the simulator should react to the treatment provided. Upon completion of the simulation, a formal debriefing is held to discuss concepts learned and opportunities for improvement. Debriefing is an essential component of effective simulation.

One challenge with implementing the simulation program is staffing. It takes at least four people to run a simulation, but six staff members make for the ideal scenario. Exploring all of our resources, we decided to include graduate students in the simulations. This was very successful, especially for those enrolled in the Nurse Educator track, as their education is enhanced by being exposed to and involved with this education technology. The graduate students assist in the simulation in a variety of ways: managing the technology of the simulator and debriefing, or interacting in the simulation as a nurse manager, nurse practitioner, or family member. Undergraduate senior nursing students have now started working with the entry-level students in simulation. Both the graduate and senior nursing students enjoy and learn from working with high fidelity simulation.

We are currently using simulation to augment teaching and clinical experiences, but not to evaluate clinical competency. We want our students to feel comfortable making mistakes where the lessons learned will cause no harm to the patient or their grade. I imagine in the near future we will begin to explore the use of simulation as an evaluation tool to determine if students have obtained the key learning objectives in the clinical courses. Our ultimate goal as educators is to have students graduate as competent and safe health care providers. This technology is an awesome tool for meeting that goal.

We have found integrating realistic clinical situations for our students has had positive learning outcomes. I encourage all faculty to seek new ways to bring the "real world" to their students. It is amazing to watch the learning take place, to see the light bulbs come on, and to know that students are more prepared for what lies ahead, regardless of the discipline you are teaching!

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Creating a Culture of Research

Mubarak Shah

Dr. Mubarak Shah, Agere Chair Professor of Computer Science, is the founding director of the Computer Visions Lab at UCF. He has published extensively on topics related to visual surveillance, tracking, human activity and action recognition, object detection and categorization.

Mentoring doctoral students means exposing them to the excitement of research and providing them with opportunities and tools in a way that inspires and enables them to become lifelong learners and productive citizens. I often push students far beyond what they believe themselves to be able to accomplish. I do this because I want to prepare students to be leaders in the field, not followers.

During my 25 years at UCF, I have supervised 23 Ph.D. candidates, 13 masters of science students, and 11 Honors in the Majors projects. My former students are currently at prestigious institutions such as Oxford, INRIA, Carnegie Mellon, Michigan, Ohio State and companies such as IBM, Facebook, Harris, SAIC and SRI.

As a mentor, my goal is to help my students to participate actively as researchers in and members of my discipline. In my view, mentors can best help their students by arranging opportunities for them to not just "feel" like researchers but also to begin to be active contributors to their discipline. This means creating a culture where doctoral students have many opportunities to interact with their cohorts to share ideas, engage with researchers in the field, and act as mentors for undergraduate students.

For instance, every summer we host 10 undergraduates from all over the country under our NSF-REU (Research Experience for Undergraduates) site. This provides a great opportunity for doctoral students to mentor undergraduates and gain leadership experience in guiding research projects. These projects are often highly competitive research efforts, funded by agencies like the National Science Foundation, National Institutes of Health, and the Defense Advanced Research Projects Agency.

I have also regularly sent students to conferences even if they do not have papers to present, so that they have a chance to learn about the latest research and network with researchers from industry and academia. And, I have brought industry and academia to UCF. Every year, I invite several top international

researchers in computer vision to UCF. Typically, the visitor gives a technical talk in the morning and students get a chance to present their work and get the visitor's feedback in the afternoon. More recently, I have encouraged these visitors to give "journey talks"—stories about how they started their graduate studies, their Ph.D. work, their first jobs, research problems, and their students. These talks have been very popular among my students because they reveal the human side of a scientist.

Finally, I emphasize the "publish or perish" paradigm: to graduate, to get a job, to get a promotion or tenure, to become an editor or fellow of a professional society, publishing is essential. I do not dictate what doctoral students do in their research. My role is to act as a critic who helps them refine their research instead of simply solving problems students encounter.

All of these activities function together as ways to help foster a culture where doctoral students are conducting their own research, participating in mentoring undergraduates, engaging with academic and industry professionals, and, ultimately, becoming active participants in the research culture of their field.

Pictured above: Faculty participate in the Poster Showcase session in the Library Knowledge Commons at the 2011 Summer Faculty Conference, held in May. The conference offered roughly 90 different sessions primarily led by UCF faculty, covering topics ranging from implementing service-learning courses to strategies for helping students in distress. Learn more about participating in our conferences at <fctl.ucf.edu/events>.

Taking Loggerhead Learning Online: A Problem-Based Approach to Science Inquiry

Deirdre Englehart

Deirdre Englehart is an Instructor in the Early Childhood Development and Education Program in the College of Education. She earned her doctorate degree in 2008 while working at UCF. Her research interests include online learning, pre-service teacher dispositions, science education and children's literature.

Someone recently asked how I prepare teachers for the 21st century, specifically, "What will teachers need to know and do to support children in the year 2025?" Of course I had many ideas, but one thing that resonates strongly with me is the fact that students of the future must address many issues and problems our society has created. Children must learn how to think critically; therefore, I need to prepare future teachers to teach with methods that support this type of thinking. One format that allows me to model thinking is problem-based learning. Lener and Pinou explain: "in problem-based learning, students are presented with a realistic scientific dilemma…. Students work collaboratively to research the problem, conduct hands-on activities to learn more about it… and eventually make informed recommendations for solving the problem based on their findings" (2007, p. 50). Problem-based learning (PBL) fits with my science methods course. It also aligns with scientific inquiry because it is based on an authentic problem and provides opportunities for students to investigate and learn science while they address the issue at hand. This format can also be used with young children in the classroom setting.

To prepare my class of pre-service teachers in PBL, we engaged "Taking Loggerhead Learning Online," an online project that used loggerhead turtles as the central theme. Many students in the course live in coastal Florida communities where sea turtles lay their eggs, supporting the issue of threatened loggerhead turtles. In this unit, the problem-based learning approach reflected the following characteristics: learning was driven by ill-structured, authentic problems; students worked in groups; and learning was facilitated by the teacher while allowing for student direction, reflection, and implementation (Savery, 2006). The driving question for this project was, "What can we do to support the survival of Loggerhead Sea Turtles?" Students participated in various activities to help them develop background information related to sea turtles; they then identified a problem related to loggerhead sea turtles, investigated their own questions and developed possible solutions. Students were encouraged