

Methodological Innovation: Science's Unsung Hero

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(Medical Xpress) -- What's more important to the progress of psychological science: theory or method? Both—and the synergy between the two, says University of Washington psychologist, Anthony G. Greenwald. But there's a problem: “There's too much pressure on psychological researchers to publish contributions to theory and not enough to develop more powerful methods,” he says, noting that the pressure is reflected not only in editorial decisions but also in university coursework and PhD programs. Now, in *Perspectives in Psychological Science*, a journal published by the Association for Psychological Science, Greenwald aims to give method—often seen as the plodding, plain sibling of the creative, glamorous theory—the respect it deserves.

Greenwald is not out to bash theory, he says. Indeed, methodological innovations make use of and depend on the quality of existing theory. But theory rarely springs fresh from the scientist's mind. “New scientific theories are more likely to come from the unexpected observations produced by new methods. Concludes Greenwald: “It's the combination that is valuable.”

To illustrate his point, Greenwald looks both at long-lived theoretical controversies and at Nobel Prizes awarded to scientists. Theoretical debates are resolved by rigorous experiments producing incontrovertible data—or so it's said. But of 13 major controversies in psychological theory Greenwald identifies, covering subjects from memory to altruism, the average duration is 40 years—and all but one remains unresolved. “It turns out that when supposedly crucial experiments were

done—and they’re done often—the opposing theoretical camps end up exactly where they were before.” They don’t argue about what the data show; they argue about what theory accounts for the data. “Each camp says, ‘My theory explains it.’”

Meanwhile, tallying up the big prizes, Greenwald finds that method is grabbing more than its share. Since 1990, 63 Nobel Prizes for medicine, chemistry, and physics went to methodological innovation; 14 went to theory. Of the medicine and economics prizes awarded for research by psychologists since World War II, 7 of 9 were for method.

These awards are well deserved, Greenwald says—because the winners have opened up vast new areas of research, and that advances not just knowledge but creative conjecture. For instance, the French physicist Georges Charpak won the 1992 Nobel Prize “for his invention and development of particle detectors.” This technology lets physicists observe rare particle interactions, which often reveal the secrets—and stimulate more sophisticated theory—of the inner workings of matter.

In psychology, Greenwald suggests, brain imaging has begun to do the same for cognitive processes. He says this even while acknowledging that fMRI may be overused simply to find areas of the brain that “light up” during interesting tasks.

“The synergy of method and theory is the main point of the article,” he says. “But the synergy implies a greater value of method than appears to be the case in the culture of the field.” By giving method its due, he hopes, psychologists may put to rest some of those undying theoretical arguments.

More information: www.psychologicalscience.org/journals/perspectives

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