

Romance Research Roundup

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Observer



THE BIAS BENEATH

Two Decades of Measuring Implicit Associations

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FEATURED SPEAKERS



Fred Kavli Keynote Address

LYNN NADEL

The University of Arizona

Making and Remaking Memory: Past, Present, and Future

Lynn Nadel's scientific exploration of the hippocampus has led to groundbreaking developments in understanding how space and memory are represented in the brain. He coauthored the seminal book *The Hippocampus as a Cognitive Map* with John O'Keefe. Together, they received the 2006 Grawemeyer Award.



Presidential Symposium

Memory: From Neurons to Nations

APS President Suparna Rajaram brings together four distinguished psychological scientists to speak about the nature of memory from a variety of perspectives that include cognitive, neuroscientific, cultural, and developmental approaches for this year's Presidential Symposium.

SUPARNA RAJARAM (Chair)

Stony Brook University, The State University of New York

DORTHE BERNTSEN

Aarhus University, Denmark

HENRY L. ROEDIGER, III

Washington University in St. Louis

CHARAN RANGANATH

University of California, Davis

QI WANG

Cornell University



Bring the Family Address

The Paradox of Diversity: Promise, Pitfalls, and Implications for Racial Progress

JENNIFER A. RICHESON

Yale University

Jennifer Richeson has received numerous honors and awards for her research focusing on the social psychological phenomena of cultural diversity and social group membership. A Guggenheim Fellow and a MacArthur Genius Fellow, Richeson has used a broad range of empirical methods to examine the potential cognitive "costs" and mutual misperceptions associated with intergroup interactions.

Observer

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Correction: The name of Rogier Kievit, University of Cambridge, was misspelled in the January 2018 issue of the *Observer*. We regret the error.



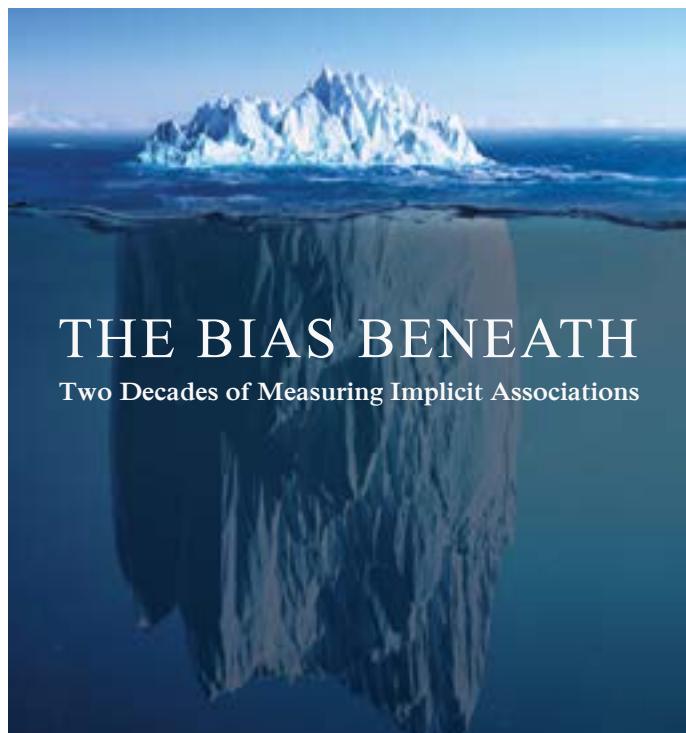
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FEATURES



THE BIAS BENEATH

Two Decades of Measuring Implicit Associations

Since its debut in 1998, an online test has allowed people to discover prejudices that lurk beneath their awareness — attitudes that researchers wouldn't be able to identify through participant self-reports. The *Observer* examines the findings generated by the Implicit Association Test over the past 20 years.

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Mahzarin Banaji and the Implicit Revolution



APS Past President and William James Fellow **Mahzarin R. Banaji** has been on the front lines of research into implicit social cognition. Her collaborators and former students celebrate her work and influence.

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How Scientists Are Blocking Bias in the World at Large



Psychological researchers like APS Fellow **Naomi Ellemers** are applying findings on implicit bias to address discrimination in law enforcement, medical, and workplace settings.

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The Memories of Memory Researchers

APS President **Suparna Rajaram** asks four internationally renowned psychological scientists, including APS Past President **Henry L. (Roddy) Roediger, III**, APS Board Member **Dorthe Berntsen**, APS Fellow **Qi Wang**, and **Charan Ranganath**, about the paths that led them to shape how we study and understand human memory.

27 **Probing the Good in Bad Behavior**

Psychological researchers are finding that some human conduct widely considered to be nasty or harmful, such as objectification and gossiping, may have some beneficial features after all.

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The APS Teaching and Public Understanding of Psychological Science Fund is supporting the development of a central clearinghouse for research on teaching introductory psychology, along with other pedagogical resources.

41 **Romance Research Roundup**

The inner workings of our hearts may always remain a partial mystery, but psychological scientists are on the forefront of what makes love, sex, romance, and attachment so alluring to human beings. This Valentine’s Day, the *Observer* shares some of the field’s most recent findings on the science of attraction.



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The Memories of Memory Researchers



Photo credit: Jeanne Neville

Suparna Rajaram

APS President

In this Presidential Column, it is my pleasure to bring to you my Q&A with four internationally renowned psychological scientists who will speak at the Presidential Symposium I will host during the 30th APS Annual Convention on May 25, 2018, in San Francisco. These eminent scientists — APS Past President and William James Fellow Henry L. (Roddy) Roediger, III, APS Board Member Dorthe Berntsen, APS Fellow Qi Wang, and psychological scientist Charan Ranganath — have fundamentally shaped our understanding of human memory through a wide range of perspectives, techniques, and groundbreaking discoveries. I was struck by the varied paths they have taken in their lives and education, the challenges they have faced, and the ingenuity they have brought, time and again, to scaling new heights. I was also inspired by their singular love for science, their dedication to our discipline, and their overall leadership. I hope that students and early investigators reading these interviews will enjoy the infectious optimism and strength evident in their answers and the priceless advice the speakers have offered based on their vast experience. —APS President Suparna Rajaram



Henry L. Roediger, III

Washington University in St. Louis

What piqued your interest in the general area of your research?

Some experiences from early in my life led me to wonder how memory works. My mother died when I was 5. I discovered I could keep my favorite memories of her alive if I set aside time to review them every day or

eventually every week. I did that for a long time, and I still can revive a set of detailed memories about her now, 65 years later. How accurate they are is a guess, but I believe the core events are accurate.

Can you share with us a little about your educational path?

I went to Washington & Lee University and had a great education there, taking courses all across the curriculum. The Psychology Department was small in those days, but Dave Elmes arrived after getting his doctorate at the University of Virginia. I began doing research with him, and eventually I had three publications from my undergraduate period, thanks to his mentorship.

I was admitted to the graduate program at Yale in social

psychology, but after a year I migrated to the cognitive program and worked primarily with Bob Crowder. Endel Tulving was hired the next year, in 1970, and he had a great influence on me, too, and we remain close to this day.

Did you take any detours along the journey to where you are today, and if so, how would you describe the significance of these markers?

My first job after Yale was at Purdue University, where I was asked to inaugurate a course in cognitive psychology — then a brand-new field. I told Endel about this development, and when he returned to the University of Toronto as department chair, he asked me to come there for a year and teach the course. It did not exist there. I took a 2-year leave of absence from Purdue and taught the course. So this journey was a kind of a detour, but one that doubtless changed the trajectory of my career for the better. In the mid-70s, the University of Toronto was the pre-eminent place to study human learning and memory. Besides Tulving, I got to know Gus Craik, Ben Murdock, Bob Lockhart, Norm Slamecka, Morris Moscovitch, Paul Kolers, and others. In addition, Dan Schacter, Eric Eich, Janet Metcalfe, Gary Dell, and many more were then graduate students there. It was an exciting time for me, and for several years I would return to teach summer school there, and I spent another sabbatical in Toronto in 1981–1982.

The full text of these interviews can be found online at www.psychologicalscience.org/memory-research.

What advice do you have for handling rejections from journals?

Persevere, if you believe in the paper. Take the reviews seriously, revise, and try another journal. Don't do it in a week, because you need to reflect on the reviews. But don't wait too long, either, and lose your enthusiasm. These days there are many journal homes for most any kind of paper and it will likely be accepted somewhere (especially if you are willing to pay a thousand dollars). But sometimes the reviewers should convince you that no, your paper is not ready for primetime yet, and you need to think more, write more clearly, and add more research before trying again.

What advice, in general, would you give budding scientists around the world?

I have lots of advice since I teach a course I called "The Psychology of Academia" about how academia works and how to succeed in it. One bit of advice: When you have a set of data that you have analyzed and understood, sit down and write up the paper soon. In general, it is too easy to start projects and too hard to bring them to publication. I am going on sabbatical — another great reason to be an academic — and I hope to follow my own advice for 6 months.

Photo credit: Poul Ib



Dorthe Berntsen

Aarhus University, Denmark

Can you share with us a little about your educational path, and whether or how it led you to pursue research in psychological science?

I had a long-standing interest in literature, notably poetic metaphors and how they were created. Yet my mentor encour-

aged me to develop my interests into something that was more "clearly psychological." Otherwise I might not qualify for a PhD fellowship in psychology. I decided that autobiographical memory fulfilled the criterion of being clearly psychological, and it still had some connection with literature, I felt. Then, I stumbled over a phenomenon that caught my interest, maybe because it often is featured in literature. And that phenomenon was involuntary autobiographical memories, which are memories that come to mind spontaneously with no preceding attempts of retrieval — think of Marcel Proust's famous *Petite Madeleine* memory. I have studied this phenomenon from many different angles ever since then.

Did you take any detours along the journey to where you are today, and if so, how would you describe the significance of these markers?

The biggest detour was taking 8 years to decide what I wanted to study. In Denmark you have to choose a field before entering university. It took me 8 years to eventually decide psychology was my field. During the 8 years, I studied Nordic literature for one year, I published a novel, and I had random jobs. Those years taught me many important lessons, the most important one being that

many other professions are a lot harder than being a university professor, even though we work long hours. My detours did not completely stop, however. I published four other novels when I was a PhD student and an assistant professor. Now I am finally going straight.

What have been the most exciting parts of your scientific career?

My experience as leader of the Center on Autobiographical Memory Research (CON AMORE) has been very positive and exciting. The center is funded for 10 years with a generous grant from the Danish National Research Foundation. My initial motivation was to achieve funding for research projects, not so much to become a center leader. However, I have also enjoyed the leadership part.

What advice, in general, would you give budding scientists around the world?

In the long run, what matters is scientific progress, and that you have contributed to making such progress. Anything else, such as awards and personal recognition, is secondary.



Qi Wang

Cornell University

What piqued your interest in the general area of your research?

About 15 years ago, in the mid-1990s, when I went to graduate school in the Psychology Department at Harvard, I had no idea of what autobiographical memory was, but the study of it in Western psychology had grown into a dynamic, interdisciplinary field with exciting discoveries, theoretical debates, controversial issues, and intriguing phenomena. It had drawn researchers from diverse disciplines with such varied interests in human memory in natural contexts, in life histories and narrative self-making, and in the practical implications of memory in clinical, legal, and everyday settings. I was amazed by the large sections of autobiographies and memoirs in the Cambridge bookstores, a scene foreign and somewhat bizarre to me. What is the driving force behind the cultural difference in the popularity of autobiographical memory in research, and autobiography in pop culture more generally? This question has motivated my research ever since.

Did you take any detours along the journey to where you are today, and if so, how would you describe the significance of these markers?

