Remembering Jerome Bruner

THE COGNITIVE UPSIDE OF AGING
# Integrative Science Symposia

## Our Social Brain: Neurobiology of Human Interactions

- **Christian Keyser**, Social Brain Lab, Netherlands Institute for Neuroscience, and Department of Psychology, University of Amsterdam, The Netherlands
- **Brian D. Knutson**, Department of Psychology and Neuroscience, Stanford University, USA
- **Rebecca Saxe**, Department of Brain and Cognitive Sciences, Massachusetts Institute of Technology, USA

## Who’s In, Who’s Out? Loneliness, Exclusion, and Integration

- **Taciano L. Milfont**, School of Psychology, Victoria University of Wellington, New Zealand
- **Frosso Motti-Stefanidi**, Department of Psychology, National and Kapodistrian University of Athens, Greece
- **Alan Teo**, Department of Psychiatry and School of Public Health, Oregon Health & Science University, USA

## Better Minds: Understanding Cognitive Enhancement

- **Daphne Bavelier**, Department of Psychology, University of Geneva, Switzerland
- **Arthur F. Kramer**, Department of Psychology, University of Illinois at Urbana-Champaign, USA
- **E. Glenn Schellenberg**, Department of Psychology, University of Toronto, Canada
- **Ilina Singh**, Department of Psychiatry, University of Oxford, United Kingdom

## The Science of Successful Aging

- **Monica Fabiani**, Department of Psychology, University of Illinois at Urbana-Champaign, USA
- **Denise C. Park**, Center for Vital Longevity, The University of Texas at Dallas, USA
- **Karl A. Pillemer**, Department of Human Development, Cornell University, USA
- **Lorraine K. Tyler**, Department of Psychology, University of Cambridge, United Kingdom

## Emotions in Context

- **Ralph Adolphs**, Division of the Humanities and Social Sciences, California Institute of Technology, USA
- **Iris M. Engelhard**, Department of Psychology, Utrecht University, The Netherlands
- **Klaus R. Scherer**, Department of Psychology, University of Geneva, Switzerland (Discussant)
- **Jeanne L. Tsai**, Department of Psychology, Stanford University, USA
- **Frank H. Wilhelm**, Department of Clinical Psychology and Psychotherapy, University of Salzburg, Austria

## The Push and Pull of Values and Behavior

- **Scott Atran**, School of Anthropology and Museum Ethnography, University of Oxford, United Kingdom
- **Chi-yue Chiu**, Department of Psychology, The Chinese University of Hong Kong, China
- **Hazel R. Markus**, Department of Psychology, Stanford University, USA
- **Heidi Keller**, Department of Psychology, Osnabrück University, Germany
- **Walter Mischel**, Department of Psychology, Columbia University, USA (Discussant)

## Bridging the Lab and the Real World

- **Karen E. Adolph**, Department of Psychology, New York University, USA
- **Rick Dale**, Department of Cognition & Information Sciences, University of California, Merced, USA
- **Susan Goldin-Meadow**, Department of Comparative Human Development, The University of Chicago, USA
- **Emiliano Macaluso**, Impact Team, Lyon Neuroscience Research Center, France

## In Sync: The Dynamics of Social Coordination

- **Nick Chater**, Behavioural Science Group, Warwick Business School, United Kingdom
- **Shaun Gallagher**, Department of Philosophy, University of Memphis, USA
- **Marco Iacoboni**, Department of Psychiatry and Biobehavioral Sciences, University of California, Los Angeles, USA
- **Andrzej Nowak**, Department of Psychology, University of Warsaw, Poland and Florida Atlantic University, USA
- **Natalie Sebanz**, Department of Cognitive Science, Central European University, Hungary

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W. Tecumseh Fitch
Department of Cognitive Biology
University of Vienna, Austria

How Infants Break Into Language
Linda B. Smith
Department of Psychological and Brain Sciences
Indiana University Bloomington, USA

Genetic and Brain Diversity in AutismS
Thomas Bourgeron
Department of Human Genetics and Cognitive Functions
Pasteur Institute, France

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FEATURES

THE COGNITIVE UPSIDE OF AGING

Big Data involving thousands and thousands of participants is enabling researchers to track the development of different cognitive skills across the lifespan with increasing accuracy. And the results of these studies bring light to some surprising — and perhaps heartening — findings about the aging brain.

Three Mediation Stories, Three Analytic Strategies

In recognition of APS’s forthcoming journal on methodological advances, APS President Susan Goldin-Meadow invites her University of Chicago colleagues Stephen Raudenbush and Guanglei Hong to discuss a new view of path analysis that they hope will find its way into all areas of psychological science.

You’re Invited to Share Your Thoughts About the State of Psychological Science.

Uncommon Insights Into Common Knowledge

APS William James Fellow Steven A. Pinker provides a tour through recent research on the mechanics of common knowledge — and its centrality to everyday life.
Science in Policy

Using Behavioral Science to Combat HIV in Mozambique
The US government is tapping into cost-effective, evidence-based interventions that can be scaled to combat the spread of HIV and other diseases across Africa and South Asia.

From Protecting POTUS to Safeguarding Schools
After spending a decade helping the US Secret Service identify genuine dangers to the President’s safety, Marisa Randazzo is applying her science to guiding schools on threat assessment.

Alienating the Audience With Abbreviations
Consistent with the movement toward open science, three researchers call for ending the often confusing and off-putting use of abbreviations in scientific communication.

Global Warming and Violent Behavior
A mix of behavioral research, economic studies, and time-series data portend some unsettling effects of climate change on human social interactions.

Remembering Jerome S. Bruner
The eminent psychological scientist is remembered for his groundbreaking contributions to many areas of research — including developmental, cognitive, educational, and legal psychology — and his generous spirit as a mentor, colleague, and friend.

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Three Mediation Stories, Three Analytic Strategies

Susan Goldin-Meadow
The University of Chicago

We use this column to highlight three cases of mediation, which seem, on the surface, to call for the same kind of statistical treatment: path analysis (see Figure on p. 6), which was invented by Wright (1934), elaborated by Duncan (1966), and developed for psychology by Baron and Kenny (1986). New thinking about causation suggests that these three problems are not the same. Explaining why points to new methods for tackling problems of mediation.

Case 1: Does bedtime reading (M) mediate the relation between parent education (Z) and child reading achievement (Y)? Case 1 is comparatively simple because there is only one causal variable — bedtime reading. Parent education is not a causal variable.

To understand what is and what is not a causal variable, we have to think about potential outcomes that could counterfactually be achieved under alternative courses of action. Our data provide no information on how children of parents with low education would fare if they had counterfactually been assigned to highly educated parents unless we study adoptions or a special intervention that raises parents’ education levels. If neither adoption nor an intervention that educates parents is a focus of interest, the relationships involving parent education are questions of association, not causation.

Bedtime reading is a causal variable — if we are willing to assert that parents may or may not read to their children at bedtime. In this case, each child possesses two counterfactual achievement outcomes: the outcome we would see if the child were read to, and the outcome we would see if the child were not read to.

To think about potential outcomes that could counterfactually be achieved under alternative courses of action. Our data provide no information on how children of parents with low education would fare if they had counterfactually been assigned to highly educated parents unless we study adoptions or a special intervention that raises parents’ education levels. If neither adoption nor an intervention that educates parents is a focus of interest, the relationships involving parent education are questions of association, not causation.

