Research Briefs

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Research Briefs features summaries of selected articles published recently in [APS's six journals](#). *APS members receive weekly summaries of all new journal articles through the* This Week in Psychological Science *newsletter.*

[Working Memory Content Is Distorted by Its Use in Perceptual Comparisons](#)

Keisuke Fukuda et al.

Psychological Science

This research suggests that comparing current visual input with a working memory representation of the immediate past (e.g., when a witness to a traffic accident tries to identify a car's license plate after a bus momentarily occluded their sight) can lead to biases. Participants compared a new visual input with a working memory representation and then reported the representation. This perceptual comparison biased the report, especially when the new input was similar to the representation. This similarity-induced memory bias was driven by representational integration, rather than incidental confusion, between the representation and the input.

[Psychological Measurement in the Information Age: Machine-Learned Computational Models](#)

Sidney K. D'Mello, Louis Tay, and Rosy Southwell
Current Directions in Psychological Science
Machine-Learned Computational Models (MLCMs)—computer programs learned from data, typically with human supervision—are an emerging approach that combines computing and information sciences with real-world data and that can be used to inform psychological science. D'Mello and colleagues compare MLCMs with traditional computational models and assessment in psychological science. They give examples of MLCMs from cognitive and affective science, neuroscience, education, organizational psychology, and personality and social psychology. The authors also discuss the accuracy and generalizability of MLCM-based measures, privacy and security concerns associated with their use, and matters of data interpretability and fair use.

[Anxiety-Related Frontocortical Activity Is Associated With Dampened Stressor Reactivity in the Real World](#)

Juyoen Hur et al.
Psychological Science
Hur and colleagues used a combination of approaches, including ecological momentary assessments of emotional experience and neuroimaging assays of threat anticipation and emotional-face perception, to study the relationship between everyday distress and neural circuits governing negative affect. Results indicated that (a) individuals who showed greater activation in a cingulo-opercular circuit during an anxiety-eliciting laboratory task experienced diminished distress in response to everyday stressors, and (b) extended amygdala activation was not significantly related to momentary negative affect. The researchers suggest that these observations provide a framework for understanding the neurobiology of negative affect in the laboratory and the real world.

[Ready to Learn: Incidental Exposure Fosters Category Learning](#)

Layla Unger and Vladimir M. Sloutsky

Psychological Science
Everyday experiences have the incidental effect of shaping the categories individuals learn (e.g., dogs, cups, chairs). Unger and Sloutsky investigated whether incidental exposure contributes to category knowledge by allowing people to rapidly capitalize on brief access to explicit teaching about the category (i.e., rendering people "ready to learn"). Across five experiments, they found that incidental exposure produced a ready-to-learn effect, even when learners showed no evidence of robust category learning during exposure. Importantly, this readiness to learn occurred only when categories possessed a rich structure in which many features were correlated within categories (i.e., features tended to co-occur in members of the same category).

[Taking a Disagreeing Perspective Improves the Accuracy of People's](#)

Quantitative Estimates

Philippe P. F. M. Van de Calseyde and Emir Efendi?

Psychological Science

Van de Calseyde and Efendi? tested a novel means of improving the accuracy of people's quantitative estimates (e.g., "What is the weight of rodeo bull Bodacious?"): combining their first estimate with a second estimate made from the perspective of someone they often disagree with. They found that this strategy produced more accurate estimates than when people made a second guess or a second estimate from the perspective of someone they often agree with. Results indicated that taking a disagreeing perspective prompted people to consider estimates they normally would not, resulting in first and second estimates that were more diverse and independent and thus more accurate when combined.

Fear in the Theater of the Mind: Differential Fear Conditioning With Imagined Stimuli

Lauryn Burleigh, Xinrui Jiang, and Steven G. Greening

Psychological Science

From fears of monsters in the closet to the internal replay of traumatic events of our past, mental imagery plays an important role in how we acquire and generalize fear responses. This research suggests that both real and imagined images engage learning processes in similar ways, so that people can acquire fear responses to otherwise neutral objects. Burleigh and colleagues showed that participants acquired fear conditioning to both viewed and imagined objects, as measured via self-reported fear responses and skin conductance. After the acquisition of fear for visual objects, the fear response generalized to imagined objects, and similarity, fear acquired for imagined objects generalized to visual ones.

Patterns of Implicit and Explicit Attitudes: IV. Change and Stability From 2007 to 2020

Tessa E. S. Charlesworth and Mahzarin R. Banaji

Psychological Science

Charlesworth and Banaji examined long-term trends in implicit and explicit attitudes across 14 years (2007–2020) by analyzing more than 7.1 million implicit and explicit attitude tests drawn from U.S. participants on the Project Implicit website. They found that since 2007, bias decreased across all

explicit attitudes; decreases ranged from 22% (attitudes about age) to 98% (attitudes about race). Implicit attitudes about sexuality, race, and skin tone also continued to decrease in bias, by 65%, 26%, and 25%, respectively. Implicit attitudes about age, disability, and body weight, however, continued to show little to no long-term change. Patterns of change and stability were generally consistent across demographic groups, indicating widespread change.

