

# New Content From *Perspectives on Psychological Science*

March 29, 2021



## [Citation Metrics in Psychological Science](#)

*Nina Radosic and Ed Diener*

Radosic and Diener analyzed the citation counts for 811 scholars in 30 psychology departments in the United States. They found that most scholars have a low to moderate number of citations, and a few scholars have an extremely high number of citations. A researcher's total number of citations does not appear to be necessarily tied to their department's rank. Citation counts have risen in the last years, especially among early-career scholars. The number of citations at the beginning of one's career predicts lifetime citation success and is associated with obtaining positions at higher-ranked departments.

## [Ecological Validity and “Ecological Validity”](#)

*John F. Kihlstrom*

Egon Brunswick coined the term “ecological validity” to refer to the extent to which information available in the environment (i.e., perceptual cues) provides valid information about the state of a stimulus (e.g., the color of a banana indicates how ripe it is). However, Martin T. Orne wrote about the ecological validity of experiments—the extent to which experimental findings can be generalized to the real world. Kihlstrom explains that the ecological validity of the cues in an experiment determines the ecological validity of the experiment itself and, therefore, both uses of “ecological validity” are legitimate.

## [Invisible Hands and Fine Calipers: A Call to Use Formal Theory as a Toolkit for Theory Construction](#)

*Donald J. Robinaugh, Jonas M. B. Haslbeck, Oisín Ryan, Eiko I. Fried, and Lourens J. Waldorp*

Meehl (1978) identified several shortcomings in researchers' evaluation of psychological theories. He urged researchers to strengthen theory testing but did not provide the tools necessary to build the rigorous theories his approach required, argue Robinaugh and colleagues. They emphasize the

importance of establishing what researchers are aiming for when constructing a theory, and they explain how formal theories might provide useful tools for thinking, evaluating explanations, enhancing measurement, informing theory development, and collaborating in the construction of theories. These tools should make researchers better equipped to advance psychological theory, Robinaugh and colleagues argue.

### [Truth and Advocacy: Reducing Bias in Policy-Related Research](#)

*Phoebe C. Ellsworth*

Ellsworth discusses the sources of bias in basic and applied research and suggests techniques for counteracting biases in policy-related research specifically. Many scientists who conduct policy-related research study issues they care about, thus leading to strong expectations about their study outcomes and their impact on policy. These expectations can bias the evaluation, conduct, and communication of research. Ellsworth highlighted several important techniques for reducing bias, including distinguishing between factual claims that are testable and value claims that are not, selecting the testable assumptions that may underlie various policy positions, and creating repositories of accurate information.

### [Psychology in an Indeterminate World](#)

*Ludger van Dijk*

Many current approaches to psychological science assume that the world is determined before an animal's activity in it. In contrast, van Dijk focuses on the indeterminacies of the world that humans and nonhuman animals experience and develops an ecological perspective of these indeterminacies. He develops an open-ended notion of affordances—the possibilities for action offered by the environment—and of how species determine the world together. The author discusses empirical and methodological implications of this view of affordances, noting that an ecological perspective brings responsibility for the shared world as a central theme in psychological science.

### [Student Motivation and Associated Outcomes: A Meta-Analysis From Self-Determination Theory](#)

*Joshua L. Howard, Julien Bureau, Frédéric Guay, Jane X. Y. Chong, and Richard M. Ryan*

Intrinsic motivation and behaving on the basis of perceived personal value and meaning appear to be key for school adjustment and student success. In this meta-analysis, Howard and colleagues examined how different types of motivation relate to 26 student outcomes, including performance and well-being. The researchers analyzed 344 samples of students and found that (a) intrinsic motivation was related to students' success and well-being, and (b) personal value (identified regulation) was related with persistence. Ego-involved motivation (introjected regulation) was related with persistence and performance but also with ill-being. Motivation to obtain rewards or avoid punishment was associated only with decreased well-being.

### [Arrested Theory Development: The Misguided Distinction Between Exploratory and Confirmatory Research](#)

*Aba Szollosi and Chris Donkin*

Szollosi and Donkin argue that an abundance of flexible theories better explains the replicability problems in psychological science than does a lack of distinction between confirmatory and exploratory

research (aimed at testing and generating hypotheses, respectively). They suggest that good theories are inflexible and not easily adaptable to explaining almost anything. Thus, rather than focusing on experimental testing of flexible theories that will be nonconsequential for the theory, researchers should focus on creating inflexible explanations in a way that allows for criticism and improvement.

#### [Theory Construction Methodology: A Practical Framework for Building Theories in Psychology](#)

*Denny Borsboom, Han L. J. van der Maas, Jonas Dalege, Rogier A. Kievit, and Brian D. Haig*

Borsboom and colleagues propose a five-step methodology for constructing explanatory theories: The theorist (a) identifies the empirical phenomena that become the target of explanation, (b) constructs a prototheory that putatively explains the target phenomena, (c) uses the prototheory to construct a formal model (a set of equations that encode explanatory principles), (d) assesses the explanatory adequacy of the model, and (e) studies the overall adequacy of the theory by evaluating whether the phenomena are reproducible and the explanatory principles are parsimonious and plausible. The authors explain this theory construction methodology using the mutualism model of intelligence.

#### [If Mathematical Psychology Did Not Exist We Might Need to Invent It: A Comment on Theory Building in Psychology](#)

*Danielle J. Navarro*

Shepard (1987) asserted that the probability of a response to one stimulus being generalized to another is a function of the distance between the two stimuli in a psychological space and is approximately exponential in form. Navarro uses Shepard's law of generalization and the Bayesian extensions it inspired to argue that, in psychological theory, mathematical formalism is beneficial, measurement and theory have a complex relationship, and theory growth can drive empirical work. The author describes the values and limitations of mathematical psychology for theory building.