



## Boise State psychologist studies terror management theory

# Through a glass darkly

**D**eath becomes her. Or rather, it's become a center of focus for Boise State psychology professor Jamie Goldenberg. She and research partner Jamie Arndt of the University of Missouri-Columbia have secured a five-year \$1.5 million grant from the National Institutes of Health to study terror management theory, or how people's feelings about their own mortality impact their health-related decisions.

Awareness of death has long been a part of life for Goldenberg. "It always amazed me how people could go about their business not thinking about death," she says. "I've always been very aware of it and it surprised me how so many people seemed to be in denial."

The field of terror management stems from the work of anthropologist Ernest Becker, who won a posthumous Pulitzer Prize for his book *Denial of Death*.

Becker theorized that all our thinking

patterns and social structures are designed to shield us from the knowledge that one day we will die. Thus, we create a myriad of distractions to keep ourselves from dwelling on the unthinkable.

Goldenberg and Arndt speculate that one way people deal with the knowledge of their mortality is by unconsciously attempting to boost their

immediate sense of self-worth, thereby adding value to their lives. This often takes the form of high-risk behavior, such as spending long hours in the sun in search of the perfect tan or smoking in order to fit in with a particular peer group.

Reminding people that these and other behaviors increase the risk of death is rarely successful, Goldenberg says. "Despite the rise in deaths, it might unconsciously promote more of a need to enhance self-esteem. We don't respond to our fear of death in rational ways. What we do is not to avoid death, but to avoid death anxiety."

For instance, no matter how often we're told that smoking causes lung cancer, we don't approach that knowledge logically, Goldenberg says. A more successful approach to convince people to stop smoking would be to taint the image of smoking, making it appear less "cool" and thus neither a ticket to popularity nor increased self-esteem.

Terror management theory manifests itself in a number of ways, including prejudice. "It undermines our own belief system when others think differently than us," Goldenberg says. It also shows up as depression, obsessive-compul-

## Patent awarded to Boise State and

it's official. More than three years after filing an application with the U.S. Patent Office, a patent has been awarded to chemistry professor Dale Russell and to Boise State for Russell's invention, the Selective Mercury Electrode.

The patent is the 12th that Russell, a former Hewlett-Packard scientist, has been awarded. Russell and the university will split 50-50 any profits from the development of her device.

"This is important ... because it shows that the university values intellectual property," Russell



Psychology professor Jamie Goldenberg's research focuses on irrational reactions to our fear of death.

sive disorder, neuroticism, sexuality, romantic attachments, greed, creativity and guilt.

Many people also deal with mortality awareness through acts of patriotism or heroism. After the Sept. 11 terrorist attacks, people suddenly had a massive reminder of their own vulnerability. "The response was symbolic," Goldenberg says. "It's the ultimate defense. The thing that's most heroic in our society is confronting death in a meaningful way, as with military heroes and firefighters. These are just different types of defenses."

The research has a two-fold purpose. First, to demonstrate that the hypothesis that humankind lives in constant fear of its own demise is true and second, to figure out the best way to convince people to act in their own best interest.

Utilizing both students and the general population, the pair will expose people to situations likely to remind them of their mortality, then ask them questions dealing with relevant issues. For instance, they might have someone watch a half hour of the evening news, or stop them on the street in front of a funeral parlor.

"When they're standing in front of a funeral parlor, they tend to feel more people will agree with their opinions," Goldenberg says. "They need to have others agree with them in order to feel more value."

Understanding those self-motivators is the best way to influence human behavior, the pair says.

"I think the mark of a good theory is not only the extent to which it provides answers to questions, but how it directs us to new and interesting theories of social behavior," Arndt says. "I think this theory does that quite well."

—Kathleen Craven

## chemistry prof for invention

says. The university will also benefit if her patent is developed into a commercial product.

Russell's invention gives scientists an easy and reliable way to measure mercury levels without sending a sample to a lab for analysis. It eliminates the inaccurate reading that sometimes occurs because the mercury can be lost by vaporization by the time a sample is tested. The invention could be used as part of cleanup efforts at mine sites or in medical analyses such as telling dentists when to replace fillings.



Engineering professors Bill Knowlton and Amy Moll check out new equipment.

## Tiny is big with researchers

Sometimes, big things come in tiny packages. That's the case when it comes to nanotechnology or nanoscience, the study of ultra-miniaturized systems that are formed by manipulating individual atoms and molecules to create tiny but complex electronic and mechanical devices.

Boise State scientists are pursuing research projects on a number of fronts in this newly emerging field. Their work has many practical applications; nanoscale materials are widely regarded as essential to the future of the computing, optical, aerospace, electronics and biomedical industries. Among the research efforts are two recently funded projects.

In engineering, researchers have powerful new tools to study nanoscale materials after receiving a \$234,000 grant from the National Science Foundation.

Professors Amy Moll and Bill Knowlton are co-principal investigators for the new NSF grant, which funds equipment to enhance the capabilities of the university's atomic force microscope, or AFM.

The AFM is used to analyze the surface structures, electrical properties and mechanical integrity of nanoscale materials. The NSF grant will be used to fund a variety of research projects at Boise State involving researchers in engineering, physics, chemistry and biology, and will also be available for researchers in local industries or at government laboratories.

In physics, professor Charles Hanna is the recipient of a three-year, \$105,000 grant from the NSF's Division of Materials Research to conduct nanoscience research. His grant is titled "Broken-Symmetry States of Confined Interacting Electrons."

The project involves modeling low-temperature quantum systems confined to two dimensions. According to Hanna, the project will help expand scientific understanding of how interacting electrons and interacting bosons behave when they are confined to nanoscale dimensions.

Bosons are particles, like photons or helium nuclei, which can join together to form huge single quantum states, Hanna explains. The tendency of a collection of identical bosons to form a single quantum state is the physical basis of lasers, superconductors, and superfluids, which are liquids that are free of friction and can flow practically forever.

— Janelle Brown