When I graduated from college in 1989, China was undergoing historical transformations economically, politically, and culturally. Many new career opportunities emerged, and they attracted many young and adventurous people. I was one of them. I had worked in foreign-invested hotels (a brand-new concept at the time) in public relations and sales (where my psychology training was somewhat

useful), and I had worked for a major French company in Beijing, doing administrative work. Six years after graduation, I found myself missing psychology and wanted to get back to my “roots.” So I started applying to graduate programs in Europe and the United States, which eventually led me to Harvard.

The detours were well worth it: They made me realize what I wanted for my career and where my intellectual strengths were. They allowed me to stay focused during my graduate study and remain motivated. I formally enrolled in the psychology PhD program at Harvard in 1996 and received my degree in 2000. I then joined the faculty in Human Development at Cornell.

Did you face any obstacles in pursuing your scientific projects?

Nothing unusual. Working with a small and transient community to recruit children and families, especially ethnic minority families, and trying to follow them longitudinally, has been perhaps the biggest challenge in our projects.

What’s been your guiding compass in your academic career?

Focus on the process, not the outcome. This makes the scientific pursuit more exciting and enjoyable, and makes obstacles and temporary failures (e.g., rejections from journals) less interruptive or upsetting. This compass also allows me to see what would be usually considered to be an outcome (e.g., tenure) as part of the process, and thus not to get stressed about it.

What advice do you have for handling rejections from journals?

Careful preparation is key: Submit a paper as if it were the final version and no further changes could be made. This is out of respect for the journals, the reviewers, and our profession.



Charan Ranganath

University of California, Davis

Did you take any detours along the journey to where you are today, and if so, how would you describe the significance of these markers?

I went to grad school in Clinical Psychology at Northwestern. My advisor, Ian Gotlib, was recruited away to Stanford, and

Ken Paller had just started his lab, so I pitched a study to Ken and ended up squatting in his lab. At that time, I was doing a lot of neuropsychological testing, and I was frustrated that most clinical tests of memory were designed before the 1960s. Clinical practice was decades behind the state of the art in neuroscience research, where brain imaging was really taking off. I was in the right place at the right time, and got funding to do postdoctoral research on fMRI and memory with Mark D’Esposito and Marcia Johnson.

My weird educational path had a huge effect on my thinking. The faculty in my clinical program were researchers first,

and they always encouraged us to think critically about the ideas that guide clinical practice. Coming into cognitive neuroscience as a total outsider, I had that same critical attitude, and it put me in a position to challenge some of the dogmas in our field. I would have been too scared to do anything useful if I had been trained properly.

What have been the most exciting parts of your scientific career?

It’s amazing to look inside people’s brains. When I started doing fMRI, every subject’s dataset was like a Christmas present that I couldn’t wait to open. On the personal side, I love being in a field where I’m usually not the smartest person in the room. And it’s even more exciting that I get to learn from and work with ridiculously talented students and postdocs.

At the larger level, psychology is exciting because it’s a living science. Roddy Roediger wrote a great paper arguing that, when you really look at it, there are no fundamental laws in the science of memory. The findings are real and replicable, but the phenomena don’t follow simple laws. To hell with laws! I love the anarchy of our science.

What’s been your guiding compass in your academic career?

“Let the data speak to you.” It’s easy to get so stuck in your thinking that you can’t see the data that you’re staring at, and it’s natural to be scared to say that your work is inconsistent with what the rest of the world thinks. In reality, if we knew how our experiments would turn out, we wouldn’t need to do them. Some of my best studies were ones in which the results did not turn out as planned — they turned out to be much more interesting.

Having said that, I don’t think we should just sit around and describe data. You could train a chimp to do fMRI and paste the SPM output into a results section. We need scientists to come up with ideas and take a stand about how the results stack up against those ideas. Without theory and critical thinking, the methods and statistics are worthless.

What advice do you have for handling rejections from journals?

If you’re not getting rejected, you’re probably not trying hard enough. If you say something that is interesting and important, about half of the world will say, “You’re obviously wrong!” The other half will say, “Of course, we already knew that!”

Another point: Marcia Johnson used to talk about “Ugly Reviewer B” — the one who didn’t read your paper carefully, and nonetheless thinks your work is incremental, your methods are flawed, and your experiment is riddled with confounds. When that rejection comes, you have two choices. You could ignore all that feedback and send it somewhere else, or, you could reinforce your paper, deal with the criticisms explicitly, and revise your paper so that the innovation and significance is crystal clear. Dealing with Ugly Reviewer B almost always makes your paper better. ●

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ICPS 2019 KEYNOTE SPEAKERS



Arrested Development or Adaptive? The Adolescent and Self-Control

BJ Casey

Department of Psychology, Yale University, USA

Adolescence refers to the transition from childhood to adulthood that begins with the onset of puberty and ends with successful independence from the parent. A paradox for human adolescence is why—during a time when the individual is probably faster, stronger, of higher reasoning capacity, and more resistant to disease—there is such an increase in mortality relative to childhood. The increase in fatalities at this age is due not to disease but, rather, to preventable forms of death (accident, suicide, and homicide) associated with adolescents putting themselves in harm's way, in part because of diminished self-control—the ability to suppress inappropriate emotions, desires, and actions. In this lecture, empirical findings will be presented on how self-control can vary as a function of age, the situation, and the individual. Evidence for dynamic reorganization of the brain that coincides with apparent lapses in self-control during adolescence will be discussed in the context of evolution based biological constraints on the brain that may enable the adolescent to adapt to the many unique challenges of this exciting developmental phase of life.



Evolution of Emotions and Empathy in Primates

Frans B.M. de Waal

Department of Psychology, Emory University, USA, and Utrecht University, The Netherlands

Emotions suffuse much of the language employed by students of animal behavior—from “social bonding” to “alarm calls”—yet are often avoided as explicit topics in scientific discourse. Given the increasing interest of human psychology in the emotions, and the neuroscience of animal emotions such as fear and attachment, the taboo that has hampered animal research in this area is outdated. The main point is to separate emotions from feelings, which are the subjective experiences that accompany emotions. Whereas science has no access to animal feelings, animal emotions are as observable and measurable as human emotions. They are mental and bodily states that potentiate behavior appropriate mostly to social situations. The presenter will discuss early ideas about animal emotions and draw on research on empathy and the perception of emotions in primates to make the point that the study of animal emotions is a necessary complement to the study of behavior. Emotions are best viewed as the organizers of adaptive responses to environmental stimuli.



The Brain in the Ecosystem: Cognition, Culture, and the Environment

Atsushi Iriki

Laboratory for Symbolic Cognitive Development, RIKEN Brain Science Institute, Japan

Human evolution has involved a continuous process of acquiring new kinds of cognitive capacity to form novel culture. The dramatic expansion of the primate brain that accompanied additions of new functional areas would have supported such continuous evolution. Extended brain functions would have driven rapid and drastic changes in primates' ecological niche, which in turn demanded further brain resources to adapt to it. In this way, primate ancestors constructed a novel niche in each of the ecological, cognitive, and neural domains, whose interactions accelerated their individual evolution through a process of “triadic niche construction.” Human higher cognitive activity can therefore be viewed holistically as one component of the earth's ecosystem, eventually comprising the “Anthropocene.” The primate brain's functional characteristics seem to play a key role in this triadic interaction.

A night-time photograph of the Golden Gate Bridge in San Francisco, illuminated with warm yellow lights. The bridge's towers and suspension cables are visible against a dark blue sky. In the background, the city lights of San Francisco are visible across the water.

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THE BIAS BENEATH

Two Decades of Measuring Implicit Associations

Over the last 20 years, millions of people have used an online test to probe attitudes they didn't know they had.

Since its online debut in 1998, the Implicit Association Test (IAT) has allowed people to discover potential prejudices that lurk beneath their awareness — and that researchers therefore wouldn't find through participant self-reports.

Basically, the IAT asks participants to categorize words or images that appear onscreen by pressing specific keys on a keyboard. The time it takes for participants to respond to different combinations of stimuli is thought to shed light on the mental associations they make, even when they aren't aware of them.

The IAT is the brainchild of APS William James Fellow Anthony Greenwald (University of Washington), and he began working collaboratively on it with APS Past President Mahzarin Banaji (Harvard University) and APS Fellow Brian Nosek (University of Virginia) in the mid-1990s. Over time, the tool has led to the examination of unconscious and automatic thought processes among people in different contexts, including employers, police officers, jurors, and voters.

Perhaps the most salient examples of implicit bias involve race and gender across a variety of scientific perspectives. APS Past President Elizabeth Phelps has collaborated considerably with Banaji on IAT investigations using functional MRI (fMRI) to explore the brain's role in the unconscious evaluation of racial groups. Developmental researchers have modified the IAT for use with children to discover some intergroup associations that form in the earliest years of life. (See related story on page 15.) And data from Project Implicit reveal that 75% of people who have taken the IAT have correlated men more strongly with work roles and women more strongly with family positions. A recent study showed that hiring managers whose scores on the IAT indicated gender bias tended to favor men over women in their hiring decisions.

But the IAT has also inspired a wealth of research on implicit biases related to age, weight, political leanings, disability, and much more.

Opinions on the IAT are mixed. Controversy about the test was evident in a 2013 meta-analysis by APS Fellows Fred Oswald and Phillip E. Tetlock and colleagues. They found weaker correlations between IAT scores and discriminatory behavior compared with what Greenwald, Banaji, and their colleagues found in a 2009 meta-analysis.

As researchers continue to explore how to use and interpret IAT findings (a new, larger meta-analysis is being prepared for publication), there's no question that the test has shaped public discussions about race and discrimination. Hillary Clinton discussed implicit bias during one of the debates in the 2016 presidential election campaign. The US Department of Justice (DOJ) has integrated findings about implicit bias into training curricula for more than 28,000 DOJ employees as a way of combating implicit bias among law enforcement agents and prosecutors. And in a historic 2015 decision involving fair housing, the US Supreme Court referenced implicit bias in a ruling allowing federal action against housing policies that have a disparate impact as well as being overtly discriminating.

"The research of Mahzarin, Tony, and their collaborators has changed national and even international conversations about racism, sexism, classism, and other forms of bias, very much for the better," says APS Fellow John Jost, Codirector of the Center for Social and Political Behavior at New York University and a former student of Banaji's.

In this issue of the *Observer*, we mark the 20th anniversary of the IAT's debut with examples of the studies it has spawned across numerous areas of psychological study.

Obesity

Studies have used the IAT to investigate how weight stereotypes affect people who are overweight or obese. In a 2011 psychological field experiment, for example, scientists at Linnaeus University in Sweden found evidence of hiring discrimination against heavier individuals. Experimenters sent out fictitious applications for a large number of actual advertised job openings. The applicants all included their photographs and had the same credentials, but some of the photos showed the job-seekers as obese and others as normal weight. The researchers then compared the number of callbacks received by the normal-weight applicants and the obese applicants. Later, the hiring managers who received the applications were invited to take an obesity IAT as well as measures of their explicit hiring preferences. The researchers found that recruiters who showed the most implicit versus explicit negative associations with obesity were the least likely to have invited an overweight applicant for an interview.

These biases about weight may also play a role in the way medical doctors view their patients, according to findings from a multidisciplinary research team that included UVA's Nosek. The scientists tested nearly 400,000 participants, including more than 2,000 MDs. They found that doctors are just as biased against obesity as is the general public. Specifically, the MDs reported a strong preference for thin

people over overweight people on measures of both explicit and implicit attitudes. But IAT results revealed that male MDs had a considerably stronger implicit bias against overweight individuals compared with their female counterparts. The scientists said the results called for further exploration into any link between provider biases about weight and patient reports of weight discrimination in their health care.

