

SHAPING THE FUTURE OF UNDERGRADUATE PSYCHOLOGY

Reflections from the Field

Selected Statements from F21 Psychologists

Margaret M. Keane

Assistant Professor of Psychology

Wellesley College

In my cognitive psychology and neuropsychology classes, I try not only to teach my students some of what is known about the workings of the mind and the brain, but also to teach them about the relationship between experiments and theory, and about the way in which science proceeds. Big questions can only be addressed by formulating smaller questions, and by weaving the answers into a whole. Each “small” question requires an experiment crafted with care and precision. In the process of conducting their own experiments and evaluating published research, I hope that my students will learn to think critically about science, to know what sort of evidence is needed to support or disprove a hypothesis, and to recognize the steps needed to acquire that evidence. ...Whether pursuing scientific careers or not, I hope that my students will gain an understanding of science that will enable them to participate, directly or indirectly, in meeting the challenges facing biomedical researchers today.

Lauren M. Littlefield

Assistant Professor of Psychology

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Washington College

A challenge facing leaders today is to work toward the integration of the physical sciences with the social sciences. The field of psychology is an example of a discipline that has been variously deemed a social science (e.g., in the art behind the psychotherapeutic encounter) and as a biological science (e.g., in its research on brain structure and function). Within the field of psychology, there has traditionally been a division between the two campus. To bridge the gap between the more abstract, artistic social sciences and the more concrete physical/biological sciences, it seems imperative to require more undergraduate courses in liberal arts thinking. Courses focusing on sociopolitical ethics, scientific history, and the philosophy of hypothesis testing may produce better undergraduate scientists. Our junior scientists need to be strong in character; they need to learn to apply science in a fair and ethical manner. Perhaps if our junior scientists learn to be equally sensitive to both physical and social aspects of the world, such difficult issues as genetic cloning, building the ideal offspring, neural transplantation, and environmental protection could be dealt with in a more informed manner.

Kathleen N. Morgan

Associate Professor of Psychobiology

Wheaton College

...I cannot think of a more pressing problem facing society today than the dearth of critical thinkers and science literates. How does one evaluate political candidates? Defendants in a courtroom? Rates on mortgages? Information on the internet? The cloning of human beings? How much of your tax dollars should be spent on science? Whether a student is going to go on in the sciences or not, her or she will have to make decisions in life—sometimes critical ones—that require an understanding of science and technology, and a mind practiced at critical evaluation of data.

In my courses, I endeavor to help students become educated consumers of information, and thoughtful, reasoning critical evaluators of that information. To that end, students generate hypotheses, design tests

of those hypotheses, implementing their tests, and evaluating results. Sometimes, the hypotheses are recognizable as conventional science...for example what deficit might result from damage to a given area of the brain. Almost more important than these, however, is the testing of less “conventional” ideas, perhaps through debating an idea about the unconscious (which by definition cannot be directly tested), subjecting that idea to objective but critical evaluation. My students are challenged to stretch their problem-solving abilities, to apply critical thinking skills again and again, in novel situations.

Margaret Watson

Associate Professor of Psychology

LaSalle University

With information expanding at its current rate, our students are faced with a situation that requires them to sort, organize, and understand vast quantities of information. In addition to finding a way to “wade through” the amount of information facing them, they must also find a way to determine what information is accurate and believable. While it is possible that any college class can teach such critical thinking skills, science classes are ideally suited to accomplishing this. ...Through my classes in statistics and research methods, I try to provide activities that allow students to develop and apply methods for assessing and challenging the information presented to them...with activities based on information from the world around us. For example, students review newspaper articles that present common statistics—the current divorce rate, the relationship between grades and where a student sits in the CI hope to teach students to use their own classroom, the impact of watching TV on children’s nightmares. Students must determine what the data are actually telling us, what research design might have been used, and what data were probably used to calculate that statistic. We then discuss what purpose (s) the writer might have had when s/he shared that information. Through such activities, students learn to use their own minds when processing the information that inundates them every day—rather than trusting someone else to tell them what to think. This is a skill that we all need to practice more often.