The rich data collected through "think-alouds" with 12 students spanning the 4 years of the LMU math curriculum overwhelmed the rubric developed by others to assess written proof tasks. By adapting a typology of scientific knowledge (Shavelson, 2004) to mathematics and combining it with a classroom-version of expertise theory (Alexander, 2003), the researchers were able to achieve an in-depth analysis of the student work. The resulting Taxonomy of Mathematical Knowledge and Expertise has wide applicability and provides a number of implications for teaching/learning.

Poster #4
Introductory Biology Lab - An Interactive and Progressive Lab-Based Class

Wendy J. Binder and Gary Kuleck
Biology

We present the innovative aspects of our newly designed, modular, team-taught, experimental introductory biology lab course. This course requires interactive learning by small groups of students, in three different areas of biology which progress from simple experiments (but complex topics) with shorter presentations to more complex designs with increasingly thorough presentations. The modules are linked by student experience rather than concepts. The course design offers flexibility in integrating new modules and faculty, encouraging faculty participation and fostering course sustainability over time.



Poster #5
Center for Teaching Excellence
Investigating Students' Disciplinary Understanding

This poster describes the steps involved in a scholarly investigation into students' understanding of their disciplinary major, how their understanding compares to an expert view of the disciplinary field, and whether a single course or the major curriculum can influence the students' views to become more expert. Resources for undertaking such a project will be provided.

Poster #6
Center for Teaching Excellence
Scholarship of Teaching and Learning Grant Recipients

This poster will list SoTL projects which have been awarded Scholarship of Teaching and Learning Grants from the Center for Teaching Excellence during the past three years.

Poster #7
Center for Teaching Excellence and Sponsored Projects Office
SoTL: Where to Present, Publish and find Funding and Mentoring

This poster describes resources for presenting, publishing, funding and being mentored in the scholarship of teaching and learning.

Poster #8
Teaching Religion and Ecology at LMU

Christopher Key Chapple
Doshi Professor of Indic and Comparative Theology

Learning and teaching about the environment can be challenging in a city of the size and complexity of Los Angeles, where our students hail from overwhelmingly urban and suburban homes. In the development of a course on Religion, Politics, and Ecology, I have introduced LMU students to aspects of nature on and adjacent to campus. In the process of learning to recognize native oaks and sycamores and other native plants, by hiking to the springs on campus that served as the focal point for village life for thousands of years, by discussing development issues that have resulted in the preservation of hundreds of acres of wetlands and the building of thousands of housing units within view, students are encouraged to engage issues of environmental ethics from both a local and global perspective.

Poster #9
Thinking in Physics

Vincent Coletta and Jeff Phillips
Physics

We are developing an NSF sponsored Thinking in Physics (TIP) program, aimed at developing basic reasoning skills of students who take introductory college physics classes, thereby improving their chances for success in physics and other science and engineering courses. The first step in the program is to identify students who are at risk, based on their pre-instruction scores on tests of reasoning ability. Then we provide an instructional program, targeting those at-risk students, using a variety of methods, including some adapted from successful programs used to develop reasoning in pre-college students.

Poster #10
Translating Brain Research into Teaching Methods

Mindy Colin
Manager of Instructional Technology Support

Recent research has shown that to maximize learning, one needs to build and reinforce the synaptic connections between the right and left hemispheres of the brain, but how does that translate into class activities, homework, and assessment? This poster will review the recent brain research and instructional designs that apply the brain's processing cycle to curriculum planning.

Poster #11**Multimedia Enhanced Reading and Writing in the Language Classroom**

Véronique Flambard-Weisbart
Professor of French/Director of European Studies

NOTE: This will also showcase the textbook *_Scénarios, Pédagogies du virtuel_*, co-authored by Véronique Flambard-Weisbart and Michèle Magnin, published by Heinle-Thomson, 2007.

This Poster will address methods for teaching a creative writing language class with literary texts and a model of experiential learning called "global simulation"--a Pandora's box for creativity and interactivity--making judicious use of multimedia (e-journals, web searches, videotaping of role-play, and portfolios on CD-ROMs). The model presented can also be used to teach reading, culture and civilization, and conversation classes. Examples will be given in French (FLE), but are adaptable to any intermediate to advanced foreign language class, including ESL.

Poster #12**The Ways of Music--Teaching Fundamental Concepts and Skills from a World Perspective**

Paul Humphreys
Associate Professor; Dir., Program for World Music

University departments of music are increasingly open to the inclusion of world music courses within their curricula. These courses are, for the most part, listening surveys of world repertoires, somewhat akin to "appreciation" classes in the art music of Western Europe. At present, however, no analogy with a world purview exists for university level courses that focus exclusively upon the "fundamentals" and "theory" of Western music. "Ways of Music" presents practical, ethical, and aesthetic arguments for shifting towards an intercultural orientation for post-secondary instruction in music theory.

Poster #13**Development and Evaluation of a Comprehensive Grading System for Grading Case Strategy Papers**

Velitchka (Vili) Kaltcheva and Anthony D. Patino
Marketing

A business strategy must be internally consistent. Thus, grading strategy papers can be very challenging. On the one hand, component grading—grading each element of the strategy individually—is likely to result in an inaccurate overall grade because the interrelations among the strategy elements are not evaluated. On the other hand, students wish to know exactly which areas of their work need improvement. Thus, the objective of my project is developing a comprehensive component grading system for grading case strategy papers that allows evaluating the quality of the interrelationships between each two individual strategy elements.