Suicide Risk

Even experienced clinical judgment often misses the marks of suicidal thinking. As a result, suicide experts have long hoped and searched for a behavioral marker of suicide risk. With Banaji, Harvard psychological scientist Matthew Nock and other clinical researchers decided to adapt the IAT to examine whether the test might reveal implicit signs of suicide risk.

Nock and colleagues tested 157 psychiatric patients, including those who were brought to the hospital following a suicide attempt. The scientists wanted to see if the IAT could distinguish those who had tried to kill themselves from those who had not.

While in the emergency room, the patients rapidly classified words related to "me" (e.g., *I, me*) and "not me" (e.g., *they, them*) as well as "life" (e.g., *survive, live*) and "death" (e.g., *dead, dying*). The researchers examined how quickly patients connected identity-related words to life-or-death words. They found that patients who had attempted suicide prior to admission responded more quickly to word pairs linking the self and death than they did to other word pairs, suggesting that the unconscious association between self and death was stronger for these patients.

Nock followed the patients for 6 months and found that those who showed a relatively strong self-death association in the hospital were significantly more likely to attempt suicide later compared with those who showed a weaker self-death association. The responses on the IAT predicted suicide attempts above and beyond the effects of commonly used predictors such as a depression diagnosis, previous suicide attempts, or the attending clinician's intuition.

Romantic Attachment

Much of the research on relationship success has relied on self-reports, but some scientists have developed IAT-like tools to assess implicit appraisals of romantic partners. In a study reported in 2010, for example, University of Rochester researchers, including APS Fellow Harry Reis, recruited 222 volunteers involved in romantic relationships. Each volunteer supplied their partner's first name and two other words, such as a pet name or a distinctive characteristic, which related to the partner. Then they watched a monitor as three types of words were presented one at a time — "good" words (such as *peace, vacation, or sharing*), "bad" words (such as *death, tragedy, and criticizing*), and partner-related words (e.g., names or traits).

In one kind of test, volunteers pressed the space bar whenever they saw either good words or partner-related



In a typical IAT, a person sits at a computer screen and views a series of words and images. She's told to press the I key on the keyboard when she sees an upbeat word such as *happy* or *pleasant* and the E key for negative words such as *dangerous* or *tragic*. The person then is told to press I when she sees the face of a Black man and E when she sees a White man's face. Next she presses I when she sees a positive word or a Black face and E when she sees a negative word or a White face. The process then reverses to Black face/negative word versus White face/positive word. All the while, the computer records the person's response times to each stimulus and, at the test's conclusion, calculates an IAT score based on these data.

words. In the other, they responded when they saw bad words paired with partner words. The expectation was that participants who had generally positive associations with their partners should be able to complete the first task more easily than the second.

The results showed that volunteers who were relatively quick to respond to bad word–partner pairings and relatively slow to respond to good-word–partner pairings were more likely to separate from their partner over the next year. Furthermore, the test results were a stronger predictor of later breakup than were the volunteers' own evaluations of their relationship quality.

Attitudes About Sexuality

Researchers have also been able to use IAT data to track shifts in implicit intergroup attitudes over time, including attitudes toward homosexuality. Public opinion polls have indicated that acceptance of gay men and women has increased as they have gained more legal rights and protections, but those polls only capture explicit attitudes. IAT cocreator Nosek and psychological scientist Erin Westgate of UVA, along with Rachel Riskind of Guilford College in North Carolina, investigated how *implicit* biases toward gay people have shifted.

The scientists examined test data from nearly 684,000 visitors to the Project Implicit site between February 2006 and August 2013. Eighty percent of the participants identified as heterosexual.

When taking the IAT, participants had to sort positive words (e.g., *beautiful*, *good*) into the “good” category and negative words (e.g., *bad*, *terrible*) into the “bad” category. They then did the same kind of sorting for words and images related to gay people (e.g., pictures of same-sex wedding cake toppers or the word *homosexual*) and straight people (e.g., the word *heterosexual*). Participants who had negative implicit associations with gay people reacted more slowly when positive words were paired with words related to gay people than did those who had positive implicit associates with gay people.

The researchers found that not only did explicit preferences for straight people over gay people decline by 26% over the 7.5 year period, *implicit* preferences fell by more than

13% during that same time period. That change was largest among people who were younger, White or Hispanic, and liberal. But nearly every demographic group in the sample showed signs of an attitude shift.

Political Preferences

Voters have increasingly eschewed the Democrat and Republican labels and have opted to identify themselves as Independents. But Nosek and UVA psychological scientist Carlee Beth Hawkins decided to use the IAT to explore the associations that churn inside the Independent mind.

In one study, a random sample of more than 1,800 volunteers participated on the Project Implicit website, where they read a mock newspaper article comparing two competing welfare proposals. One plan was generous in its benefits, the other much more stringent. Some of the volunteers read an article that said the Democrats were supporting the generous plan; Republicans, the stringent plan. Other participants read the same article but with the parties switched around.

The researchers then asked the volunteers to record which proposal they preferred and describe their political ideology and party identification; those who selected Independent were asked if they leaned toward either of the two major parties. Next, the volunteers took a version of the IAT designed to measure partisan identities and policy preferences.

The participants who identified as Independents varied greatly in the implicit associations they showed, and they made political judgments in line with these implicit associations. Those Independents who implicitly identified with Democrats preferred the liberal welfare plan, while those who implicitly identified with Republicans preferred the stringent plan. Furthermore, the Independents who showed implicit associations that favored Republican politics preferred whatever plan was proposed by Republicans — regardless of the values underlying the plan — more than they favored any plan proposed by Democrats. The same was true for those who showed an implicit preference for Democrats.

The findings suggest that self-identified Independents appeared to be influenced both by ideology and by partisanship, the researchers concluded. ●

—Scott Sleek



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Mahzarin Banaji and the Implicit Revolution

The concept of unconscious thought — that there are aspects of our minds that we are unaware of but that nevertheless influence our behavior — has been around since the days of Descartes, but only in the last 30 years have psychological scientists put these implicit cognitions under the proverbial microscope to examine where they come from, how they work, and how they relate to perception, learning, memory, judgment, and behavior.

On the frontlines of this revolution is APS Past President Mahzarin R. Banaji, the Robert Clarke Cabot Chair of the Department of Psychology at Harvard University. A panel of Banaji's collaborators and former students, esteemed psychological scientists in their own rights, gathered to discuss the influential role Banaji has played in their research at the 2017 APS Annual Convention in Boston. The symposium was in honor of Banaji receiving the APS William James Fellow Award.

The Mind's Projectionist

APS William James Fellow Anthony Greenwald, professor of psychology at the University of Washington, became Banaji's advisor when she began her graduate studies at Ohio State University in the 1980s and remains her most prolific collaborator to this day. Their theoretical and empirical work led to the 1998 creation of the Implicit Association Test (IAT), a pioneering assessment tool that has changed how we understand and measure unconscious attitudes. The two also have contributed to countless other scientific breakthroughs and published myriad journal articles.

While the idea of two separate mental levels — a higher, conscious level and a lower, unconscious level — was far from original by the late 20th century, the pair's specific characterization of the relationship between these two levels was indeed revolutionary, Greenwald said. He described the connection thus:

"The conscious level of the mind is obliged to use what the automatic level provides to it, and in this way the lower level controls conscious perception, thought, and judgment." Greenwald likened this relationship to that of a theater projectionist and a film audience, where the former exerts control over what the latter is able to see.

An important aspect of this relationship is that even a concentrated effort to override the unconscious mind cannot change what happens on the conscious level. Attempting not to be fooled by an optical illusion does not change our visual perception of the image; the only way to see that two distinct-looking colors are indeed the same shade of gray is to remove the surrounding visual context that creates the illusion.

This point brings up an important question regarding the meaning of conscious cognition, said Greenwald.

"Does conscious mean *in* control or *under* control? It actually means both, and both aspects of control are important," he explained. "But the content of conscious cognition is controlled in ways we do not easily understand and intuit."

Just as the influence of the unconscious mind can lead us to make

inaccurate sensory judgments, it also can lead us to infer invalid social judgments. Examples of these social illusions abound, including the false — but common — idea that men are more likely to be instrumental virtuosos than are women, or the also incorrect belief that White people, but not Black people, demonstrate good citizenship.

"The limits of our introspective abilities are greater than we understand in our everyday lives," Greenwald said.

Biases on the Brain

During the 1990s, while Greenwald and Banaji were conducting these groundbreaking studies on the implicit expression of social biases, one of Banaji's colleagues in the Yale University psychology department was examining the implicit expressions of emotional learning and memory from a cognitive-neuroscience perspective. Now a professor of psychology at New York University (NYU), APS Past President Elizabeth Phelps was looking for evidence of the role of the amygdala in learning an aversive response in threat-conditioning paradigms. This connection had already been established in animal models but was not yet confirmed in humans — a topic Phelps saw as highly relevant to Banaji's work on implicit attitudes.

Weaving the two threads together, Banaji and Phelps teamed up to study the relationship between implicit and explicit racial biases and amygdala activation. They found that subjects with a stronger implicit pro-White bias, as measured by the IAT, tended to have more activation in the amygdala when viewing a Black face than when looking at a White face,



Mahzarin Banaji

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indicating that these implicit responses were mediated at least in part by the amygdala.

The study, conducted in 1999, “was one of the first clear examples of social neuroscience that got a lot of attention early on, and it was the beginning of our real collaboration,” Phelps said.

Banaji and Phelps continued to work together after Phelps moved to NYU, investigating the neurobiological mechanisms underlying racial bias and their consequences. One such study used a threat-conditioning paradigm to examine the phenomenon of “prepared stimuli” that are theorized to elicit a stronger and more persistent fear-learning response due to our evolutionary history (such as our reaction to a potentially deadly spider versus a harmless butterfly).

They found that subjects responded to racial out-group stimuli similarly to how they responded to prepared stimuli: Fear responses to prepared stimuli and racial out-groups were harder to unlearn during the extinction phase of a threat conditioning experiment than were responses to harmless stimuli and racial in-groups.

“In other words, you have this learning that a stimulus predicts something negative, and it’s much more sticky — it’s harder to get rid of,” Phelps said. Additionally, the two found that this effect was much smaller, or even entirely absent, for subjects who had dated outside of their race, a behavior that may have altered their perceptions of in-group membership.

“This suggested to us that there may be a preparedness to associate negative outcomes with out-group members, and these negative associations may be harder to change with new information,” Phelps explained.

Banaji and Phelps found a similar pattern when they looked at subjects’ judgments of trust. In a classic trust-game paradigm in which study participants had to make decisions about how much money to share with a partner, the researchers found a correlation between implicit race bias and patterns of sharing behavior. The higher a subject’s pro-White bias (as measured by the IAT), the more they shared with White partners relative to Black partners.

Phelps continues to pursue research focusing on ways to control, diminish, or even eliminate these maladaptive emotional and threat reactions.

Whence Implicit Attitudes?

In parallel to the effort to characterize the nature and neuroscience of implicit attitudes, researchers are also interested in understanding how these biases arise in the first place. Former Banaji student Yarrow Dunham is now the Director of the Social Cognitive Development Lab at Yale University, where he examines implicit attitudes from a developmental perspective.

Implicit attitudes were first theorized to be a product of slow learning, in which the level of bias increases across time from a young age, when a child first understands the category of bias (e.g., race or gender), to adulthood, when that bias is firmly entrenched in a person’s implicit social judgments and attitudes. Measuring the in-group preferences of 6-year-old, 10-year-old, and adult subjects (and, in subsequent research, children as young as 3 to 4 years old), Dunham was surprised to find relatively little change in in-group preference across



Psychological scientists including (from left) **Yarrow Dunham**, APS Fellow **John T. Jost**, APS Past President **Elizabeth Phelps**, and APS William James Fellow **Anthony Greenwald** gathered to celebrate APS Past President **Mahzarin R. Banaji** at a special symposium at the 2017 APS Annual Convention.