Navigable Space and Traversable Edges Differentially Influence Reorientation in Sighted and Blind Mice

Marc E. Normandin et al.
Psychological Science
This research suggests that vision may not be necessary for the effective use of geometry during spatial reorientation (i.e., when navigators are lost, their internal sense of direction is unreliable, and they must reorient themselves), at least in mice. Normandin and colleagues manipulated the navigational affordances of a chamber (i.e., a traversable space), used 3D edges to increase the salience of its borders, and evaluated how these variables influenced the use of geometry during reorientation in sighted and congenitally blind mice. Restricting navigational affordances to the task-relevant area facilitated the use of geometric strategies, such as using geometrically correct axes to reorient themselves, in all mice. However, increasing the saliency of borders improved geometry-based reorientation only in blind mice, who extensively patrolled the borders.

Resting-State Functional Connectivity Differences Following Experimental Manipulation of the Orbitofrontal Cortex in Two Directions via Theta-Burst Stimulation

Rebecca B. Price et al.

Clinical Psychological Science
Price and colleagues assigned individuals with compulsive behavior (CB) disorders to receive neuromodulation targeting the left orbitofrontal cortex (OFC; a brain area associated with CBs) followed by computer-based behavioral "habit-override" training. Neuromodulation was applied via intermittent theta-burst stimulation (iTBS) or continuous TBS (cTBS). Relative to cTBS, iTBS increased the resting-state functional connectivity (RSFC) between right OFC and other brain regions, both within and beyond regions known for their role in CB. The RSFC connectivity effects were correlated with subjective difficulty during habit-override training. These findings help reveal neural network-level impacts of neuromodulation and can inform the development of interventions.

Adults' Memory for a Maltreatment-Related Childhood Experience: Interview Protocols

Deborah Goldfarb et al.
Clinical Psychological Science
How can accurate memories of childhood events be obtained? Goldfarb and colleagues examined the

accuracy of three types of interview protocols: a standard forensic interview, a cognitive interview with mental reinstatement (asking witnesses to mentally recreate the target event), and a cognitive interview with mental- and physical-context reinstatement (using photos or videos to help the reinstatement). They tested adults who had experienced a documented medical examination related to child maltreatment when they were 3 to 16 years old, 20 years prior to the interview. Regardless of reinstatement, the cognitive interview increased the accuracy of their memories. Younger age at maltreatment was associated with less complete but equally accurate memories, and a greater number of posttraumatic-stress-disorder symptoms in adulthood predicted incorrect answers to misleading questions.

The Development and Internal Evaluation of a Predictive Model to Identify for Whom Mindfulness-Based Cognitive Therapy Offers Superior Relapse Prevention for Recurrent Depression Versus Maintenance Antidepressant Medication

Zachary D. Cohen et al.
Clinical Psychological Science
Cohen and colleagues developed clinical prediction models to investigate how adults with recurrent depression choose between continuing with antidepressant medication (ADM) maintenance or switching to mindfulness-based cognitive therapy (MBCT). Using previously published data, they constructed prognostic models that combined demographic, clinical, and psychological factors to predict relapse at 24 months under ADM or MBCT. Individuals with the poorest ADM prognoses who switched to MBCT had better outcomes compared with individuals who maintained ADM (48% vs. 70% relapse, respectively). For individuals with moderate to good ADM prognoses, both treatments resulted in a similar likelihood of relapse.

Do Rating and Task Measures of Control Abilities Assess the Same Thing?

Naomi P. Friedman and Daniel E. Gustavson
Current Directions in Psychological Science
Different measures of self-control (the ability to control one's thoughts and actions)—assessed via questionnaire ratings and cognitive tasks—show only weak relationships with each other. Friedman and Gustavson review evidence that this discrepancy is not just a result of ratings' or tasks' poor reliability or validity. Instead, ratings and tasks seem to assess different aspects of control. To improve the psychological science surrounding self-control, they suggest that researchers investigate the relative importance of these dimensions and explain which aspects of control they are studying and why.

On the Need to Improve the Way Individual Differences in Cognitive Function Are Measured With Reaction Time Tasks

Corey N. White and Kiah N. Kitchen
Current Directions in Psychological Science
One approach to measure individual differences is to use tasks designed to tap into specific functions and behavioral measures, such as reaction times (RTs). However, this widespread approach is subject to

reverse inference: That is, although different cognitive functions can result in different RTs, different RTs do not necessarily imply differences in that cognitive function. White and Kitchen illustrate this problem with data from a study on aging and lexical processing. They also discuss employing choice-RT models to analyze data and highlight practical approaches to improving and using the models.