The hurdle in answering Question 1, then, is nailing down the causal effect of bedtime reading. Without random assignment of children to the bedtime reading condition, the challenge arises from confounding — even among parents at the same education level, those who read to their children and those who do not may differ in other ways that predict reading achievement. Therefore, measuring and controlling the relevant confounding variables becomes essential. But if we can nail down the causal effect of bedtime reading, we can then simply estimate how much of the association between parent education and reading is explained by access to the causal agent, bedtime reading (Baron & Kenny, 1986).

The hurdle in answering Question 1, then, is nailing down the causal effect of bedtime reading. Without random assignment of children to the bedtime reading condition, the challenge arises from confounding — even among parents at the same education level, those who read to their children and those who do not may differ in other ways that predict reading achievement. Therefore, measuring and controlling the relevant confounding variables becomes essential. But if we can nail down the causal effect of bedtime reading, we can then simply estimate how much of the association between parent education and reading is explained by access to the causal agent, bedtime reading (Baron & Kenny, 1986).

But there is a caveat. Children of highly educated parents may benefit more from bedtime reading than do children of less educated parents, perhaps because highly educated parents engage...
children in discussions that facilitate reading comprehension. Here, parent education moderates the association between the causal variable and the outcome. The economist Oaxaca (1973) provides a model for how to deal with this issue in his study of gender gaps in earnings.

Case 2: Does decreasing exposure to violence (M) mediate the relation between moving to an affluent neighborhood (Z) and maternal depression (Y)? Case 2 differs from Case 1 because it involves two causal variables. Z is causal because one might or might not move to a new neighborhood. M is causal because one might or might not be exposed to high levels of violence. Exposure to violence at least partially mediates the impact that moving to an affluent neighborhood has on depression if moving reduces the risk of exposure and if exposure affects depression. In path analysis, by regressing M on Z and regressing Y on M and Z, we obtain an estimate of $ab$ as the indirect effect and $c$ as the direct effect (see Figure).

But this standard approach does not work well for Case 2 if the impact of exposure to violence on depression depends on whether one moves. In addition, we also have to worry about confounding, not only because those who move might be different from those who stay at baseline, but also because those who are exposed to violence may differ from those who are not exposed (Bullock, Green, & Ha, 2010; Holland, 1988).

Imai, Tingley, and Yamamoto (2013) discuss how to design an experiment for Case 2, and two recent books summarize new statistical methods for cases where random assignment of the mediator is impossible. These new methods allow treatment-by-mediator interaction and emphasize removal of confounding. VanderWeele (2015) focuses on regression-based approaches, and Hong (2015) focuses on nonparametric models employing propensity score-based weighting (see also foundational work by Pearl, 2001, and other new analytic strategies, e.g., Imai, Keele, & Tingley, 2010).

Case 3: Does cognitive skill (M) mediate the relation between college attendance (Z) and earnings (Y)? Case 3 involves one causal variable — college attendance — and two outcomes — one proximal (cognitive skill) and the other distal (earnings). College attendance is causal because a person may or may not go to college. Cognitive skill is not causal because one cannot be assigned or choose to have high skill; it is instead a “surrogate marker” for earnings. If prior research indicates that cognitive skill (which can be measured early) is a good predictor of later earnings, we may infer the impact of college attendance on earnings even before participants are old enough to work.

Case 3 poses a tough inferential problem even though it entails only one causal variable. To say that cognitive skill accounts for the impact of college attendance on earnings is to dismiss the possibility that college attendance can have a large effect on earnings even for people whose cognitive skill is unaffected by college attendance.

This idea cannot be tested via regression but can be tested through principal stratification (Frangakis & Rubin, 2002). We might classify participants into three principal strata — one for those whose cognitive skill would increase a great deal if they attend college, a second for those whose skill would not increase much even as a result of attending college, and a third for those whose skill would increase even without attending college. If we find that college attendance strongly increases the earnings of persons in the second and third strata, that evidence will falsify the claim that college attendance improves earnings solely by increasing cognitive skill.

But unless we have a crystal ball, we can’t know a priori which stratum to put a person in. Nevertheless, by collecting pretreatment variables that predict college attendance and cognitive skill, we may be able to identify causal effects within each stratum (see Gallop et al., 2009; Page, 2012; commentaries in the same issue; Rubin, 2004). This approach does not constitute a full mediation analysis, but it does put some strong claims of mediation to an important test.

References


Mischel to Be Interviewed for Inside the Psychologist’s Studio

APS Past President Walter Mischel’s studies on children’s self-control are classics in the field of psychological research, and he’ll reflect on his storied career and other aspects of his life for an Inside the Psychologist’s Studio interview on March 24, 2017.

Mischel will be interviewed for the APS video series by APS Past President Mahzarin R. Banaji during the International Convention of Psychological Science (ICPS) in Vienna, Austria. The event, which will draw researchers from around the world, will showcase the latest developments in integrative science — research that draws broadly from multiple levels of analysis and in multiple branches of psychological science and other disciplines. ICPS runs from March 23–25. Mischel is cochair, with APS Secretary Gün R. Semin, of the Steering Committee for the Integrative Science Initiative, of which ICPS is a part.

Mischel’s studies in childhood self-control, known popularly as “the marshmallow tests,” are among the most famous and impactful experiments in the history of psychological science. In the 50 years since he tested children’s ability to delay eating a single marshmallow so they could have two marshmallows later, Mischel has documented correlations between self-discipline and life outcomes ranging from educational attainment to body-mass index. Follow-ups with the original participants of the marshmallow experiments also reveal important differences in cognitive and neural mechanisms linked with their self-control over the life course.

Mischel’s findings revolutionized the field of personality psychology and sparked the development of new methods and models to study individual differences in social behavior. He is an APS William James Fellow and he received the Grawemeyer Award in Psychology in 2011. He was elected to the National Academy of Sciences in 2004 and the American Academy of Arts and Sciences in 1991.

Mental Flexibility May Buffer Against Emotional Stress

Doing “cold” math calculations and regulating “hot” emotions may seem like unrelated cognitive abilities, but both tasks depend on our capacity to manipulate and update information. Researchers have long speculated that the two abilities might be connected, and new findings are providing some evidence for the link.

According to data from a brain-imaging study conducted at Duke University, students who had relatively greater activity in a specific area of the prefrontal cortex while completing mental math exercises also reported more robust emotion regulation skills compared with their peers. The findings are published in the January 2017 issue of Clinical Psychological Science.

“Our work provides the first direct evidence that the ability to regulate emotions like fear and anger reflects the brain’s ability to make numerical calculations in real time,” study first author Matthew A. Scult said in a statement from Duke University. Scult is a neuroscience graduate student in the lab of the study’s senior investigator Ahmad R. Hariri, a professor of psychology and neuroscience at Duke.

The researchers used functional MRI to measure the brain activity of 186 undergraduate students while they completed math problems from memory; the participants also completed questionnaires and interviews assessing their mental health status and emotional coping strategies.

Memory-based math problems engage a region of the frontal lobe called the dorsolateral prefrontal cortex, and studies have shown that relatively greater activity in this area is associated with fewer symptoms of anxiety and depression. Cognitive behavioral therapy also has been shown to boost activity in the dorsolateral prefrontal cortex.

Scult, Hariri, and colleagues found that the more active a student’s dorsolateral prefrontal cortex was while performing mental math, the more likely he or she was to report being able to adapt thoughts about emotionally difficult situations.

Furthermore, greater activity in the dorsolateral prefrontal cortex was associated with fewer depression and anxiety symptoms. The difference was especially obvious in people who had been through recent life stressors, such as failing a class. Participants with higher dorsolateral prefrontal activity also were less likely to have a mental illness diagnosis.