“We seem to be seeing, on average, adult-like implicit attitudes right from the beginning,” he explained.

Dunham and colleagues conducted a study in which they measured the preference among young children for their own “minimal group,” an arbitrary distinction based on a random draw of either a red or blue shirt. Even in this context, with no discernible social value assigned to either group, children preferred their own shirt-color group over the other color to a similar degree that 6-year-olds in the earlier studies preferred their own racial in-group.

“This slow-learning account doesn’t seem to get us very far because initial implicit evaluations seem to privilege the in-group right away,” said Dunham. This led him to posit a modified model dubbed “preparedness then tuning,” in which implicit in-group preferences emerge first and are then refined via slow learning.

Putting this model to the test, Dunham examined the in-group preferences of young Latino Americans compared with their preferences for both another lower-status racial group (Black Americans) and a higher-status group (White Americans). He found that Latino American children show a typical, stable-across-time pattern of preferring their own group over Black Americans. Their in-group preference also remained relatively stable across time compared with their preference for White Americans — but stable at a value of zero. This indicates that subjects had virtually no preference for their in-group over White Americans, “as if these two factors — status internalization and membership — have, in a sense, cancelled each other out,” explained Dunham.

While this lack of in-group preference was somewhat expected for adults, who have had a lifetime to internalize a “White = good” bias, Dunham was surprised to see that the same was true for young children.

“What is remarkable here is not that status matters, but that status matters *as much* to quite young children as it does to considerably older children or adults,” he said.

This showed that the “preparedness then tuning” model doesn’t quite fit either, in that it fails to account for initial attitudes

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Continued from Page 17

that seem to immediately integrate membership and status. So it's back to the drawing board again for Dunham — not that he isn't excited about the direction future research is headed.

"I think the really tantalizing question is, What are the specific cues that are powerful enough to get a 4-year-old child to counteract or even reverse the tendency towards implicit in-group preference?" he asked.

Since first arriving on the Ohio State campus from her home country of India, Mahzarin Banaji has helped push the boundaries of our understanding about the nature of implicit cognition. As these three collaborators and former students demonstrate, she has also had an enormous influence on other realms of study and on the directions in which psychological inquiry is moving as a whole.

Banaji describes her choice to seek out Greenwald as a graduate advisor and mentor as "the single most important decision that I made, career-wise," a sentiment many of her former students would profess about Banaji herself, who also garners a great deal of personal affection from her mentees. (Former student APS Fellow John Jost, who chaired the symposium, introduced her as "one of my favorite people in the world.") Reflecting on the past 30 years, which have contained all the highs and lows that inevitably accompany the collaboration of two brilliant — and at times clashing — scientists, Banaji is certain of one thing:

"It has not always been easy, but it has always been worthwhile." ●

-Amy Drew

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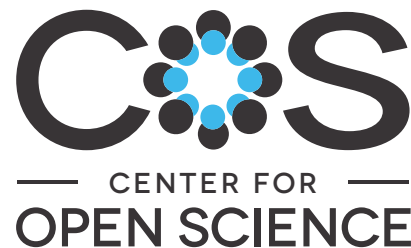
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How Scientists Are Blocking Bias in the World at Large

Implicit bias, and the subtle systemic and interpersonal discrimination it feeds, is meeting its match: Psychological scientists working with diverse populations, including police departments, patients, and policymakers, are identifying and fostering new ways to combat latent forms of prejudice. Three researchers shared their own work in this area during a special event, “Real-World Implications of Implicit Bias,” at the 2017 APS Annual Convention in Boston.

In Policing

Modupe Akinola, a psychological scientist at Columbia Business School who studies the effects of stress on performance, said that scientists’ increasing examination of racial bias in law enforcement tends to overlook the role that physiological responses play in high-risk policing.

In a study of 87 police officers in a Massachusetts police department, she and APS Past Board Member Wendy Berry Mendes (University of California, San Francisco) examined the body’s reaction to high-pressure situations. By measuring participants’ cortisol levels before and after a stressful role-play scenario, the researchers were able to draw conclusions about how stress affected officers’ decision-making about whether or not to shoot armed or unarmed White or Black targets.

The results were intriguing: “As officers’ stress levels increased, they were more accurate in their decisions regarding Black targets in the computerized shooting simulation,” Akinola said. “We did not see that relationship with White targets. These officers had a particular competency with Black targets and did not make the same errors of shooting unarmed Black targets frequently seen in the media.”

When she and her colleague questioned members of the department about the findings, the officers said they were unsurprised: They had received extensive training about diversity and ways to combat racial bias. Their responses highlighted the importance of such training, Akinola concluded.

“If you change the culture and climate of these departments, this can help reduce bias. Additionally, if bodily stress responses can affect decision making under stress, this opens up new avenues to intervene and improve decision making,” she said. “One of these avenues is stress management training.”

Akinola is a member of a monitoring team appointed by a federal judge to oversee the reform efforts in the Cleveland Police Department. The goal of the initiative, a result of a consent decree between the Department of Justice and the City of Cleveland, is to tap into the knowledge of a range of experts, including social and clinical psychologists, to make a number of fundamental changes to the department’s policies, practices,

procedures, training, use of data, and more.

In particular, Akinola and her colleagues are helping the department develop systems to collect, track, and analyze data more efficiently and effectively. “I can’t tell you how important this is,” she said. “For instance, few police departments across the country track their stop, search, and arrest data by race and by gender. Without these data, it is im-

possible to know if all citizens are being treated equally and fairly.” At least as important, Akinola said, is making cultural changes within their departments: “Cultural beliefs, practices, policies, and norms within police departments can sometimes perpetuate racial disparities in treatment,” she said. “This is also where a lot of the change needs to be made, and where social and behavioral scientists can contribute valuable insights.”

Akinola stressed the importance of social scientists engaging in police reform efforts to help bring the interventions tested in the lab into the field in an effort to improve cross-race interactions within police departments and between police and the community.

“Integrating social psychological research with practice in the world of policing will have significant effects in terms of reducing implicit bias,” Akinola noted.

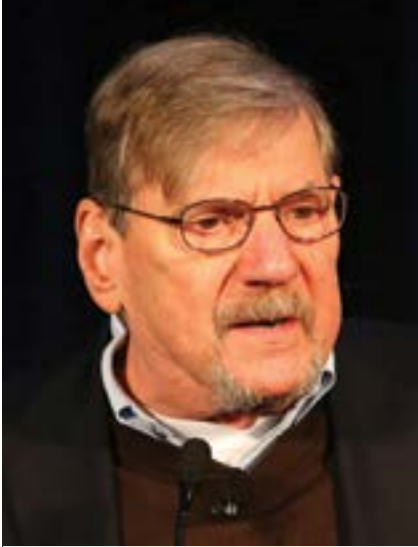
For Medical Care

APS Fellow Louis A. Penner, Wayne State University, Karmanos Cancer Institute, and University of Michigan Research Center for Group Dynamics, takes a microlevel approach to examining implicit bias by zooming in on racially discordant medical interactions.

Penner opened with a sobering example of why this line of study is so critical. He noted that, despite there being no



Modupe Akinola works with a monitoring team appointed by a federal judge to help the Cleveland Police Department overhaul its policies, practices, and procedures.



Although physicians usually do not display outright racial bias, their implicit race-related attitudes can affect minority patients' treatment and feelings of comfort, says **Louis A. Penner**.

significant difference in the incidence of breast cancer in Black versus White women, Black women are much more likely to die from it than are White women.

Conventional wisdom suggests that this kind of disparity has its roots in genetic factors or socioeconomic status — if White women seeking treatment are, on average, wealthier than their Black counterparts, they may be receiving better health care. A 2003 Institute of Medicine report on

health care, however, suggested that another cause was unequal treatment based on patients' race: In clinical settings, Blacks were not treated as well as Whites, even when their health insurance was equivalent.

One factor contributing to this unequal treatment, Penner said, is that more than 80% of Black patients' clinical interactions are racially discordant, meaning their provider is not Black. He reported that researchers have found that these interactions are shorter; less positive, productive, and informative; less patient-centered; less engaged; and less satisfying to patients. Penner argued that one reason for this was physicians' race-related attitudes.

"When physicians and patients enter a clinical interaction, they do not do so *tabula rasa*," he noted. "They both bring with them race-related attitudes." Penner focused, however, on physician racial bias.

While physician explicit bias tends to be relatively low, Penner said, implicit bias is often high; in addition, "even if there is explicit bias, these expressions of conscious race-related attitudes are probably well-controlled" due to physicians' training. Automatic, nonconscious implicit bias, however, may be much more difficult to manage, and such bias can affect the treatment Black patients receive, both immediate and long-term.

To examine this phenomenon, Penner and his colleagues examined the effects of race-related attitudes in racially discordant primary-care interactions, using a sample of 156 Black patients and 18 non-Black physicians in a primary-care clinic. Before the patient-physician interaction, the researchers measured physicians' implicit and explicit bias using the Implicit Association Test and patients' perceived past discriminatory experiences. Afterward, they measured patient satisfaction and trust and asked Black and White observers to rate thin slices of physician affect from videos. Penner, who is White, was shocked to discover how differently he and the Black participants viewed the encounter.

"These are highly scripted, 15-minute interactions, in which I, I am embarrassed to tell you, see nothing in the physicians'

behavior," he said. "Yet in those 15-minute interactions, the Black patients ... were picking up on their physicians' implicit racial bias and reacting negatively. They thought the higher-bias physicians cared less about them, and they trusted these physicians less."

In another study, Penner again delved into the effects of implicit physician bias on Black patients and their non-Black physicians. They used a methodology similar to that in the first study, with a sample of 114 Black oncology patients and 18 non-Black oncologists, and found similar results. Oncologists who scored higher on implicit bias had shorter interactions with patients, were rated as less supportive by blind observers, and were visited less by patients.

Importantly, Penner said, patients who interacted with higher-implicit-bias physicians reported less confidence in recommended treatments and expected more difficulty completing them: "Implicit bias not only affects how patients feel about the doctors, but how they feel about the treatments that the physicians have recommended."

Penner outlined several potential solutions that could be implemented with the help of psychological scientists. Clinicians, he said, should be encouraged to individuate their patients and communicate with them, during both initial consultations and follow-ups; and patients should be given strategies to ask more relevant questions about their treatment. Both should reduce the effects of physician bias. On a system-wide level, he suggested organizations aggregate data from their healthcare systems to gain awareness of existing racial disparities and work to standardize treatment of Black and non-Black patients.

On the Job

APS Fellow Naomi Ellemers, Utrecht University, is looking at discrimination within another system: the workplace. Ellemers, whose work focuses on social identities and relations between groups, has found that people must believe that discrimination exists on a systemic level before they are willing to change.

"People experience some sense of loss when they realize that bias persists despite their best intentions. That has to be overcome," she explained. "A first requirement for people in experimental studies or in real life to be motivated to change anything about the situation is that they first need to be convinced that there is even a problem with discrimination and systematic inequality." Otherwise, she said, they assume that if someone lacks opportunities — such as access to a good school, health care, or job training — it is due to some personal failing.

In a study that explored ways to reduce implicit bias, Ellemers and colleagues found that emphasizing the moral implications of such bias helped people suppress it. Other solutions included testing participants in the presence of the target group (in this case, Muslim women); underscoring the importance of being a "good" in-group member (as rated by approval or disapproval from another in-group member); and highlighting a common identity (such as shared gender or religion).

Ellemers noted that people often have a hard time adjusting to the idea of prejudice on a structural level.

"People become very depressed and discouraged, because they say, 'If I'm not aware that I am discriminating or that I am biased, how can I change this?'" she said. "It's very disconcerting for people, because they feel like they cannot control that outcome."

