



Research UpDATE

.....OCTOBER 2005

Utah State University • College of Education and Human Services • Office of Research Services

Announcements

This issue of Research UpDATE highlights activities and accomplishments by faculty in the Department of Instructional Technology.

Local Funding Opportunities:

The Community/University Research Initiative (CURI) funds are designed to improve the lives of citizens in the state of Utah. Information and guidelines are available at: <http://www.usu.edu/vpr/funding/curi/>

Scholarship Opportunity:

Academic Writer's Anonymous (AWA) is a collegial writing response group made up of CEHS faculty interested in academic writing. The next meeting is Wednesday, November 2, 7:00-9:00 pm. Contact Bill Strong for more details at: Bill.Strong@usu.edu

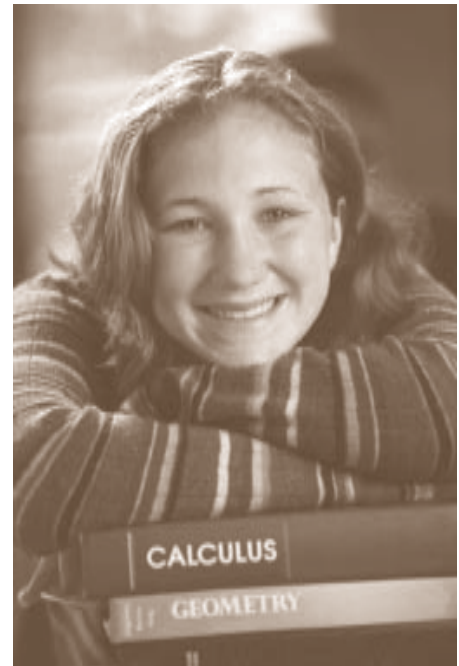
Other:

The Office of Research Services is accepting nominations for the Researcher/Scholar of the Year Award for the College of Education and Human Services. The deadline for nominations is January 23, 2006.

Changing Girls' Attitudes Toward Learning Math

Dr. Yanghee Kim, assistant professor in Instructional Technology, has launched a research project entitled "Learning Companions as Change Agents: Improving Girls' Self-Efficacy Beliefs in Learning Math," funded by the National Science Foundation. The project is an investigation of the educational potential of virtual peers to change girls' negative self-images and attitudes toward learning math, moving them in a more desirable direction. Research indicates that girls' negative views of the fields of science, technology, engineering, and mathematics (STEM) are often due to social and cultural influences. Hence, girls need to be exposed to social environments that will encourage them to overcome ungrounded social stereotypes and build constructive views of their competency in STEM.

Although the stereotypic views of family, teachers, or friends cannot be immediately changed or influenced, girl-friendly, virtual social environments can be created to help girls build positive attitudes toward STEM. The virtual peers, called pedagogical agents as learning companions (PALs), is designed to encourage and persuade girls to increase their belief of self-efficacy in learning math and to build more positive attitudes toward pursuing careers in STEM. The multidisciplinary collaborative research team is comprised of experts from intelligent systems, women in engineering,



graphic design, and math education. Also, math teachers from local school districts are participating as consultants.

The goals of the project include 1) investigating the effectiveness of PALs in facilitating girls' self-confidence and efficacy in learning math and 2) investigating the characteristics of PALs critical to that end. To reach these goals, a three-year research agenda has been planned, with approximately 200 ninth-grade female participants in required algebra I classes in local public high schools. In the first year, the project focuses on the effects of gender and age of PALs. In the second year, the project focuses on the effects of competency and ethnicity of PALs. In the third year, the project concentrates on the effects of feedback-type and emotion of PALs.

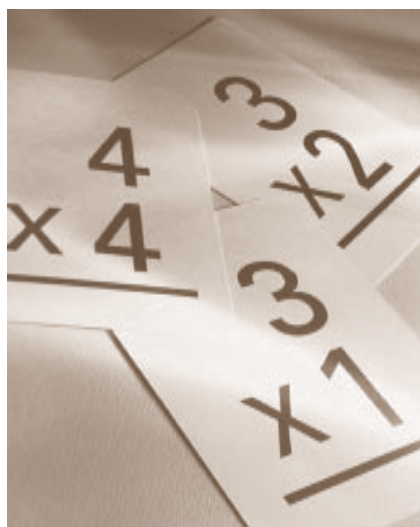
Digital Libraries Go to School

Funded by three successive National Science Foundation (NSF) grants totaling over \$1 million, professors Mimi Recker (Instructional Technology) and Jim Dorward (Elementary Education/Deans Office) have been working on professional development programs and free software tools to help teachers and learners connect with the vast wealth of learning resources now available on the web.

The grants have provided valuable post-doctoral and doctoral training opportunities. Currently, the grants support six doctoral candidates in the College of Education and Human Services.

Over the past two years, more than 800 educators have engaged in activities sponsored by the grants. Many teachers have commented on the importance of web learning resources for motivating students. As one teacher said, "they offer a far greater selection than available in any junior high library, and kids enjoy learning more when it is connected to a computer." Another teacher noted, "students can access these to receive up-to-date, accurate information to assist in effective learning. They are more up to date than any textbook."

Teachers have also used a software tool developed by the project team, called the Instructional Architect, to create tailored learning experiences for their students. For example, a high school teacher, who teaches pre-engineering, developed



an interactive, web-based activity for his students called "Invention Connection." It leads students through a succession of six web sites, starting with "the top 20 inventions" and ending with a chance to compete in an online game hosted by an Albert Einstein character maintained by MIT.

"When teachers just tell kids to search for something on the internet, the kids waste a lot of time," he said, "with this, you can keep them focused."

For more information go to <http://ia.usu.edu>.



Creative Learning Environments

Brett Shelton, an assistant professor in the Instructional Technology Department, along with Cheryl E. Ball and Ryan Moeller, Department of English faculty, are the directors of the newly-formed Cre-

ative Learning Environments Lab (CLE), a dedicated, interdisciplinary research endeavor.

Affiliated with the Center for Open and Sustainable Learning (COSL), the CLE is comprised of educators and students committed to researching educational applications of rich, sensory-based, technological media. The focus is to provide a creative outlet for students and faculty to explore new topics of interest through advanced technological means while employing interdisciplinary research and teaching methods.

Cross-disciplinary research strands currently include:

- Instructional simulations: investigation into the particular attributes and administration of computer based simulations that promote learning;
- Educational gaming: effective creation, development and study of how people instruct and what people learn from computer-based games;
- New media design: applied research into designing multimodal and new media texts, with a focus on how students compose aesthetic and informational digital texts and technologies, and on reading strategies from disciplines including rhetoric, composition, graphic arts, technical communication, creative writing, instructional technology, literature, and other fields;
- Learning Sciences: research in effective teaching and learning strategies, grounded in cognitive studies, using advanced visualization technologies. For more information go to <http://it.usu.edu/cle/>.

www.coe.usu.edu/ors/home.htm

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CEHS Research Council: Kim Corbin-Lewis • Jim Dorward • Rich Gordin • Grace Huerta • Mimi Recker • Richard Roberts • Lori Roggman • Julie Smart • Karl White

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