The researchers suggest that increased activity in the dorsolateral prefrontal cortex may enable people to think about complex emotional situations in different ways, facilitating flexible emotion regulation strategies.

Although these findings indicate a connection, it’s still unclear whether more actively engaging the dorsolateral prefrontal cortex leads to better emotional coping strategies or the other way around. Collecting data over time will allow researchers to examine whether one factor precedes the other, helping to shed light on the direction of causality.

“We hope, with these and future studies, that we can inform new strategies to help people regulate their emotions, and to prevent symptoms of anxiety and depression from developing in the first place,” Scult said.
The Science of Love Is All Around

From new research exploring ongoing synchrony between spouses to a revealing scientific investigation into claims made by online dating sites, the science of love and romance continues to stir the passions of psychology researchers around the world. In honor of Valentine's Day, we offer a sample of new and notable research examining matters of the heart.

Couples’ Quality of Life Linked Even When One Partner Dies

Romantic partners often show synchrony in well-being — an individual’s health and cognitive functioning not only influence their own well-being but seem to have an impact on their partner’s well-being as well. Longitudinal data from the multinational Study of Health, Ageing, and Retirement in Europe (SHARE) suggest that this interdependence may even survive death. Analyzing partners’ data over time, University of Arizona researchers Kyle J. Bourassa, APS Fellow David A. Sbarra, Lindsey M. Knowles, and Mary-Frances O’Connor find that the surviving spouse’s quality of life remains intertwined with the deceased spouse’s earlier quality of life, and this interdependence is just as strong as that between two living partners. Read more at http://bit.ly/2i9ExGP.

Love in the Time of Twitter

Today, people are as likely to meet their potential valentines on the Internet as they are at a party, a singles event, or a dog park. Social scientists have followed this trend by exploring the way that online communication is affecting socialization and the formation of friendships and romantic relationships. In an Integrative Science Symposium on “e-Relationships” at the International Convention of Psychological Science in Amsterdam, the Netherlands, an interdisciplinary panel chaired by APS Fellow Marion K. Underwood (The University of Texas at Dallas) presented a host of findings about how people of all ages use the latest communications technology to meet their social needs, both romantic and convivial. Read more at http://bit.ly/2ieIPLv.

Evolution of the Human Brain: What’s Love Got to Do With it?

With our large brains and extended childhoods, humans are a bit of an evolutionary puzzle. Romantic love and the pair bonding that it motivates may be part of the answer to this evolutionary riddle, according to APS Fellow Garth Fletcher (Victoria University of Wellington, New Zealand), APS Fellow Jeffry A. Simpson (University of Minnesota), Lorne J. Campbell (University of Western Ontario, Canada), and APS Fellow Nickola C. Overall (University of Auckland, New Zealand). The researchers argue that the adaptation of romantic love — which allowed us to form monogamous pair bonds, pool resources for raising children, and encourage the involvement of extended families — may have resulted in complex social lives that played a key role in the evolution of our big, sophisticated brains. Read more at http://bit.ly/2jqHleV.

Why Love Literally Hurts

Most of us see the connection between social and physical pain as a figurative one — sure, love may “hurt,” but not in the same way that being kicked in the shin hurts. But in recent years, psychological scientists have found evidence suggesting that there is some literal truth embedded in the metaphorical phrases we use to compare love with pain. Neuroimaging studies have shown that brain regions involved in processing physical pain overlap considerably with those tied to social anguish. And additional research suggests that traditional over-the-counter painkillers also may relieve our emotional wounds. Love may actually hurt after all. Read more at http://bit.ly/2iY9w62.

Grading the Online Dating Industry

Any number of online dating sites supposedly will help you find your “soulmate,” but a comprehensive scientific review published in Psychological Science in the Public Interest urges potential users to be wary of the hype. Dating sites often claim to have a unique matching algorithm that leads to successful long-term relationships, but scientific research shows that the strongest predictors of relationship well-being are factors — such as interaction style and ability to navigate stressful circumstances — that dating sites simply can’t evaluate based on the information they gather from their clientele. Dating sites may be useful if they quickly help matches meet in person to discover whether a spark exists, conclude the report authors — APS Fellow Eli J. Finkel (Northwestern University), Paul W. Eastwick (University of California, Davis), APS Fellow Benjamin R. Karney (University of California, Los Angeles), APS Fellow Harry T. Reis (University of Rochester), and Susan Sprecher (Illinois State University). Read more at http://bit.ly/2jemOej.
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You’re Invited: Share Your Thoughts About the State of Our Science

The year 1988 marked some momentous beginnings:
- The first edition of Stephen Hawking’s landmark “A Brief History of Time” was published.
- *The Phantom of the Opera* opened to become one of the longest running Broadway plays ever.
- Adele was born.

And in the field of psychological science, the most important event was the establishment of APS in August of that year.

APS was started by a group of 400 or so scientists who wanted a strong separate voice for scientific psychology in all its facets. Today APS is over 30,000 members strong and is recognized as an influential leader serving the common interests of all areas of our scientifically diverse field.

With APS’s 30th anniversary coming up in 2018, we thought this would be a good time for reflection. We invite you to share your thoughts about the state of psychological science. You can look forward, back, inward, or at the outside environment in which our science operates.

To inspire you, here are some possible topics. But please don’t feel limited by these. All comments, recollections, and predictions are welcome.

- What are the most significant findings in psychological science over the past 30 years?
- Whose work has influenced you the most?
- What questions will we be exploring over the next 5–10 years?
- What are the most significant methodological advances of the past three decades?
- Which scientific or social problems did you think we would have solved by now?
- What changes have you seen in the way we collaborate in our research?
- Which are the most promising avenues of research in your area?
- What new applications of psychological science have emerged in the past 30 years?
- What is your prediction for the future of our research enterprise in terms of training, methodology, publishing, and applications?

Send your comments, recollections, and predictions to apsobserver@psychologicalscience.org. Please try to keep your submission to 500 words or fewer.
The US Agency for International Development (USAID) is tapping into behavioral science to combat the spread of HIV and other diseases across Africa and South Asia. In a partnership with the federal government’s Social and Behavioral Sciences Team (SBST), USAID has been aiming to identify cost-effective, behaviorally informed interventions that can be scaled to promote health in developing nations.

Their initial projects focused on child and maternal health, with projects in Mozambique and India. Together, they launched the first ever mobile-based vaccination platform in Mozambique, helping healthcare officials monitor vaccine supplies, missed appointments, and upcoming appointments. In India, they worked to improve sanitation by incentivizing people to use communal toilets with a lottery and a prize and by providing cleaning supplies to places in need.

In their 2016 report, the SBST showcased a successful text-messaging project conducted in Mozambique by a health-insurance agency, SM Saúde, as a demonstration of how behavioral science can be used to enact positive change in the global community. The study used automated text messages to remind HIV patients from both urban and rural locations to take medications and attend appointments. The researchers determined the best ways to convey the messages based on focus group discussions between clinic staff and patients, and the messages were sent 7 and 2 days prior to appointments and drug pickups. Additional educational messages also were sent every 60 days. A control group did not receive any text messages, but they did receive identical treatment.

The report indicated that the text-messaging intervention significantly decreased attrition rates and increased adherence to medication regimens and doctor’s appointments for urban patients, in addition to helping them live longer. For the rural patients, however, the text-messaging intervention had no significant impact.

“Retention in HIV care and adherence to antiretroviral therapy are the main challenges in preventing HIV-related morbidity and mortality among HIV-infected patients in Mozambique,” the study authors point out. Although the text-messaging intervention had a significant positive impact for the urban participants, the authors noted several “logistical and structural determinants” — such as access to transport, distance to health centers, and cellular reception — that could have affected the response from rural participants.