Ellemers has collaborated with universities and government entities to combat this phenomenon. With a group of colleagues



Highlighting a common identity between in-group and out-group members can help people address their implicit bias in positive, effective ways, says **Naomi Ellemers**.

Royal Academy members. The initial feedback was mixed — employers were afraid they would be forced to hire underqualified candidates, and women were afraid they would be stigmatized as

who call themselves Athena's Angels, she collected personal stories from women who had experienced implicit discrimination. An artist helps them communicate these stories. Athena's Angels worked with the Dutch Minister of Education and the president of the Royal Academy of Arts & Sciences to reduce implicit bias by requiring Dutch universities to hire an additional 100 female professors and to select an extra cohort of female

a result. Instead, "We got these surprised comments: 'Oh, there are so many talented women out there, and we just [hadn't found them before]!'" Ellemers said. "I think a lot of difference was made because we realized that we can't just give people the information about implicit bias. We also have to work with them."

In another context, Ellemers is helping employers overcome their unintentionally prejudicial attitudes when selecting students for vocational training. In the Netherlands, students are required to intern at a company to complete their education, but ethnic minority students often have difficulties obtaining such jobs, a disparity in which implicit bias is likely to play a role. To address this, she and her colleagues developed strategies to remind hiring managers of the professional identities they share with the students (e.g., the students hoping to gain experience in the field from the employers); they also created evidence-based guidelines for the employers to use.

All three psychological scientists stressed the fact that no one is immune to implicit bias and that such attitudes will not change overnight. The key response, they said, is to give people the tools they need to address and overcome their bias and to make those tools easily accessible to the target audience — and, if possible, the general public. As Ellemers said, just providing the information isn't always enough.

"You have to make it nice, or fun, or give people rewards for positive behavior," she said. "In our country this has had a huge impact." ●

-**Mariko Hewer**

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APS Past President



Walter Mischel

Walter Mischel's studies on children's self-control are classics in the field of psychological research. In this interview recorded at the International Convention of Psychological Science in Vienna, Austria, Mischel reflects on his famed marshmallow test and other aspects of his storied career.

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APS Fund for Teaching and Public Understanding of Psychological Science

TRANSLATING RESEARCH TO IMPROVE THE TEACHING OF PSYCHOLOGICAL SCIENCE

PROPOSAL DEADLINE: March 1, 2018

Psychological science often suggests promising principles that may improve learning. However, many of these findings have not been translated to educational contexts or designed into easy-to-implement teaching interventions. A grant program from the APS Fund for Teaching and Public Understanding of Psychological Science encourages the development of evidence-demonstrated interventions that apply well-established principles to improve the teaching of psychological science. The objective is to extend the validity of research from controlled contexts to naturalistic post-secondary learning environments, to determine the necessary conditions for interventions to succeed, and ultimately to design the strategies needed for others to implement successful interventions in their own teaching contexts.

The APS Teaching Fund invites proposals for grants of up to \$15,000 to support research that contributes to this effort in the teaching of psychological science in higher education. Proposals from underrepresented groups and groups outside the US are actively encouraged.

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Integrative Science

Emotions in Context

What We Know About How We Feel

Emotions motivate behaviors, rational or not. They are the “colors of the soul,” according to Tanja Michael, who spoke at the 2017 International Convention of Psychological Science in Vienna, Austria. Michael is a professor and department chair in the Clinical Psychology and Psychotherapy Department at Saarland University in Germany. She explained that fascination with emotions inspires many researchers and clinicians to enter the field of psychology and behavioral science. Emotions have huge implications for clinical psychology, as patients generally seek treatment because of feelings as opposed to thoughts or behaviors. Patients may feel sad, anxious, or discontent, or perhaps don’t feel much at all — as may be the case with depression or other conditions that leave people feeling “numb.” Michael advocates for integrating different arenas of emotional research, and she suggested the symposium she was chairing might be an aide to that integration.

Emotions Across Culture

Early culture and emotion researchers started with the hypothesis that people in different cultures would experience emotions differently or experience the same emotions at different frequencies. But study data from around the world showed little difference in people’s day-to-day emotional experiences. Researcher focus then shifted to the question of whether different cultures had different “ideal affects” — that is, different ideas about which emotions are desirable.

APS Fellow Jeanne Tsai of the Culture and Emotion Lab at Stanford University recalled when “we started thinking that maybe culture influences people’s desired emotions.”

Tsai and her collaborators have found that “people on average want to feel more positive than negative, and they want to feel more positive and less negative than they actually feel,” she said.

There were reliable differences in ideal affects, however. Cross-culturally, people characterize emotions as positive or negative (called “valence”) and stimulating or soothing (called “arousal”). “Ecstatic” and “relaxed” are both positive-valence emotions, for example, but “ecstatic” is high arousal, while “relaxed” is low arousal.

When asked about how they would ideally like to feel, European Americans typically preferred excitement and elation more than did Chinese, who preferred calm and relaxation more than did European Americans. There were no differences in how much European Americans and Chinese reported actually feeling those emotions, however.

“Cultural factors may shape how we want to feel more than how we actually feel,” Tsai said.

This ideal affect difference shows up in children’s books, magazine ads, and the official portraits of politicians and business leaders. American media figures sported broad, open, teeth-baring “excited” smiles more frequently than did their Chinese counterparts, who more often expressed calmer, closed smiles.

A culture’s ideal affect is likely both reflected and reinforced by media.

“We learn a lot from the media, but the media are also a product of a culture’s values,” Tsai said.

Ideal affect may influence social interactions as well. If we meet someone who shows our ideal affect, we may be more apt to like, trust, help, or show generosity toward them. Tsai described a dictator game in which European Americans and Koreans were given money, then asked whether or not they wanted to share it with a potential recipient. They were shown a picture of the stranger who was either smiling excitedly, displaying a calm demeanor, or showing a neutral expression. European Americans wanted to give more money to excited-looking versus calm-looking recipients compared with the Korean participants. These findings held regardless of the race or sex of the recipient.

“Culture influences how we ideally want to feel. That influences whom we trust, and then, ultimately, how much we give to those recipients,” she said.

These findings suggest that seeing an ideal affect in an individual may prompt people to categorize that other person as an in-group or out-group member — even more so than the person’s race, the psychological scientist added.

Tsai and her collaborators have also begun studying whether an ideal affect match allows patients and physicians, educators and students, or bosses and employees to communicate more effectively.



Patients often seek treatment not for specific thoughts or behaviors, but for feelings of sadness, anxiety, and discontent, heightening the need to fully integrate emotional research into clinical psychology, says Tanja Michael.





Jeanne Tsai has found that culture can influence the desirability of different types of positive emotions; European Americans seek out high-arousal feelings such as excitement rather than relaxation and Chinese prefer calm to elation.

Psychological processes of post traumatic stress disorder (PTSD), a severe disorder characterized by emotional re-experiencing of trauma memories (e.g., “intrusions”), can be studied using a nonclinical experimental analog combining Pavlovian fear conditioning with trauma films. This research revealed that intrusions are conditioned responses to trauma cues and that elevated peritraumatic conditionability in women (vs. men) explains their higher intrusion frequency and distress. However, women with higher levels of the sex hormone estradiol were in part protected from this effect.

Other studies expanded this approach using videos of aversive social encounters to investigate to what degree person perception is influenced by what the researchers



Ralph Adolphs says studies of people with amygdala impairments suggest that emotions may result from a deliberate appraisal of our environment rather than reflex.

Faking Fear

Psychological disorders often have emotional components such as fear or sadness. Salzburg University psychological scientist Frank Wilhelm and his colleagues have developed novel naturalistic experimental psychopathology approaches that can link basic emotion with clinical research. Based on a thorough understanding of the psychophysiology of emotion, their recent research provides new insights into the emotional learning etiology of mental disorders.

For example, psychological processes of post traumatic stress disorder (PTSD), a severe disorder characterized by emotional re-experiencing of trauma memories (e.g., “intrusions”), can be studied using a nonclinical experimental analog combining Pavlovian fear conditioning with trauma films. This research revealed that intrusions are conditioned responses to trauma cues and that elevated peritraumatic conditionability in women (vs. men) explains their higher intrusion frequency and distress. However, women with higher levels of the sex hormone estradiol were in part protected from this effect.

Other studies expanded this approach using videos of aversive social encounters to investigate to what degree person perception is influenced by what the researchers termed “social Pavlovian conditioning.” Pictures of individuals that were coupled with videos of aversive social encounters with this person were appraised as being more negative. This social learning was highly enduring, and effects were still being demonstrated after 1 year.

Feeling, Fast and Slow

When we experience emotions, are we reacting quickly as though by reflex? Or is it a slower, more deliberate appraisal

that leads to our various emotions? APS Fellow Ralph Adolphs of the Emotion and Social Cognition Lab at the California Institute of Technology employs brain-imaging technology in an effort to answer these questions.

Adolphs and colleagues have been able to run tests on a subject, “SM,” who seems to be missing an emotion. SM has lesions in both brain hemispheres where her amygdala would normally be.

“This patient has a remarkably selective impairment in a single emotion: fear,” Adolphs said. SM can handle snakes, scary movies, and haunted houses without any evidence of alarm, and she reports not feeling afraid in her day-to-day life.

Theorizing that fear is not a single emotion, researchers conducted a test on SM and two other participants who had the same condition to arouse fear without an external threat: They induced a panic attack. They piped carbon dioxide through a mask for less than a minute, enough time to produce a suffocating sensation. While this experience will trigger a panic attack in about 25% of the general population, it sparked panic in all three participants in this experiment, Adolphs said. These individuals, who typically walked through life without dread or terror, now reported experiencing the most intense fear they had ever experienced.

This suggests that the emotion of fear may need to be broken down further into categories if it is to accurately reflect the human experience, Adolphs said. Perhaps distant threats elicit a different response than do dangers that appear relatively proximate or those that are life-threatening. For example, hiking in an area where bears have been spotted in the past month is different than seeing a bear itself on the trail, which again is different than seeing the bear charge in your direction.

Research into people with amygdala impairment has shown that they can’t recognize fear on other people’s faces either, Adolphs reported. This suggests, he said, that something in the emotional recognition system of the brain is using a slow, multistep process to detect emotion.

People with no amygdala impairment looking at ambiguous faces show brain activity based on their interpretation of the face. This is more support that appraisal is a major part of emotion perception and evidence against a more reflex-like emotional system, Adolphs said. ●

-Joe Dawson



Frank Wilhelm says the intrusive memories associated with post traumatic stress disorder can be studied in a nonclinical setting by using films to cause social Pavlovian conditioning.

Probing the Good in Bad Behavior

Exploring the more unpleasant aspects of individual and social nature is an occasional necessity for psychological scientists. But does approaching a phenomenon as all bad or all good risk limiting the questions that researchers ask about it?

Below are examples of research that identifies some bright facets of human behaviors that are typically viewed as nasty, mean, and dark.

Objectification

Objectification involves treating someone as a means to a goal. In both philosophy and psychological science, objectifying others has been viewed as an antisocial act, something to be minimized if at all possible.

“Philosophers, feminists, and psychologists have argued forcefully that to treat a person as a means is cold, callous, and immoral,” says Edward Orehek (University of Maryland), first author on an article published in *Perspectives on Psychological Science*.

But there are a great number of goals that people strive for, Orehek and colleagues note, and a great number of people can help with those goals. Studies exploring goal orientation and objectification have found, for example, that people who focus on an academic goal will automatically place higher value on those who can help them get better grades.



“We argue that objectification is inevitable and only results in negative consequences under certain conditions,” says Orehek. “Objectification can also be warm, compassionate, and moral.”

Others often enjoy helping people attain their goals, whether it’s a recreational goal like a weekend vacation or a long-term life goal of raising a child.