Porosity Is the Heart of Religion

Tanya Marie Luhrmann and Kara Weisman
Current Directions in Psychological Science
Luhrmann and Weisman argue that studying the sensation that gods and spirits are real (e.g., the feeling that a person who is dead is nonetheless present) may be as important as studying the belief that they are real. They suggest that at the heart of spiritual experiences is the concept of a porous boundary between mind and world that allows thoughts to move in and out of the mind as if they had agency and power. Luhrmann and Weisman found that porous modes of understanding facilitate spiritual experiences, which are more prevalent among individuals who cultivate an immersive orientation toward experience (absorption) and engage in practices that enhance the inner experience (e.g., prayer, meditation).

You Think Failure Is Hard? So Is Learning From It

Lauren Eskreis-Winkler and Ayelet Fishbach
Perspectives on Psychological Science
Do people actually learn from failure? Although lay wisdom suggests they should, this review of the research suggests that learning from failure is hard. Eskreis-Winkler and Fishbach present a framework that points to emotional and cognitive barriers that make learning from failure difficult. Emotions undermine learning because people find failure ego-threatening. People tend to look away from failure and not pay attention to it to protect their egos. Cognitively, people also struggle because the information in failure is less direct than the information in success and thus harder to extract. This framework suggests inroads for addressing barriers to learning from one's failures.

What Do We Know About Aging and Emotion Regulation?

Derek M. Isaacowitz
Perspectives on Psychological Science
Is the general observation that older adults report higher levels of positive affect and well-being due to a better ability to regulate their emotions? Isaacowitz reviews literature on age differences in the use and effectiveness of emotion-regulation strategies and concludes that current evidence does not clearly support the assertion that older adults are better at emotion regulation than younger adults. However, current approaches may be limited in testing possible age-related changes in emotion regulation. Isaacowitz proposes that future work should investigate individual trajectories and consider the possible roles of context, physiological reactivity, neural changes, acceptance, and personality.

The Cooperation Databank: Machine-Readable Science Accelerates Research Synthesis

Giuliana Spadaro et al.
Perspectives on Psychological Science
Spadaro and colleagues developed the Cooperation Databank (CoDa), which contains 2,636 studies on human cooperation. The researchers designed an ontology that defines and relates concepts in cooperation research and created a research platform that enables users to retrieve studies that test how variables relate to cooperation. Users can then visualize these study results and perform (a) meta-analyses, (b) metaregressions, (c) estimates of publication bias, and (d) statistical power analyses for future studies. Spadaro and colleagues also leveraged the data set with visualization tools. CoDa offers a vision of how publishing studies in a machine-readable format may improve scientific practices and knowledge.

Why Antibias Interventions (Need Not) Fail

Toni Schmader, Tara C. Dennehy, and Andrew S. Baron
Perspectives on Psychological Science
Schmader and colleagues argue that there are multiple pathways to biased behavior, and each requires different types of interventions. They introduce a visual typology of bias that spotlights cognitive, motivational, and situational variables affecting the expression of biases. They also address how norms modulate how biases unfold and are perceived by targets. Using this typology as a framework, they suggest that changing associations, increasing motivation, raising awareness, and changing norms are distinct goals that require different types of interventions targeting individual, interpersonal, and institutional structures. Schmader and colleagues close with recommendations for antibias training.

Justify Your Alpha: A Primer on Two Practical Approaches

Maximilian Maier and Daniël Lakens

Advances in Methods and Practices in Psychological Science
Maier and Lakens explain two approaches that can be used to justify a better choice of an alpha level than relying on the default threshold of .05. The first approach relates to minimizing or balancing Type 1 and Type 2 error rates. The second approach lowers the alpha level as a function of the sample size to prevent Lindley's paradox (i.e., in studies with very high statistical power, p values lower than the alpha level can be more likely when the null hypothesis is true than when the alternative hypothesis is true). The researchers argue that both approaches have limitations but are an improvement to current practices. The authors provide an R package and Shiny app to perform the required calculations.

Statistical Control Requires Causal Justification

Anna C. Wysocki, Katherine M. Lawson, and Mijke Rhemtulla

Advances in Methods and Practices in Psychological Science
Controlling for relevant confounders in correlational or quasiexperimental studies can bring the estimated regression coefficient closer to the value of the true causal effect. However, when the selected control variables are inappropriate, controlling can result in estimates that are more biased than

uncontrolled estimates. Wysocki and colleagues argue that to carefully select appropriate control variables, researchers must propose and defend a causal structure that includes the outcome, predictors, and plausible confounders. They underscore the importance of causality when selecting control variables by demonstrating how controlling for appropriate and inappropriate variables affects regression coefficients. They also provide practical recommendations for applied researchers who wish to use statistical control.

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