The SBST and USAID are now implementing this text-messaging strategy and providing travel subsidies for HIV patients in Ethiopia in the hopes of generating even better outcomes.

The SBST emanated in part from a 2013 White House workshop, “Psychological Science and Behavioral Economics in the Service of Public Policy,” which brought together psychological scientists, behavioral economists, and government leaders to discuss how to incorporate behavioral empiricism into policymaking. APS was an organizer of the event, along with the White House Office of Science and Technology Policy, the National Institute on Aging, and the White House Council of Economic Advisers.

Since its inception in 2014, the SBST has completed more than 15 randomized evaluations with a diverse set of agency collaborators. To read about some of those projects, see the SBST 2016 Annual Report at http://bit.ly/2jqBuWL.

-Christopher Collins
The University of Louisville Grawemeyer Awards program is proud to announce the 2018 award in Psychology. This award recognizes outstanding ideas in all areas of Psychological Science. The award is designed to recognize a specific idea, rather than a lifetime of accomplishment. Nominations are judged on the basis of originality, creativity, scientific merit, and breadth of impact on the discipline.

The Nomination Process
The University invites nominations from throughout the world by individuals, professional associations, university administrators, and publishers or editors of journals and books in Psychology. Self-nominations are not permitted. Upon receipt of their nomination, nominees will be notified about the award conditions, the selection process and the supporting materials needed.

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Professors’ Influence on Display in APS Membership Initiative

 Thousands of New Students Join for 2017

Back when APS was established, our membership grew quickly, largely through word of mouth. Many of our current leaders today tell us that they joined as students because they were strongly encouraged by their professors and research mentors to be part of this important new group dedicated to the science of psychology.

Invoking that same spirit on the eve of our 30th year, we recently asked our current faculty members to engage their students with APS.

“As a professor and mentor, you play an integral role in shaping your student’s careers,” said APS Executive Director Sarah Brookhart in an email to faculty. “As an APS Member, you know the value that comes with being affiliated with the most effective voice for all areas of psychological science.”

The response was astounding: At the behest of their professors, nearly 8,500 students joined APS in a matter of weeks. We heard over and over again from these new members about how much they love psychological science and how important it is to them to be connected to the community of students, educators, and researchers with similar interests. We also heard from these students just how much their professors’ guidance and support means to them.

More than two-thirds of these newest APS members are grad students, and while most are from the United States and Canada, we have a strong showing from around with world, with many new members coming from Europe, Asia, Australia, and New Zealand.

In the coming year, we hope to learn much more about these new members — their research interests, their career aspirations, and their zodiac signs. (Okay, just kidding about that last part.)

If you’re among this group, we want to hear from you, and we want you to be a member of APS for a long time. After all, in a few years it might be you at the helm, telling people about that influential professor who in all of his or her wisdom told you to join APS as a smart career decision and as a meaningful affiliation with others who share your passion for the science.

Please send your comments and responses to apsobserver@psychologicalscience.org.

UPDATED COMMON RULE ON HUMAN SUBJECTS

The U.S. Department of Health and Human Services has released an update to the regulations that set forth federal protections for human subjects in research, also known as the Common Rule. Changes to the Common Rule, which was last revised in 2005, are of significant interest to psychological scientists. Among other things, the types of research that are considered exempt from the Common Rule have been expanded to include certain benign behavioral experiments and interventions.

Read about the updates to the Common Rule at: www.federalregister.gov/d/2017-01058

Additional information will be available on the APS website and in future issues of the Observer.
CONGRATULATIONS
APS RISING STARS

The APS Rising Star designation is presented to outstanding psychological scientists in the earliest stages of their research careers post-PhD.

To nominate a colleague for the 2017 Class of Rising Stars please visit
www.psychologicalscience.org/members/awards-and-honors/aps-rising-stars-nominations

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For more information about these APS Rising Stars, visit [www.psychologicalscience.org/rising-stars/stars.cfm](http://www.psychologicalscience.org/rising-stars/stars.cfm)
From Protecting POTUS to Safeguarding Schools

It’s probably safe to say that most psychological scientists don’t imagine their work affecting the safety of the President of the United States. Marisa R. Randazzo, though, has found herself training the US Secret Service to keep the Commander in Chief from danger.

Randazzo, cofounder of the private consulting firm SIGMA Threat Management Associates, spent 10 years as a research psychologist with the Secret Service, the last 2 years of which she served as Chief Research Psychologist and Research Coordinator. One of her biggest tasks in that job was to help agents distinguish between hollow threats and genuine ones.

“We really put it to an empirical test,” she says, “by asking, ‘What do people do and say before [trying] to harm the president? Is there anything that is observable or noticeable?’”

Much of her work involved helping agents look beyond the simplicity of conventional wisdom when assessing dangers. For example, she helped them understand empirical research that suggests that an individual could pose a threat to the president and other officials under Secret Service protection even if that person had no history of violence or mental illness — important information that might help save the lives of both protective detail members and of civilians. If a threatener did have a mental illness, Randazzo and her colleagues suggested that agents go in depth and seek the answers to questions such as: “Are they on their medication; are they in the right care; and how can we connect them to that care?”, rather than making assumptions about those individuals.

Randazzo jump-started her career as a psychological scientist at Williams College, where she took a class on psychology and law and was inspired by her professor, APS Fellow Saul Kassin. “His passion for the ability of social science research to inform processes like jury decision-making and expert testimony and justice … got me excited about a field in a way I had never been excited about before,” she said. “It got me thinking about, ‘How can I make social science and law work together?’”

Although Randazzo contemplated pursuing a law degree, she opted for a social psychology graduate program at Princeton University. The focus of that program was to foster high-level academics, but Randazzo also was interested in applied research.

“I got into the career I did because I volunteered a lot of my time in unpaid internships, actually learning what that science was like,” she adds. “It didn’t give me any publications; it didn’t help my transcript; and it certainly didn’t help me get my degree earlier.”

Those unpaid internships — including positions at the RAND Corporation, the Federal Judicial Center, and the Secret Service — did, however, afford her an entry path into an applied research position. After working as a research psychologist at the Secret Service following her internship, Randazzo began overseeing all behavioral research conducted by the agency under the auspices of a stand-alone research program, the National Threat Assessment Center, which conducts studies on government-related risks.

Randazzo has not limited her research to protecting VIPs, however — she also codirected a study with the US Department of Education that examined school shootings. The researchers found that shootings both in schools and workplaces are not impulsive acts.

“A student [or employee] doesn’t just snap,” she says. “They give these events thought beforehand; they plan them out beforehand, sometimes several months in advance. Secondly, ‘people who are planning acts like that don’t keep their plans a secret … they’ll tell friends and they will put it on social media. So we now have scores of cases where school shootings have been prevented because someone saw something posted on Instagram, Twitter, Snapchat, and said, ‘Hey, this sounds worrisome,’” she explains.

Based on these findings, Randazzo and her colleagues created a model for school threat assessment that is now used in federal guides and in threat assessment procedures in Virginia, the only state that takes such measures beginning in kindergarten and continuing through high school. As with assessing threats to presidents and other high-ranking officials, Randazzo cautions that decision-makers should not be hasty in deciding how to punish students for acting out before they have fully evaluated what their motives and intentions were. She also emphasizes that
prevention often involves connecting that person to the right resources to help solve whatever underlying problems are leading them to feel that violence may be the best or only option left.