“I think controversy is possible if readers interpret the paper as me saying that objectification is moral. My perspective is more nuanced than that,” says Orehek.

Specifically, he lays out two general conditions in which objectification is immoral: when the person being objectified

sees the goal as immoral (e.g., Greg thinks premarital sex is immoral and doesn’t want to be instrumental to Lisa’s sexual goals) and when the objectified person doesn’t wish to be instrumental to that particular person’s goal at that time or place (e.g., Ashley has no problem with premarital sex, but feels uncomfortable with Brian objectifying her sexually).

Aggression

Traditionally, aggression has been described in psychological science in terms of frustration and pain. However, psychologists, authors, and many others have observed that a feeling of satisfaction often accompanies aggression. In a recent article published in *Current Directions in Psychological Science*, David Chester (Virginia Commonwealth University) argues that pleasure can be found in aggressive thoughts and actions.



Chester’s paper reviews research on human and animal aggression, incorporating one study in which participants stabbed voodoo dolls and rated their positive feelings.

“What’s upholding these violent tendencies in a society that penalizes them so severely? Similar questions have been asked about drug and alcohol abuse, risky sex, [and] gambling, and they converge on an answer: pleasure. These activities feel good in the moment, which reinforces the behavior,” says Chester.

Chester points out that this does not mean that aggression is desirable, but stresses that it is important to acknowledge that it can feel good — at least at first:

“While revenge may feel good in the moment, this feeling fades quickly and leaves the revenge-seeker feeling worse than when they began. Even if this feeling lasted, the experience of sadistic pleasure is no rational excuse for harming others.”

This is borne out by research showing that aggressors tend to feel worse shortly after committing aggressive acts than they did before the act.

“In this way, aggression truly appears to mirror an addictive behavior, which we are currently examining in our laboratory’s projects,” Chester says.

While this research might reveal some of the less appealing aspects of human nature, Chester contends that this work is necessary:

“The world does not exist in black and white, with all the negative things lumped in one corner and the positive

things lumped in the other. Good behaviors are mingled with bad motivations (e.g., helping others in order to get something in return) and bad behaviors are mingled with good motivations (e.g., harming someone else to undo the hurt they caused us). Findings that support this nuanced view of human psychology have a more accurate basis in reality and help us harness the good and reduce the bad.”

Gossiping

Conventional wisdom holds that gossip and social exclusion are always malicious. But over the last several years, psychological scientists have been studying gossip from a different perspective, exploring its ability to unify rather than divide. Experiments show that gossip can discourage bad behavior, prevent innocent people from being exploited, and even curb stress.

Psychological scientists Matthew Feinberg (University of Toronto) and Rob Willer (Stanford University) employed a commonly used public-goods exercise to show how the threat of being the target of gossip shapes our behavior.



Feinberg and Willer, along with then-graduate student Michael Schultz (now a post-doctoral fellow at Northwestern University), divided 216 participants into groups, asking them to play a game and make financial choices that would benefit their respective groups. Before moving on to the next round with an entirely new group, participants could gossip about their prior group members. Future group members then received that information and could decide to exclude — ostracize — a suspect participant from the group before deciding to make their next financial choices.

Feinberg, Willer, and Schultz found that when people learn about the behavior of others through gossip, they use this information to align with those deemed cooperative. Those who have behaved selfishly can then be excluded from group activities based on the prevailing gossip. This serves the group’s greater good. After all, selfish types are largely expected to exploit more cooperative people for their own gains.

“By removing defectors, more cooperative individuals can more freely invest in the public good without fear of exploitation,” the researchers noted.

And the very threat of ostracism frequently deterred selfishness in the group. Even people who had been ostracized often contributed at higher levels when they returned to the group. “Exclusion compelled them to conform to the

more cooperative behavior of the rest of the group,” the researchers wrote.

A more recent study showed how gossip clarifies social norms and indirectly builds social bonds. In two experiments, two groups of just over 100 students were split into pairs, and the pairs then viewed a video featuring an act of negative deviance (littering and hopping a fence), positive deviance (cleaning up someone else’s litter), or neutral behavior (ignoring the litter). Students in the first study completed a questionnaire about their perception of social norms on campus and their *desire* to gossip about what they had seen, whereas pairs in the second study were also recorded while talking about what they thought of each video.

The survey revealed that students in both studies expressed a desire to gossip about what they had seen. Those who were given an opportunity to do so also reported a greater understanding of the prevailing norms on campus.

The cumulative findings of these studies suggest that attention-grabbing behaviors may be more than just fodder for the gossip mill, says coauthor Kim Peters, a professor of psychology at the University of Queensland in Australia.

“It could also reflect the possibility that these behaviors challenge people’s beliefs about what members of a community do and should do, which motivates them to validate their beliefs in conversation with others,” says Peters.

Gossiping students also reported a stronger social bond with their partners, which, Peters says, suggests that observing deviance may create a sense of solidarity between people who share the same behavioral beliefs. Notably, gossip on negative and positive deviance seemed to affect students’ social understanding in similar ways.

“This suggests that while negative content may dominate gossip, we can learn as much by discussing heroic behavior as disgraceful behavior,” Peters says. ●

—Joe Dawson and Scott Sleek

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APS Fund for Teaching and Public Understanding of Psychological Science

A Hub for Teaching Psychology

By Regan A. R. Gurung



With backing from the APS Fund for Teaching and Public Understanding of Psychological Science, **Regan A. R. Gurung** created an online resource designed to connect educational psychologists with the literature and tools necessary to conduct research on a larger scale.

What is the best way to teach psychology? How should students study to learn? To date there has been no coordinated effort to examine these questions. Whereas a large body of pedagogical research on teaching and learning exists, I have found that the absolute majority of research is conducted within individual classes at different institutions. Furthermore, few studies test theoretically derived questions and not enough classroom research sufficiently translates and tests lab findings.

The reasons for these shortcomings are clear. Relevant research is published in diverse areas. Many faculty do not have the time to fully explore the rich literature on the scholarship of teaching and learning. Interested faculty like me often lack the time, network, design expertise, or experience to conduct classroom research. The time to alleviate these problems has arrived.

Thanks to support from the APS Fund for Teaching and Public Understanding of Psychological Science, I have been able to design a new online resource to serve pedagogical researchers. The site helps coordinate scholarship on teaching

and learning with a variety of tools and resources. It can also foster collaborations between researchers investigating the science of teaching and learning to catalyze further research on these topics.

The **Hub for Introductory Psychology and Pedagogical Research (HIPPR)** provides the following:

- *Literature Central*: A central clearinghouse for research on teaching Introduction to Psychology and pedagogy in general, providing research summaries from multiple disciplines to aid future research.
- *Collaborator Finder*: Instructors can find collaborators, faculty who have similar pedagogical questions, or instructors willing to volunteer their classes/students for testing of pedagogical interventions.
- *Scales-n-More*: A collection of questionnaires and surveys commonly used in pedagogical inquiry that are ready for use. A particularly handy resource for novice pedagogical researchers, these measures will also help ensure comparisons across samples.

Future innovations will include a *Data Repository* (datasets for secondary analyses) and a *Virtual File-Drawer* (brief reports of unpublished studies that may prove helpful in the design of additional work).

You can learn more about HIPPR and the tools it offers at hippr.uwgb.org. ●

Regan A. R. Gurung is the Ben J. & Joyce Rosenberg Professor of Psychology and Human Development at the University of Wisconsin–Green Bay.

Edited by C. Nathan DeWall and David G. Myers

Aimed at integrating cutting-edge psychological science into the classroom, Teaching Current Directions in Psychological Science offers advice and how-to guidance about teaching a particular area of research or topic in psychological science that has been the focus of an article in the APS journal Current Directions in Psychological Science. Current Directions is a peer-reviewed bimonthly journal featuring reviews by leading experts covering all of scientific psychology and its applications and allowing readers to stay apprised of important developments across subfields beyond their areas of expertise. Its articles are written to be accessible to nonexperts, making them ideally suited for use in the classroom.

Visit the column online for supplementary components, including classroom activities and demonstrations:
www.psychologicalscience.org/teaching-current-directions.

Visit David G. Myers at his blog "Talk Psych" (www.talkpsych.com). Similar to the APS Observer column, the mission of his blog is to provide weekly updates on psychological science. Myers and DeWall also coauthor a suite of introductory psychology textbooks, including *Psychology* (11th Ed.), *Exploring Psychology* (10th Ed.), and *Psychology in Everyday Life* (4th Ed.).

Strength and Perceived Threat in Numbers: Teaching Students How to Celebrate Racial Diversity

By C. Nathan DeWall

Craig, M. A., Rucker, J. M., & Richeson, J. A. (2017). The pitfalls and promise of increasing racial diversity: Threat, contact, and race relations in the 21st century. *Current Directions in Psychological Science*. Advance online publication.

Do you oppose diversity? "Of course not," most people will tell you. But after sifting through a swath of psychological research, Maureen Craig, Julian Rucker, and Jennifer Richeson (2018) tell another story.

The White American racial majority is on the cusp of going extinct. In less than 3 decades, most Americans will identify as non-White (US Census Bureau, 2015). Based on what Americans say, this should be good news. Nearly 6 in 10 Americans report that growing diversity makes the country a better place to live (Pew Research Center, 2016). Unfortunately, Americans' prodiversity talk is cheap.



C. Nathan DeWall is a professor of psychology at the University of Kentucky. His research interests include social acceptance and rejection, self-control, and aggression. DeWall can be contacted at nathan.dewall@uky.edu.

Rather than viewing increased racial diversity as a strength, Americans perceive it as a sign that their in-group will become weak. Correlational and experimental studies show that actual and anticipated increases in racial diversity boost White Americans' anxiety, perceptions of threat, and hostility toward racial out-groups (see Craig et al., 2017, for a review). These findings are not unique to White Americans: When reminded of growth in the national Hispanic population, Black Americans and Asian Americans show greater support for conservative immigration policies (Craig & Richeson, 2017).

How can we reduce these negative reactions to increased racial diversity? Moving to a bustling metropolis is not the solution. In fact, the greater the racial diversity in a metropolitan area, the more its citizens show out-group bias (Oliver & Wong, 2003). For example, Detroit is known for its racial diversity, but its many racially segregated neighborhoods may do more to enhance in-group favoritism than out-group acceptance. What matters more is regular and positive contact with people who are racially diverse, have equal status, share common goals, cooperate, and support authorities (Allport, 1957; Pettigrew & Tropp, 2006; Richeson & Shelton, 2007). Racially diverse neighborhoods share many of these features: People live in

similarly priced houses or apartments; have common desires for living in a place that is safe, fun, and fulfilling; benefit more from cooperating than competing; and support others who function as authority figures. This may help explain why living in racially diverse neighborhoods is linked with lower levels of prejudice (Oliver & Wong, 2003; Schlueter & Scheepers, 2010; Schmid, Al Ramiah, & Hewstone, 2014).

To bring this cutting-edge research into the classroom, instructors can have students complete this 5- to 10-minute activity. That is a lot of class time, but it is a wise investment. Students will benefit from knowing about the consequences of increased racial diversity on prejudice and discrimination — and learn what they can do to make their racially diverse future world a better place.

Remind students that, by the year 2044, White Americans likely will account for less than 50% of the national population (US Census Bureau, 2015). How will that affect intergroup attitudes and actions? Ask students to respond to the following multiple-choice questions, presented on PowerPoint slides:

Question 1

When White Americans perceive that they are becoming a racial minority, which of the following tends to happen?

1. They perceive minority populations as threatening.
2. They oppose racial integration.
3. They favor political policies that weaken minority populations.
4. They show more explicit and implicit bias in favor of Whites and against minority populations.
5. All of the above.

