

Letter to the Editor

The Science of Human Behavior in Oklahoma: Psychology's Lost Identity

Much of the psychological research conducted by undergraduate students, graduate students, and faculty in Oklahoma are not presented at the Oklahoma Academy of Science (OAS) meetings. Major outlets for Oklahoma's psychological research are: Oklahoma Research Day, which is a research forum for Oklahoma's Regional Universities; the annual Oklahoma Psychological Society Conference, which includes an internationally known psychologist as the keynote speaker; and the annual meeting of the Southwestern Psychological Association. Many students from across Oklahoma attend the latter regional meeting in locations such as Dallas, New Orleans, and Memphis. If psychology students are generating research and are willing to present locally and travel regionally, OAS could be another outlet for this research, benefiting both the psychologists and the Academy. In addition, studies of human behavior are becoming popular in state and local science fairs. From the evaluation of the quality of many of these studies, a stronger relationship between OAS and research psychologists would benefit all levels of science in Oklahoma.

Which is more "scientific": 1) manipulating variables and testing causation using the experimental method, 2) correlating one variable with another variable, or 3) identifying a specimen that had not been described in a particular area? Obviously, all three are scientific. However, it may surprise biologists and chemists to know that from undergraduates to university faculty, experimental psychologists conduct a great deal of the first, and they are doing a lot of it in Oklahoma. Science is defined by its methods. That is to say, scientists use the scientific method to acquire knowledge. This includes identifying a problem, formulating

hypotheses, defining variables, designing a study, conducting a study, and replicating the results. Psychology is a science and a great deal of effort goes into defining variables, as psychology deals largely with conceptual variables. For example, when a psychologist studies "aggression," it's not as easy as picking up a fossil! Whether aggression serves as a dependent variable or an independent variable, it must be meticulously defined so that other scientists can replicate the study—basic scientific principles. Thus, psychologists seek to find functional relationships among conceptual variables.

Whether examining dependent variables of behaviors, brain waves, or the efficacy of treatments for depression, psychological researchers conduct science. Just as the boundaries between biology and chemistry have become blurred, so have the boundaries between biology and psychology. Some psychologists use physiological methods such as functional magnetic resonance imaging (fMRI) and electroencephalography (EEG) to test psychological questions. For instance, whether or not a person evaluates an entity as positive or negative can be determined by examining specific brain waves.

In May of 2006, there were 71 members of the National Academy of Sciences (NAS) in the Psychology section, the first elected to membership in 1960. This compares favorably to other more traditionally conceived areas of science, such as the membership of the Evolutionary Biology section (44 members), the Geology section (83 members), and the Astronomy section (86 members). A Nobel Prize winner, Daniel Kahneman, also calls psychology home. To illustrate the direct relevance of these NAS members to the research training of psychologists in

Oklahoma, Norma Graham (inducted into NAS in 1998), Julian Hochberg (inducted into the NAS in 1980) and Daniel Kahneman (inducted to the NAS in 2001) were the advisors to two of the research mentors of the first author during his Ph.D. training in Experimental Psychology. Indeed, Oklahoma's psychological researchers are trained as scientists!

There are even psychology faculty members in Oklahoma with research interests of "traditional" interest to OAS members. Jill Devenport of the University of Central Oklahoma and Lynn Devenport of the University of Oklahoma study the foraging behavior of ground squirrels. Mike Knight of the University of Central Oklahoma derives research hypotheses from sexual selection theory and more broadly studies the philosophy of science.

Some of the psychological research in Oklahoma is based on the idea that human behaviors have been subject to evolution—commonly referred to as evolutionary psychology. The attendance at recent talks made by David Buss at several state universities showed that psychological research that uses evolution as a framework for deriving hypotheses is alive and well in Oklahoma. Since evolution is a hot topic, it would be beneficial to both OAS members

and Oklahoma's evolutionary psychologists to interact across disciplines and unite the scientific community.

Researchers who use the scientific method are scientists. Whether studying the behavior of squirrels or studying the behavior of undergraduate psychology students, psychological researchers who manipulate variables and use strong experimental control to conduct their research are scientists and should identify themselves with Oklahoma's body of scientists. Both the Academy and the psychologists will benefit from moving past the stereotypes of what is science and recognizing that science is what a scientist does, not the local organizations with which they traditionally affiliate. The field of psychology in Oklahoma is fertile ground for the recruitment of scientists to the Academy.

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