After the 1999 Columbine High School massacre in Colorado, during which two students murdered 12 classmates and one teacher, many schools adopted a zero-tolerance policy and suspend or even expel students who show troubling signs or behave in ways that might be considered threatening. These types of guidelines “look good on paper but don’t actually make schools safer,” Randazzo says. “If a friend knows about something but they know that telling will get [the troubled student] expelled, they won’t tell. If they have a safe space, they’re more likely to come out. We’ve seen a sea change over the past 10 years or so, in that students now know that they’re able to bring things like that to the school’s attention.”

And increasingly, this information can be traced not only to academics in labs but also to advisors at private enterprises such as SIGMA Threat Management Associates, a consulting practice founded in 2010 that initially focused on college threat assessments. Its mission has since expanded to include consultations for workplaces, government agencies, and high-profile families. According to Randazzo, the employees come from a broad range of backgrounds including K–12 and higher-education settings, workplace-violence-prevention teams, and the military. “One of our team members just retired from NCIS [the Naval Criminal Investigative Service], where she oversaw their threat management operations,” she says. “We have folks who have backgrounds in federal law enforcement, clinical psychology, education, policy, organizational dynamics, and legal expertise.”

When assessing threats of any kind, the power of psychological science cannot be overstated, Randazzo adds.

“What [threat management agencies] are focusing on so much is human behavior, so to have people who are experts and can further study [these phenomena] helps enhance [our] understanding of why things might happen,” she says. “Behavioral and psychological science in that setting is critical, because so much of what we can do as psychological scientists is study why people do what they do.”

-Mariko Hewer

CALL FOR FELLOWS NOMINATIONS

Fellow status is awarded to APS Members who have made sustained outstanding contributions to the science of psychology in the areas of research, teaching, service, and/or application. Fellow status is typically awarded for one’s scientific contributions; however, it may also be awarded for exceptional contributions to the field through the development of research opportunities and settings. Candidates will be considered after 10 years of postdoctoral contribution.

**NOMINATION REQUIREMENTS**

- A letter of nomination specifying why the candidate is judged to have made sustained outstanding contributions.
- The candidate’s current curriculum vitae.
- Additional letters of support from two outstanding contributors to the field of scientific psychology familiar with the nominee’s work, one of whom must be an APS Fellow.

**Fellows Committee**

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For more information and to submit a nomination, please visit  
www.psychologicalscience.org/members/fellows/aps-fellow-nomination

Electronic submissions are required.
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 contributing to this effort in the teaching of psychological science in higher education. Proposals from outside the US are actively encouraged.

For details, visit:
www.psychologicalscience.org/members/teaching/fund-application

Questions? Email: teachfund@psychologicalscience.org

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After a long day at the office, you decide to unwind over a few drinks with colleagues at a nearby restaurant. Someone mentions the coworker who sits at the desk next to yours and you launch into a lively imitation of his particular manner of speaking, including his fondness for business jargon and propensity toward wild gesticulation. As soon as you finish, you look over and notice that this coworker is now standing over at the bar. What do you do?

For many of us, the answer boils down to one critical question: Is your imitation common knowledge? You know that you were making fun of your coworker, but does he know? Even more important, does he know that you know that he probably saw you do it? If not, you could both pretend that he never heard you.

Establishing what everyone knows will guide the events that unfold in this situation and many others like it. Social phenomena, including fashion trends, stock market crashes, and public protests, all depend on the assumption that a particular thing is common knowledge. And yet, argues APS William James Fellow Steven A. Pinker (Harvard University), psychological scientists haven’t spent much time investigating common knowledge relative to other social phenomena.

In his award address at the 2016 APS Annual Convention in Chicago, Pinker took the audience on a tour through recent work exploring the mechanics of this specific type of knowledge and its centrality to everyday life.

Does He Know That I Know?
The first distinction that we must make, says Pinker, is in grasping the difference between shared knowledge and common knowledge. With shared knowledge, you know that your coworker probably heard you, and he knows that you know. With common knowledge, however, you both have an understanding of what the other knows. This common understanding can be spelled out formally in a set of nested propositions (e.g., I know that he knows that I know) or using a recursive formula, but we probably experience it most often as an intuition that the knowledge is “out there.” In the most direct cases, we know something is common knowledge because we can all see that everyone is watching an event transpire.

Understanding what other people believe is essential to social coordination, especially when the coordination involves a degree of risk — it’s so essential, Pinker posits, that we’ve become adept at sussing out whether something is shared or common knowledge, even if we can’t articulate it.

To gauge just how sensitive we are to people’s differing states of knowledge, Pinker and colleagues asked study participants to engage in a bit of coordinated financial decision-making. They imagined themselves as bakers trying to decide what to bake — they could make dinner rolls and turn a small profit or they could make hot dog buns and turn a larger profit, but only if the butcher makes hot dogs. And the butcher only makes hot dogs if the going price on hot dogs is high enough.

Some participants received private knowledge about hot dog prices: A messenger told them, but not the butcher, the day’s hot dog price.

Others received shared knowledge: The messenger told them the price and also told the butcher the price, but the butcher didn’t know that the bakers knew the price.

Participants in a third group received a different kind of shared knowledge: The messenger told the butcher the price and told the butcher he would also tell the baker, but he did not tell the butcher that he would tell the baker that he had told the butcher (he knows you know the price, but he doesn’t know that you know that he knows).

Finally, a fourth group received common knowledge: That day’s hot dog price was heard by all through a public loudspeaker.

Given the information they had from the messenger, the participants had to decide: Would they make hot dog buns or not? The results showed that people were very aware, at least intuitively, of the risk–reward calculations inherent in each type of knowledge.

Only about 10% of those who received private knowledge chose to coordinate, assuming that the butcher probably didn’t know the daily price and therefore wouldn’t make any hot dogs. Just under half of those who received the two types of shared knowledge opted for coordination, suggesting that the payoff...
of coordinating still seemed quite uncertain. But almost all participants — about 90% — chose to coordinate when they knew that both they and the butcher possessed the same information about the going price for hot dogs.

Based on these findings, it seems likely that people do think about private, shared, and common knowledge as distinct cognitive categories.

Why, Whatever Do You Mean?
Establishing common knowledge clearly facilitates social coordination, but there are some times, says Pinker, when we may choose to actively avoid common knowledge to maintain our relationships.

As anyone who has ever shared a living space knows, when your roommate says, “If you could wash your dishes after eating dinner, that would be awesome,” he’s not saying that your ability to do dishes would inspire feelings of awe. In reality, he’s asking you to wash your dirty dishes instead of letting them pile up in the sink.

If both you and your roommate know what he’s really trying to say, why bother with indirect speech?

The answer, Pinker says, is plausible deniability: Speaking indirectly provides verbal cover, allowing us to pretend that we don’t have the same understanding as someone else when we’re not sure how the other person will respond.

Imagine you’re a driver, says Pinker, and you’ve been caught speeding. You have two options: You can try to bribe the police officer or remain silent. What do you do? Once again, the answer depends on some risk–reward calculations. The police officer might be dishonest, willing to accept the bribe and set you free; but she might also be honest, in which case you’ve added a bribery charge to your list of offenses. If you remain silent, either type of officer will likely fine you with a moderately costly traffic ticket. Choosing the optimal strategy would require knowing what kind of officer you’re dealing with.

Now imagine that you have a third option: the veiled bribe. You could, like Steve Buscemi’s character in the movie Fargo, gently slide out a $50 bill, turn to the officer, and say: “I was thinking that maybe the best thing would be to take care of it here in Brainerd.”