Question 2

Living in a racially diverse **metropolitan area (e.g., a city)** predicts lower levels of anxiety, perceived threat, and hostility toward racial out-groups.

1. TRUE
2. FALSE

Question 3

Living in a racially diverse **neighborhood** predicts greater levels of anxiety, perceived threat, and hostility toward racial out-groups.

1. TRUE
2. FALSE

Instructors then will give the class the answers (5, 2, and 2). Ask students to form groups of three and spend 3 minutes discussing their responses (1 minute per question). Why might White Americans respond to actual or anticipated racial demographic shifts so negatively? Why does living in a racially diverse metropolitan area predict greater prejudice? Why is living in a racially diverse neighborhood linked with lower prejudice?

Time permitting, instructors can ask groups to spend 5 minutes designing an ideal city that would respond to increased racial diversity with *reduced* levels of intergroup prejudice and discrimination. Remind students to use Intergroup Contact Theory's four main ingredients — equal status, common goals, cooperation, and support of authorities (Allport, 1954; Pettigrew & Tropp, 2006; Richeson & Shelton, 2007) — to foster intergroup relations. What would they name their fictitious city? What are the city's neighborhoods like during the workweek and on the weekends? How did they use the four pillars of intergroup contact to celebrate their city's racial diversity?

To increase the stakes, instructors can select the three most creative group responses to receive extra credit. At the beginning of the next class, instructors will announce and summarize the winning cities.

America is on a path toward increased racial diversity. We might tell ourselves and others that we welcome the day when our children will mingle with people of all races, when White American job candidates will represent a minority of applicants, and when our family and friends would be overjoyed if we decided to marry or adopt a child of a different race. But this idealistic thinking doesn't jibe with the here and now. By learning about the reality of how people respond to actual and anticipated racial demographic shifts, we can better prepare and position ourselves, our students, and our communities to celebrate the gift of racial diversity.

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Why People Believe Conspiracy Theories

By David G. Myers

Douglas, K. M., Sutton, R. M., & Cichocka, A. (2017). The psychology of conspiracy theories. *Current Directions in Psychological Science*, 26, 538–542.

Surely you and your students have heard at least some of the following statements:

- NASA faked the moon landing.
- The Holocaust is a myth.
- The US government planned the 9/11 attacks, which were controlled demolitions.
- Crashed UFO spacecraft are stored at Nevada's Area 51.
- An international plot concealed Barack Obama's birthplace and made him president.
- Global warming is a hoax.
- The Sandy Hook Elementary School massacre was done to promote gun control.
- President Kennedy's assassination was planned by more than a lone assassin.
- Millions of illegal voters cost Donald Trump the popular vote.
- Russia hacked Democratic emails to help Trump win.

Indeed, you likely believe at least one of these (mindful that conspiracies do happen). Only one-third of Americans believe the official explanation of JFK's assassination — that one man alone was responsible (Enten, 2017). After the 2016 US presidential election, most voters (though only 20% of Trump supporters) agreed that Russian email hackers did attempt to influence the results (Frankovic, 2016).

But why do so many people believe theories that are just plain fake news? Why were 27% of respondents to a recent US National Comorbidity Survey “convinced there is a conspiracy behind many things in the world” (Freeman & Bentall, 2017)? (In this survey, conspiracy beliefs were most common among less educated, lower income, unemployed, irreligious males.)

University of Kent researchers Karen Douglas, Robbie Sutton, and Aleksandra Cichocka (2018) offer some answers, but before sharing their conclusions, instructors might wish to assess their students' own conspiracy beliefs. Ask students to raise a hand if they agree with the following statement: “I am convinced there is a conspiracy behind many things in

the world.” Or, if time permits, give students a selection of items from the Generic Conspiracist Beliefs scale (tinyurl.com/conspiracybeliefs).

Instructors could then invite students to spend 3 minutes writing (and sharing in small groups or with the class) their answers to two questions:

- *Examples:* What conspiracy theories — unwarranted explanations for events that involve secret plots by powerful, evil groups — are they aware of? For each, how many people would need to have kept the conspiracy a secret?
- *Psychological explanations:* What cognitive and social factors might fuel and sustain such conspiracy theories?

The Douglas team identifies three psychological motives underlying conspiracy beliefs:

- The *epistemic* (knowledge) motive: When bewildered by chaos or random events, people seek explanations. Faced with uncertainty, people turn to conspiracy theories to make sense of the world. They “provide broad, internally consistent explanations,” say Douglas and colleagues. Many people assume that big events require big causes.
- The *existential* (meaning of existence) motive: Faced with a changing world, people also seek safety and security to feel in control. To those feeling adrift, conspiracy theories may offer the hope of empowerment.
- The *social* motive: As social creatures, people welcome a group identity. The social definition of who we are supports our sense of self. When experiencing ostracism, people therefore become more accepting of superstitions and conspiracy theories. Thus, conspiracy theories are attractive to those who have, for example, been on the losing side of elections and who now embrace the belonging and shared reality of others in their threatened group.

With such dynamics at play, should we be surprised that conspiracy theories tend to cluster among the same individuals? Much as prejudices coexist — with antigay, anti-immigrant, anti-Black, anti-Muslim, and antiwomen sentiments often living inside the same skin — so people often believe in multiple conspiracies, even contradictory ones. In two studies by the Kent team, the more that people believed that Princess Diana faked her own death, the more they also believed that she was murdered. And the more that they believed that Osama bin Laden was already dead when American forces raided his compound, the more they believed he was still alive (Wood, Douglas, & Sutton, 2012).

As a one-time researcher of group polarization, my hunch is that the suspicions that people bring to a group may further strengthen as they discuss them with like-minded others. Within the internet's echo chamber, we selectively receive



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and feed one another information — and misinformation. Thus, over time, views may become more extreme. Suspicion may become conviction. Disagreements may escalate to demonization. Group polarization happens.

Thankfully, science education helps. Learning the science behind vaccines, space travel, and climate change matters. Teaching the critical thinking skills that can help people distinguish the falsities from the truth makes a difference. Science education at its best inoculates students against tomorrow's fake news and prepares them to think smarter. ●

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Studying First Impressions: What to Consider?

By Irmak Olcaysoy Okten

First impressions are long-lasting. This familiar phrase indicates one of the many reasons that studying people's first impressions is critical for social psychologists. Any information about a person, from her physical properties to her nonverbal and verbal behaviors, and even the environment she inhabits, influences our impressions and judgments about her (e.g., Ambady & Rosenthal, 1993; Gosling, Ko, Mannarell, & Morris, 2002). First impressions have been shown to last for months (Gunaydin, Selcuk, & Zayas, 2017) and affect personal judgments even in the presence of contradictory evidence about the individual (e.g., Rydell & McConnell, 2006).

This article will briefly discuss some critical aspects of first impressions based on existing social psychological research, including my own.

Types of First Impressions

What are our first impressions about? Social cognition literature conceptualizes impressions via a number of constructs. The most studied form of impression in social cognition is *traits*; people tend to form split-second impressions with regard to others' presumably stable characteristics, such as trustworthiness and competence. They do this from others' facial appearances (e.g., Willis & Todorov, 2006) and simple behaviors — for example, having observed a person taking an elevator up one flight, people may infer that she is lazy (Uleman, Blader, & Todorov, 2005). The goals, values, and beliefs of others also have been shown to influence first impressions (Moskowitz & Olcaysoy Okten, 2016).

Recent research from our lab has demonstrated the effect of behavior characteristics on first impressions; when initially observed behaviors of others are known or believed to be consistent over time, formation of trait inferences has been observed to be more likely (Olcaysoy Okten & Moskowitz, 2017). Considering the elevator example, having observed the same person taking an elevator up one flight on several occasions, people become more confident in their assessment of this person as lazy. However, when a person takes an elevator up one flight only on a specific occasion, people may believe he wants to be quick in this specific situation.

Irmak Olcaysoy Okten is a fifth-year PhD student in the social psychology program at Lehigh University. She examines issues relating to the roles of biases in the processes of person perception, impression formation, and memory during interpersonal interactions as well as the effect of perceivers' goals on these processes.

Measuring Impressions: Explicit or Implicit?

First impressions are manifested not only in perceivers' explicit reactions but also in their spontaneous inferences. Implicit measures aim to capture the spontaneous impressions that are typically invisible to the perceivers — impressions they have formed without any awareness or intention. While explicit measures of impressions include self-report tests such as ratings of evaluations or inferences, implicit measures include memory tests that measure the extent to which the target person is associated with a construct (such as a trait) in memory. The exact relationship between implicit and explicit forms of impressions has been a controversial question in the field of social cognition (Payne, Burkley, & Stokes, 2008).

Research from many labs has also consistently shown that implicit impressions are resistant to change (e.g., Gregg, Seibt, & Banaji, 2006; Mann & Ferguson, 2015). When changes in impressions do occur, it is typically *explicit*, but not *implicit*, trait inferences that are altered (Olcaysoy Okten & Moskowitz, 2017b). For example, after learning that the person who took the elevator up one flight on several occasions actually works out regularly, perceivers update their initial explicit judgment of her being lazy. However, they still tend to classify the person as lazy in an implicit memory task. Thus, implicit biases can persist and affect interpersonal interactions in significant ways, even when perceivers are convinced that they have changed their impressions in light of new information.

Why does someone form an impression of another person? Research has shown that the answer to this question is critical to determining the way in which people process information about others. Adopting the mindset of a “reporter” whose goal is merely to discover the *facts* about a person might leave one with a completely different impression than adopting the mindset of a person on a blind date. In the former case, perceivers engage in systematic (comprehensive) processing, whereas in the latter case, they tend to rely on heuristics that are consistent with their goal to affiliate with the given person (Chen, Shechter, & Chaiken, 1996). Such motivated processing can trigger a positivity bias in evaluating others.

Impressions also are affected by environmental cues: For example, people perceive an ambiguous behavior differently after being primed to see a trait as “bold” versus “reckless” (Higgins, Rholes, & Jones, 1977). Perceivers' long-term goals



also affect their interpretations of others' actions during first encounters. For example, those who have a higher need to reduce uncertainty in their interpersonal interactions are more likely to infer stable traits from mundane behaviors of others (Moskowitz, 1993) and less likely to change their first impressions even after learning that those impressions were inaccurate (Wyer, 2016).

Behavioral Implications of First Impressions

Despite the large literature on the formation of and change in first impressions, less is known about their behavioral consequences (for a review, see Harris & Garris, 2008). Much of the existing research has focused on behavioral consequences of first impressions related to an existing stigma. In these studies, perceivers' stigma-related impressions resulted in discriminatory practices, such as avoidance of interaction and experience of physiological threat during such interactions (e.g., Blascovich, Mendes, Hunter, Lickel, & Kowai-Bell, 2000; Peck & Denney, 2012).

Other research has focused on the outcomes in the domain of job recruitment. First impressions significantly predict employers' behavioral tendencies during job interviews as well as their ultimate recruitment decisions (Barrick, Swider, & Stewart, 2010; Swider, Barrick, & Harris, 2016). Specifically, employers tend to ask questions that confirm their first impressions about the candidates and treat them in ways that are consistent with such impressions (Snyder & Swann, 1978). If their initial impressions of the candidates are positive, employers show a higher tendency to "sell" the job by providing information to the candidates about the job rather than gathering information from them (Dougherty, Ebert, & Callender, 1986; Dougherty, Turban, & Callender, 1994). In turn, employers' warmer behaviors typically elicit warmer behaviors from the candidates (e.g., Snyder, Tanke, and Berscheid, 1977), and thus the employers' initial positive impressions about the candidates are validated. Importantly, however, even in cases when a job candidate performs in ways that disconfirm employers' first impressions, employers may fail to assess the candidate's performance accurately, preventing them from changing their first impressions accordingly. Research has shown that this might be due to high levels of self-regulation on behalf of the interviewers (Nordstrom, Hall, & Bartels, 1998). Therefore, reducing cognitive demands in an interview context by using scripted questions or having third-party observers evaluate the interview process might be effective in fostering accurate impressions and judgments of a job candidate.