Poster #14**Assessing Student Progress in Utilizing the Process of Science in a Research Project-based Lab**

Gary Kuleck and Nicole Yu
Biology

Research projects in teaching laboratories are proposed to improve student learning and understanding of science pedagogy. To test this hypothesis, we redesigned a molecular course from individualized experimentation to projects focused on molecular identification of bacteria and annotation. We assessed progress in experimental design, science writing, communication, peer review. Assessment included: tests/surveys of attitudes, learning style, perception of science pedagogy; online notebooks for data recording, peer review; group learning exercises; post-course reflective piece on student perception of science pedagogy. Results indicated that integrating research experience strengthened student abilities in experimental design; data management/presentation; sharing, communicating, reviewing results with peers; group problem solving.

Poster #15**Using Group Projects on Community Issues to Develop Quantitative Skills**

Suzanne Larson, Thomas Zachariah, and Jackie Dewar
Mathematics

This poster describes our experience using projects to incorporate a civic engagement component into a Quantitative Literacy course. The course satisfies the core requirement in mathematics for all students whose major does not require a mathematics course. Our goal is to engage these students in using mathematics to address problems in their campus or local community. The poster presents examples of the student projects and a framework for developing new project ideas. Evidence is presented showing that this approach improves student learning and enables them to connect their classroom learning to campus or community issues using mathematical or analytical skills.

Poster #16**Interactivity and Technology: Less is More?**

Linda Leon, Zbigniew Przasnyski, and Kala Seal
Finance-CIS

Technology is often used to extend the one way information transfer traditionally used in the classroom. Bork (2000) suggests a different learning technology paradigm using interactivity, where students are actively engaged in the learning process. We (Drs. Leon, Seal, and Przasnyski) introduced various interactive modules using Captivate to teach modeling to students outside of the classroom. We performed a controlled lab evaluation to study the impact of interactivity in teaching spreadsheet modeling. The main hypothesis tested was that students' use of the interactive modules would have a positive impact on their learning, as compared to teaching without the interactive modules. Furthermore, we hypothesized that the amount of interactivity present in the modules would have a proportionally positive impact on learning.

Poster #17**Life Science Early Awareness Program (LEAP): A Pilot Program for First Year Life Science Students**

Cathy McElwain (Biology), Jim Landry (Natural Science and Associate Dean in College of Science and Engineering), Patrick Shanahan (Mathematics), Tracy Colvin (English), and Rich Rocheleau (Associate Vice President for Student Life)

LEAP (Life science Early Awareness Program) combines academic and residential life components for first-year life-science majors. Students live together and enroll in four linked courses (BIOL 101, CHEM 110, MATH 120, NTLS 190) and special sections of ENGL 110. These linked courses incorporate active learning in a technologically enriched environment and emphasize communication skills. Students are encouraged to take responsibility for their knowledge by demonstrating proficiency in a series of gateway exams. We will assess the effect of this program on the acquisition of scientific reasoning, mastery of course content and appreciation for the interdisciplinary nature of science.

Poster #18**Lawson Test Scores, SAT Scores, and Normalized Learning Gains**

Jeff Phillips and Vince Coletta (Physics)

In December 2005, we published an article showing a strong, positive correlation between scores on Lawson's Test of Scientific Reasoning Ability and learning in a physics course, measured by normalized gains on the Force Concept Inventory. Since that time, others have replicated our results. More recently, we have found a strong, positive correlation between SAT scores and the same measure of learning. These correlations highlight the importance of cognitive skills and abstract reasoning in learning physics. Knowing the students' cognitive level before instruction allows one to alter instruction or to use an intervention designed to improve students' cognitive level.

Poster #19**Re-imagining a Curricular Architecture to Effect a Liberating Education: An Integrative and Interdisciplinary Capstone Seminar on the Environment**

Judith Royer, C.S.J. (Theatre), Patricia Douglas (Accounting), Stephen Duncan (Screenwriting), Mary Beth Ingham, C.S.J. (Philosophy), James M. Landry (Natural Science), and Ricardo A. Machón (Psychology)

The poster and related handouts examine the LMU interdisciplinary, team-taught pilot program from Spring 2005, designed to begin a re-imagining of LMU's curricular architecture to affect the fundamental goals of a truly liberating education. A major objective for the poster presentation will be to describe an architecture employing backward mapping for the senior capstone core course, starting with our core curriculum objectives, and then the development of processes necessary to achieve these outcomes. This same backward mapping process can be used as a model for restructuring the entire core curriculum.

Poster #20**Off the Deep End: Involving Pre-service Teachers in Curriculum Development as a Means to an End**

Carolyn Viviano (Natural Science)

Motivating pre-service elementary teachers to learn science can be a tricky process. This poster presentation will focus on the results of a pilot project in which students were asked to develop science curriculum around a wetlands theme. What was intended as a hook for science learning and as a means of increasing student investment in their work, developed into a way to investigate how students view science and interact with curricular materials.

Poster #21

A Computer Science Teaching Framework Drawn from the Open Source Culture

John David N. Dionisio, Ray Toal, Caskey Dickson, Stephanie August and Philip Dorin
Electrical Engineering and Computer Science

Recourse is a curriculum development project for undergraduate computer science. It seeks to define a teaching framework, based on the open source culture, which closes the gap between what students experience in school and what they encounter in industry. Common themes behind these techniques include the longevity of software, group vs. individual work, and current best-practice development approaches (test-driven development, continuous integration, etc.). The scope of the work includes a suggested curriculum arc, teaching techniques to apply throughout this arc, and support software that facilitates easier implementation of these teaching techniques.