Suddenly, the payoff calculation shifts. The dishonest officer could recognize the bribe for what it is and let you go. The honest officer, unable to prove that you attempted to bribe her, would probably just give you a traffic ticket. By using indirect speech, you’ve effectively eliminated the worst possible outcome.

Well, Things Just Got Awkward
These advantages also apply to everyday situations, when it’s unclear whether you and another person have the same understanding of your relationship with each other. Different types of relationships come with their own implicit rules and norms, and behavior that is appropriate in one type of relationship may be completely inappropriate in another type.

“When relationships are ambiguous, divergent understanding can be costly, which we experience as awkwardness,” even when there aren’t any tangible fines or punishments, Pinker notes.

This kind of misunderstanding plays out before viewers’ eyes in the now-classic romantic comedy When Harry Met Sally.

“Harry and Sally have just met, and Harry makes a comment that Sally interprets as sexual, and she confronts him,” says Pinker. Sally: You’re coming on to me!
Harry: What do you want me to do about it? I take it back, okay? I take it back.
Sally: You can’t take it back.
Harry: Why not?
Sally: Because it’s already out there.
Harry: Oh jeez. What are we supposed to do? Call the cops? It’s already out there!

This situation is so awkward, Pinker explains, because what was originally shared knowledge turns into knowledge that is “out there,” and the two cannot keep up the charade that their relationship is simply a friendship.

To test the hypothesis that direct speech provides the certainty of common knowledge while indirect speech does not, Pinker and former student James J. Lee, now an assistant professor at the University of Minnesota, devised several fictional scenarios depicting a bribe, a sexual overture, or a threat. Importantly, the scenarios differed in how direct they were.

In the seduction scenario, for example, coworkers Michael and Lisa have dinner together. Michael drives Lisa home and, when passing his apartment, says one of the following:

“Wow, I feel like we’ve talked so much, but it’s only 10:30,” or “My friend just emailed me the pictures from our trip to Europe that I was telling you about. Do you want to come over and have a look?” or “I have a really terrific view from my balcony…Would you like to come over and have a look?” or “I find you really attractive and enjoyed being with you…Would you like to come over and have sex?”

Participants read the scenario and answered a series of questions about what Lisa and Michael were likely to believe about what had just happened. Each question involved an additional embedding of belief (e.g., What is Lisa thinking? What is Michael thinking about what Lisa is thinking?).

When Michael’s overture was indirect, Pinker and Lee predicted that participants’ confidence about what each person believed would diminish with each embedding; however, when Michael’s proposition was direct, they predicted that the level of embedding would not affect how confident participants felt about what each character knew. That is, indirect speech would be increasingly difficult to interpret as it was reflected back and forth through the characters’ differing perspectives, but direct speech would always be clear, no matter how many layers of interpretation it lay under.

And this is exactly what the researchers found — participants’ certainty ratings fell with each degree of embedding when Michael was indirect, but they remained absolutely certain through all levels of embedding when Michael’s proposition was overt.

As Pinker explains, when we use innuendo, we can skirt around common knowledge, allowing a “proposition to be tendered without changing the relationship type.” Speaking directly, however, makes each person’s understanding of the relationship undeniably clear.

Is It Too Late to Say Sorry?
Innuendo, therefore, is an evasive strategy that helps to preserve a relationship. But how do we deal with the social awkwardness that
arises when potentially damaging information suddenly becomes common knowledge? We address the common knowledge, says Pinker, by showing self-conscious emotions like embarrassment, guilt, and shame.

By cringing, blushing, and averting our gaze, we signal to another that we understand when we’ve committed a relationship faux pas. Such self-conscious displays help us preserve the relationship by letting the other person know that you know you’ve messed up.

In one recently completed study, Kyle A. Thomas, Peter DeScioli, and Pinker tested the theory that self-conscious emotions emerge in response to common knowledge using a time-tested method for making people feel embarrassed: Asking them to sing in front of a group.

The researchers asked each participant to perform Adele’s soulful hit “Rolling in the Deep” in front of a panel of judges shown via live video feed. In some cases, the participants thought the judges didn’t know they could be seen, an instance of shared knowledge. In other cases, the participants believed the video feed went both ways and the judges knew they could be seen, an instance of common knowledge.

In reality, the video of the judges was prerecorded.

As one might expect, participants were noticeably embarrassed when they had to sing for either set of judges — but, in line with the researchers’ predictions, they were much more embarrassed when the whole event was thought to be common knowledge.

The Elephant, the Emperor, and a Matzo Ball
With all this evidence that common knowledge plays a fundamental role in many of our social interactions, why don’t we talk about it more often?

Pinker argues that common knowledge actually does come up all the time — we just might not recognize it as such. When we perceive the phenomena surrounding hypocrisy; taboo, tact, political correctness, and even celebrity, we’re often sensing what people believe about what other people know. In fact, the concept of common knowledge — when everyone sees the same thing and knows that everyone sees the same thing — lurks in many of our metaphors, including “the cat is out of the bag,” “it’s in your face,” “the emperor’s new clothes,” and “the elephant in the room.”

And, like many curiosities of social life, it even makes an appearance in an episode of the TV show Seinfeld. When George announces that he’s said “I love you” to a woman, Jerry asks whether she returned the sentiment. “Because if you don’t get that return, that’s a pretty big matzo ball hanging out there,” Jerry muses.

Although we might go cross-eyed trying to keep track of increasingly nested states of knowledge, “everyone has a perfectly intuitive understanding of the emperor, the elephant, and the matzo ball,” Pinker concludes.

-Anna Mikulak
We open our inboxes to find emails with the subject lines “Visit with CTSI/CRC and CHEP” “DARPA — Next Generation Social Science (NGS2) program — Proposer’s day,” and, mysteriously, “HIPPA: BOYD.” We suspect that this experience is all too familiar to academic psychologists and to members of any group that relies heavily on abbreviations and jargon in its communication.

Abbreviations are all too common in scientific communication and are mostly unnecessary; this is reason enough for conscientious writers to avoid them. In many cases, they can confuse and alienate unfamiliar audiences, and even well-intentioned writers and speakers may overestimate an audience’s familiarity with abbreviations.

Abbreviations shouldn’t be completely avoided, but using them as a default can be problematic. Mindful writers will notice that most abbreviations are unnecessary and will choose to replace them with the meaningful words that underlie them.

**Why Use Abbreviations?**
The term _acronym_ is often misused to refer to any arrangement of letters that stand in for full words, such as PTSD, DV, or GPS. However, words like these actually are termed _initialisms_. The technical definition of an acronym only encompasses abbreviations that are pronounced as words, such as POTUS, FEMA, or NAFTA. Here we will use the umbrella term _abbreviation_ to refer to both acronyms and initialisms.

Given their ubiquity both within and beyond academic writing, it is reasonable to assume that abbreviations serve a function. In our view, there are three broad reasons why people use acronyms:

- **Speed/Efficiency.** It’s true that abbreviations occupy less space on a page and can be pronounced with fewer syllables. Consider the following sentence, which is typical of something that we (social psychologists) might say to a colleague: "Did you read the new PSPB article comparing the accuracy of IATs with the AMP procedure? It is a nice follow up to the JPSP article that came out before SPSP." This sentence is surely easier to produce than a counterpart that spells out the meaning behind each letter, and it’s most likely familiar to social psychologists, but not everyone is a social psychologist.