When forming first impressions, people typically have to rely on limited and potentially misleading information about others. Drawing big conclusions from such limited information can lead to poor decisions with broader implications. Understanding the origins and consequences of first impressions is the first step to addressing biases in those impressions. The points discussed above aim to provide a brief guide to the students of psychological science who are interested in taking part in this scientific journey. ●

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The Psychology program at Penn State Erie, The Behrend College, is seeking a tenure-track assistant professor in Industrial Organizational Psychology, beginning Fall 2018. The successful candidate may teach courses in introductory psychology, statistics, tests and measurement, research methods, and program evaluation in addition to courses in the candidate's area of interest. Opportunities to teach courses in our psychology master's program may also be available. High-quality teaching, student advising, an active program of scholarship that engages undergraduate students, and providing service to the school and college are expected. Experience in securing or willingness to seek external funding is desirable. A Ph.D. in Industrial and Organizational Psychology or a closely related field by time of appointment is required. Penn State Behrend is a four-year undergraduate and graduate college of Penn State University with 4,500 students and 34 baccalaureate majors in four schools: Business, Engineering, Humanities & Social Sciences, and Science. The college prides itself on the balance it achieves between teaching and research, on close student/faculty interaction, on its use of the open lab concept, and on its beautiful, wooded hilltop campus. The School of Humanities & Social Sciences has about 80 full-time faculty members, offers ten Bachelor's degrees (Arts Administration; Communication; Creative Writing; Digital Media, Arts, and Technology; Elementary and Early Childhood Education; English; General Arts and Sciences; History; Political Science; and Psychology) and one Master's degree (Applied Clinical Psychology.) The school is also home to the languages and the arts. The Psychology program offers both a BA and a BS in psychology and an MA in Applied Clinical Psychology. It has laboratory space, including a sound attenuating chamber, individual testing rooms, small group rooms, and observation rooms. Internal funds are available for faculty startup and professional travel. Technology and library resources are excellent. Other resources include an on-campus child care center and affiliation with the Susan Hirt Hagen Center for Community Outreach, Research, and Evaluation. The college also houses Knowledge Park, a 125-acre business and technology complex that hosts 20 companies and more than 500 employees. There our collaborative, open lab approach gives local companies and manufacturers access to the college's intellectual and physical resources, while students get hands on experience with real world applications of their growing skills. Erie, Pennsylvania, a metropolitan area of 280,000 residents, is a major service, tourism, medical, and industrial center on Lake Erie's Presque Isle Bay and is located two hours from Cleveland, Pittsburgh, and Buffalo. The region offers many cultural, sports, and recreational resources, as well as modest living costs and affordable housing. There are five colleges in the Erie area. Review of applications begins immediately and continues until the position is filled. Application materials include a letter of application, a curriculum vitae, unofficial graduate transcripts (official transcripts are required at the time of appointment), a statement of teaching philosophy, a statement of research interests, and three letters of recommendation. Apply online at <http://apptrkr.com/1121547>

CAMPUS SECURITY CRIME STATISTICS: For more about safety at Penn State, and to review the Annual Security Report which contains information about crime statistics and other safety and security matters, please go to <http://www.police.psu.edu/clery/>, which will also provide you with detail on how to request a hard copy of the Annual Security Report. Penn State is an equal opportunity, affirmative action employer, and is committed to providing employment opportunities to all qualified applicants without regard to race, color, religion, age, sex, sexual orientation, gender identity, national origin, disability or protected veteran status.

Penn State - Erie

The Psychology Program at Penn State Erie, The Behrend College, has an opening for a full-time, tenure-track, assistant professor beginning Fall, 2018. The successful candidate will teach clinical and general undergraduate psychology courses, graduate clinical courses, maintain an active research agenda that engages undergraduate students, supervise graduate internships and research, advise students, and provide service to the school and college. An earned doctorate in clinical or counseling psychology, and licensure or license eligibility as a psychologist in Pennsylvania are required. Applicants should have demonstrated excellence in clinical research; a focus on assessment, psychometrics, or related areas is desired. Our program has an emphasis on empirically-supported, trauma-informed treatment; clinical training and/or scholarship related to this are preferred but not required. Experience in graduate curriculum development and seeking external funding are desired. Penn State Behrend is a four-year undergraduate and graduate college of Penn State University with 4,500 students and 34 baccalaureate majors in four schools: Business, Engineering, Humanities & Social Sciences, and Science. The college prides itself on the balance it achieves between teaching and research, on close student/faculty interaction, on its use of the open lab concept, and on its beautiful, wooded hilltop campus. The School of Humanities & Social Sciences has about 80 full-time faculty members, offers ten Bachelor's degrees (Arts Administration; Communication; Creative Writing; Digital Media, Arts, and Technology; Elementary and Early Childhood Education; English; General Arts and Sciences; History; Political Science; and Psychology) and one Master's degree (Applied Clinical Psychology.) The school is also home to the languages and the arts. The Psychology program offers both a BA and a BS in psychology and an MA in Applied Clinical Psychology. It has laboratory space, including a sound attenuating chamber, individual testing rooms, small group rooms, and observation rooms. Internal funds are available for faculty startup and professional travel. Technology and library resources are excellent. Other resources include an on-campus child care center and affiliation with the Susan Hirt Hagen Center for Community Outreach, Research, and Evaluation. Erie, Pennsylvania, a metropolitan area of 280,000 residents, is a major service, tourism, medical, and industrial center on Lake Erie's Presque Isle Bay and is located two hours from Cleveland, Pittsburgh, and Buffalo. The region offers many cultural, sports, and recreational resources, as well as modest living costs and affordable housing. There are five colleges in the Erie area. Application materials include a letter of application, a curriculum vitae, and the names and contact information for three references. Review of applications will begin immediately and continue until the position is filled. Applicants who rank highly will be asked to provide a statement of teaching and research interests, evidence of teaching effectiveness, graduate transcripts, and three letters of recommendation. Apply online at <http://apptrkr.com/1121278>

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ANNOUNCEMENTS

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GRANTS

NIH Postdoctoral Research Fellowship Opportunity

The University of Vermont's Center on Behavior and Health announces NIH postdoctoral research fellowship opportunities in its center of excellence for the study of substance abuse. Applicants must have completed their training in psychology, behavior analysis, cognitive neuroscience, or a related discipline and be US citizens or permanent residents. Trainees are selected on the basis of scholastic record and commitment to a career in substance abuse research. The appointment lasts for 2–3 years. Benefits include a stipend, medical insurance coverage, and travel funds supported by NIH Institutional Training Awards. For more information, visit med.uvm.edu/behaviorandhealth/careeropportunities.

Funding Opportunities for Research on Methodologies for STEM Education

The National Science Foundation (NSF)'s Directorate for Education and Human Resources (EHR) Core Research Program has released a new letter detailing opportunities supporting psychological scientists and others who wish to study methodologies supporting inferences in STEM (science, technology, engineering, and math) education. Interested scientists should visit the NSF EHR Core Research Program site for more information on how to submit a grant proposal. Full proposals are due September 13, 2018; however, researchers can submit for conference grants as well as the EAGER funding mechanism (designed to support exploratory work) throughout the year. For more information, visit nsf.gov/funding.

NIH Funding Announcement for Methodology Research

The National Institutes of Health (NIH) has released a new funding opportunity announcement designed to support research on methodology and measurement in the behavioral and social sciences. NIH is supporting research on methodology and measurement via the R21 grant mechanism, which is a 2-year grant for exploratory or developmental research providing up to \$275,000 in direct support. NIH encourages applicants to contact one of the many NIH Institutes or Centers participating in the funding announcement which matches the research focus of the proposed project before applying for funding. The participating Institutes and Centers are: Office of Behavioral and Social Sciences Research, National Cancer Institute, National Eye Institute, National Institute on Aging, National Institute on Alcohol Abuse and Alcoholism, National

Institute on Deafness and Other Communication Disorders, and the National Center for Complementary and Integrative Health. Applications are due February 16, June 16, or October 16, 2018, depending on the proposed project.

MEETINGS

2018 Anxiety and Depression Conference

April 5–8, 2018
Washington, DC, USA
adaa.org/resources-professionals/conference/registration

2018 Cognitive Aging Conference

May 3–6, 2018
Atlanta, Georgia, USA
cac.gatech.edu

7th International Congress on Interpersonal Acceptance and Rejection

May 15–18, 2018
Athens, Greece
isipar2018athens.panteion.gr

30th APS Annual Convention

May 24–27, 2018
San Francisco, California, USA
psychologicalscience.org/convention

Administration for Children and Families' National Research Conference on Early Childhood

June 25–27, 2018
Arlington, Virginia, USA
nrcec.net/

25th Annual RAND Summer Institute

July 9–12, 2018
Santa Monica, California, USA
rand.org/labor/aging/rsi.html

Biennial International Seminar on the Teaching of Psychological Science

July 9–13, 2018
Paris, France
bistops.org

3rd International Convention of Psychological Science

7–9 March 2019
Paris, France
icps2019.org

Romance Research Roundup

By the time Valentine's Day rolls around each year, researchers have gleaned a new batch of findings on the psychological secrets of the human heart. Below are some of the most recent findings on the science of love.



Oxytocin May Put 'Rose-Colored Glasses' On Relationships

Ever wondered what a friend or colleague sees in a new love interest? A study of how romantic partners express and receive gratitude found that people with higher levels of the "cuddle hormone" oxytocin may focus on the bigger picture of their relationship, while those with less of the feel-good hormone remain more tethered to the here and now of what their partner is actually saying. University of North Carolina at Chapel Hill researchers Sara Algoe, Karen Grewen, and colleagues say this positive spin may help couples bond.

Viewing Cute Animals Can Help Rekindle Marital Spark

A team of scientists led by APS Fellow James McNulty of Florida State University has found that looking at images of baby animals can have an "acute" impact on a couple's relationship. When presented with a stream of such positive stimuli paired with images of their partner's face, people's implicit attitudes toward their significant other became more positive as well. The real surprise? This research was funded by the US Department of Defense to help couples separated by deployment fend off broken hearts.

A 48-Hour Sexual 'Afterglow' Helps to Bond Partners Across Time

Sex may be about more than reproduction and pleasure: Research suggests that the short-term boost of sexual satisfaction may play a crucial role in partner bonding. In a study of more than 200 newlywed couples, APS Fellows

Thomas Bradbury of University of California, Los Angeles, and James McNulty of Florida State University (FSU), as well as FSU researcher Andrea Meltzer and colleagues, found that partners who reported the strongest sexual afterglow had higher marital satisfaction during the first 6 months of marriage.

Lasting Love Relies on Equal Commitment, Not More Commitment

Learning to love requires us to balance our own needs with those of the people we care about. A longitudinal study suggests, however, that a resilient relationship may not be based on how people manage conflict, but on how closely their relational skills, such as conflict resolution and communication, match those of their partner. According to findings from APS Fellow Jeffrey A. Simpson (University of Minnesota), M. Minda Oriña (Texas A&M University), and others, it's often a mismatch in relationship styles that lead to hostility.

How to Write Your Way to Marital Success

Putting aside just 7 minutes to take an objective look at intermarital conflicts may help defend a relationship against the ravages of time. APS Fellows Eli Finkel (Northwestern University) and James Gross (Stanford University) and colleagues found that while journaling about disagreements doesn't stop couples from fighting, it can prevent those same arguments from hindering their long-term marital stability.

For links to these research reports, visit www.psychologicalscience.org/r/romance.

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