- **Ingroup Identity.** In his book _The Upside of Irrationality_, Duke University psychological scientist Dan Ariely mentions, almost in passing, that acronyms "confer a kind of secret insider knowledge; they give people a way to talk about an idea in shorthand. They increase the perceived importance of ideas, and at the same time they also help keep other ideas from entering the inner circle." So although abbreviations can block outsiders from understanding a group’s communications, they likely provide a sense of cohesiveness to members of an ingroup.

In _Slang: The People’s Poetry_, the historian Michael Adams treats the concept of _slang_ as a system of language used by subcultures to build social identity and contrast themselves with the larger culture by using unique language. The same type of logic applies to abbreviations and jargon: Though they lack the informal and perhaps even stigmatized status of slang, professional abbreviations and jargon can be used, intentionally or not, to announce one’s ingroup bona fides.

- **Mischief.** Abbreviations can be used as code, to obscure the content of a message, or to create the impression that it is especially complicated or impressive. In an editorial comment on the use of abbreviations in the _Journal of Child Neurology_, the late Creighton University professor Roger A. Brumback traced the origin of the term “acronym” to World War II, when it was made popular as a method of concealing a message from an enemy.

“Despite its initial justification of economizing materials and time, the use of abbreviations and acronyms now appears more likely to fulfill the World War II purpose of hiding written information, particularly from the ‘prying eyes’ of scientists, physicians, and researchers,” Brumback concluded. “It is puzzling why scientists would want to erect barriers to the understanding of their studies by publishing articles with abbreviations that make reading difficult for anyone not intimately familiar with that specific field.”

**Abbreviations as Poor Communication**
Abbreviations saddle a reader with the chore of deciphering the meaning of words that could simply have been spelled out.

In his 2014 book _The Sense of Style: The Thinking Person’s Guide to Writing in the 21st Century_, APS William James Fellow...
Steven A. Pinker of Harvard University reiterates the importance of writing things out, and illustrates a common and frustrating experience with abbreviations:

“Writers forget that the few seconds they add to their own lives come at the cost of many minutes stolen from the lives of their readers. I stare at a table of numbers whose columns are labeled DA DN SA SN, and have to flip back and scan for the explanation: Dissimilar Affirmative, Dissimilar Negative, Similar Affirmative, Similar Negative. Each abbreviation is surrounded by many inches of white space. What possible reason could there have been for the author not to spell them out?” (p. 64)

Other writing style guides repeat the same wisdom. One especially interesting case is the American Chemical Society’s ACS Style Guide, which, without apparent irony, advises writers to “avoid abbreviations in the title of a paper.”

Abbreviations as Alienating
Very subtle reminders that one is an outsider can be sufficient to trigger feelings of ostracism. Findings from a 2010 study led by Simon Fraser University social psychologist Michael T. Schmitt provide an example. Schmitt and colleagues found that when non-Christian participants were exposed to a Christmas display, they reported reduced feelings of inclusion, which in turn predicted reduced self-esteem. Similarly, a study in the University of Massachusetts Amherst lab of APS Fellow Nilanjana Dasgupta showed that when women read a job ad that described the position with gender-exclusive language (e.g., “We usually know a good employee when we see him”), they reported reductions in feelings of belonging, self-esteem, control, and meaningful existence and were less interested in pursuing the job.

Expecting that unfamiliar acronyms would have similar effects, we recently tested this idea in an experiment during which we randomly assigned 98 college students to read variations of a recruitment message from CrossFit, a fitness organization known for using many abbreviations. In a control condition, the passage spelled out all abbreviations on every mention. In an abbreviations with clarification condition, the passage used abbreviations but clarified their meaning on the first mention only. In a final abbreviations without clarification condition, the passage used abbreviations with no clarifications, even on first use. Participants reported their levels of basic psychological needs (belonging, self-esteem, control, and meaningful existence), their interest in joining the group, and their sense of how difficult the passage was to read. The results were clear: As the passage became less clear, participants reported not only more threat to their basic needs, but also more difficulty reading the passage and less interest in joining the group.

A Problem With a Solution
Scientific writing is technical and can be difficult to read and interpret even for seasoned veterans. Why make matters worse by collapsing meaningful words into abbreviations? The solution is simple: Spell out abbreviations on each use.

True, abbreviations for such phrases as analysis of variance, automatic teller machine, and implicit association test are so widely used and recognized that they effectively become words themselves. However, while it may sound extreme at first, the world would not end if we replaced even ANOVA with analysis of variance. In many research reports, the term is used only a few times, and it may not hurt readers to be reminded that the analysis is doing just that: making sense of patterns of variance. Similarly, other acronyms that are highly familiar to the writer may only appear a few times in a piece, and the work is hardly compromised by spelling them out.

More to the point, however, we acknowledge that some abbreviations, to some audiences, are processed as efficiently as the spelled-out words, whereas other abbreviations are unfamiliar,
burdensome, and alienating. The difficulty is in anticipating the reader’s level of knowledge and accurately guessing whether they will be familiar with the terms. Writers would be well-advised to strongly distrust their own intuitions about how familiar their audience is with the abbreviations (or indeed how narrow their audience may become when the abbreviations are used). Writers avoid this dilemma when instead they default to fully written-out phrases. In some cases, it may be appropriate to use an abbreviated form of a phrase, but this should be the exception, not the default, and should only be done when the communicator has evidence that the abbreviation will be understood and processed fluently.

Abbreviations are mentally taxing on a reader and can incidentally alienate an audience. By simply replacing them with the words that they stand for, we greatly improve our communication. The field of psychological science is moving toward increased openness in scientific practices. While we are at it, let us consider also making our writing more open and easily accessible.

Note

1 An interesting exception to this is the spoken “www,” which Douglas Adams (2002) observed has three times as many syllables as “World Wide Web.”

References and Further Reading


The view that we reach a kind of cognitive “peak” relatively early in life has been pervasive since the time of William James. In 1890, James wrote of the aging “dotard” as incapable of learning new information or even following a conversation. “So much for the permanence of the paths,” James wrote sarcastically in the first volume of *The Principles of Psychology*. According to a 2014 survey on perceptions of brain health and aging conducted by aging advocacy group AARP, people believed that the brain peaks at age 29 before beginning to deteriorate by age 53.

The world’s population is aging rapidly. According to a 2015 demographic report produced by the Division of Behavioral and Social Research at the National Institute on Aging and the US Census Bureau, “the next 10 years will witness an increase of about 236 million people aged 65 and older throughout the world.” Although popular culture may perpetuate the notion that it’s all downhill after 30, new research is painting a far more encouraging picture of the aging brain’s capabilities: Rather than taking a nosedive, many cognitive skills continue to improve long after 30, with some skills peaking as late as our 60s and 70s.

In some respects, the poet Henry Wadsworth Longfellow may have been ahead of his time with his insights on how aging has its own advantages: “For age is opportunity no less / than youth itself, though in another dress, / and as the evening twilight fades away / the sky is filled with stars, invisible by day.”

The Internet is now allowing researchers to study cognition across thousands — even hundreds of thousands — of participants of every age. The ability to leverage data collected from several thousand participants, rather than only the usual few dozen or few hundred, is enabling researchers to track the development of different cognitive skills across the lifespan with increasing accuracy. And the results of these massive new studies are bringing to light some surprising — and perhaps heartening — findings about the aging brain.

Although many cognitive skills do peak in the first few decades of life, people may be interested to learn that there are also many important abilities that hit their high points much later. Rather than a simple curve or U-shape, new research is showing that the cognitive landscape is filled with a shifting array of highs and lows.

**Cognitive Peaks and Valleys**

Although scientists have been studying the cognitive effects of aging for decades, methodological challenges have made it difficult for researchers to track and differentiate changes in cognitive skills over the lifespan. Two of the main methodological hurdles include obtaining insufficiently large data sets and a lack of statistically sound quantitative methods for comparing ages of peak performance.

Convincing hundreds, let alone thousands, of people to come into a lab in order to complete a battery of demanding cognitive tests is just one of the challenges for researchers who study older populations. Along with the normal difficulties of participant recruitment, adults in their 50s and 60s often are still working, while adults in their 70s and 80s may have mobility and transportation issues that make it difficult to get to the lab in the first place.

Joshua K. Hartshorne, an assistant professor of psychology at Boston College, and Laura Germine, an assistant professor of neuroscience at McLean Hospital and Harvard Medical School, were interested in looking at changes in different cognitive skills across the lifespan.

In an initial study, Hartshorne and Germine reanalyzed an old set of scores from Wechsler IQ and memory tests taken by a geographically diverse group of adults in the 1990s. Scores from 2,450 test-takers were divided into 13 age categories representing individuals between the ages of 16 and 89. This allowed the researchers to chart peaks in various cognitive skills — ranging from memory to vocabulary — from adolescence through old age.

A comparison of the peaks for different cognitive tasks revealed that there was no single apex in overall cognitive skill; instead, there was huge variation in cognitive capabilities across the lifespan.
the lifespan. The cognitive peaks were all over the place — and according to Hartshorne, this was the "smoking gun" that it's not all downhill for the aging brain.

Although the data were intriguing, this pool of participants was too small to make any solid conclusions. People in their late teens and early 20s are often the bread and butter of psychology research experiments, and getting large numbers of people in their 50s, 60s, and 70s into the lab was a major obstacle.

"Regular adults have been some of the hardest participants to get for this kind of research," Germine explained in an interview with the Harvard Gazette.

So Hartshorne and Germine turned to an unlikely new tool: viral Internet quizzes.

Along with APS Fellow Ken Nakayama of Harvard University, Germine founded TestMyBrain.org, a website that hosts a variety of short cognitive tests that users can complete within a few minutes. Since the site’s foundation in 2008, researchers have collected data from more than 1.7 million volunteers all over the world. In a similar vein, Hartshorne has founded a website called GamesWithWords.org as a “Web-based research laboratory” for studying language.

Both Germine and Hartshorne felt that it was important for the tests on their website to be short and engaging, ensuring that participants enjoyed taking each one so much that they would be interested in taking a few more or even forwarding them to friends. Essentially, they wanted to make taking a cognitive battery just as easy and fun as taking one of the not-so-scientific personality tests people like to share on social media sites. In total, more than 3 million people have taken quizzes on the two websites.

In a second set of studies, Hartshorne and Germine enlisted TestMyBrain.org and GamesWithWords.org to collect large samples of data across five specific cognitive tasks. Three of these tasks — digit symbol coding, verbal working memory, and vocabulary — overlapped with the tasks from the Wechsler exam used in the previous study. The researchers also included a widely used test of emotional perception, which was not included in the original Wechsler tests.

Test data collected from online participants showed a very clear picture of cognitive peaks across the lifespan, one which largely matched the same pattern of results from the decades-old Wechsler tests. For example, information-processing speed crested early in life — around age 18 or 19. Short-term memory was another skill that seemed to hit its pinnacle fairly early in life, improving until age 25 before beginning to decline around age 35.

On the other hand, many cognitive proficiencies — vocabulary, math, general knowledge, and verbal comprehension — didn’t peak until much later in life.

These types of skills serve as measures of crystallized intelligence — the kind of knowledge, familiarity with facts, and expertise that come from experience. As people age, they continue to learn new things and gather new experiences, so it makes sense that crystallized intelligence would continue to improve beyond the first few decades of life.

Germine and Hartshorne’s analysis of the online data collected from thousands of participants showed that crystallized intelligence, as measured by vocabulary skills, essentially had no single high point — it continued to improve well into participants’ late 60s and early 70s. In contrast, the Wechsler data showed vocabulary skills topping out mostly in the 40s.

To ensure that collecting data online hadn’t somehow skewed the results, Germine and Hartshorne consulted another large dataset, the General Social Survey, which has been testing people’s vocabularies for decades. Interestingly, this data confirmed that there really has been a steady shift in vocabulary performance over the last few decades: More recent generations peaked on this particular skill at later ages compared with previous generations. This would explain why the Wechsler data, which was collected decades before the online sample, showed a much earlier peak for vocabulary.

"With the increase in the proportion of adults engaged in cognitively demanding careers, it may be that ages of peak performance are later in the more recent Internet sample, particularly for vocabulary,” Germine and Hartshorne write. “This could be related to the Flynn effect: IQ has increased steadily in modern times, possibly because of increasing amounts of time devoted to mental activity.”

Another skill that improved with age was emotional perception. To test this ability, researchers asked participants to identify the mood of a person based only on a photograph of the individual’s eyes. A menu provided a selection of potential options such as fearful, tentative, or playful for each photograph.

Again, the researchers found that adults in their 40s and 50s consistently outperformed younger adults. Interestingly, this ability also had a much longer plateau than any of the other cognitive skills that were tested.

"The peak in emotion-recognition ability was also much broader than the peaks for any of the other tasks, which reflects a long period of relative stability in performance between the ages of 40 and 60 years,” Germine and Hartshorne write.

To ensure that their results were really accurate, the researchers recruited another large set of more than 18,000 online participants between the ages of 10 and 73 to confirm their visual and verbal working-memory findings. The replication showed the same pattern of cognitive peaks as the other experiments.

"At any given age, you’re getting better at some things, you’re getting worse at some other things, and you’re at a plateau at some other things,” Hartshorne says. “There’s probably not one age at which you’re peak on most things, much less all of them.”

"It paints a different picture of the way we change over the lifespan than psychology and neuroscience have traditionally painted,” Germine adds.

Finding Focus
A different large study conducted using data collected from TestMyBrain.org and published in Psychological Science found yet another unexpected boon for aging brains: Sustained attention tends to improve over time, ultimately peaking in the mid-40s.

Led by researchers Francesca C. Fortenbaugh, Joseph DeGutis, and Michael S. Esterman at the Boston Attention and
Learning Laboratory at the VA Boston Healthcare System, this study tested sustained attention across 10,430 adults using a specialized task for identifying individual differences in people's ability to focus on a single task over 4 minutes.

"While younger adults may excel in the speed and flexibility of information processing, adults approaching their mid-years may have the greatest capacity to remain focused," DeGutis said in a statement. "One current hypothesis is that compared to younger adults, adults in their mid-years mind-wander less, leading to better sustained attention performance."

"This sample was larger than in all previous efforts to model changes in sustained-attention performance during development, aging, or across the life span combined, which allowed us to more precisely model transition periods in performance across the life span using segmented linear regression," the researchers explain.

Sustained attention, or the ability to concentrate on a task for an extended period of time, underlies several important cognitive processes, including learning, perception, and memory. Importantly, lapses in attention can lead to serious problems ranging from difficulty at work to an increased risk of car accidents. But measuring attention across individuals is itself a challenge; attention fluctuates, sometimes dramatically, from moment to moment.

To accurately measure an individual's overall concentration abilities, the team used a new tool they developed: the gradual-onset continuous performance task (gradCPT). Participants were shown a series of grayscale photographs of 10 city scenes and 10 mountain scenes. One photograph gradually transitioned into the next every 800 milliseconds, so that as one image slowly faded, a new image steadily took its place. The effect was similar to a crossfade transition from a movie, with one scene slowly dissolving into the next one.

A nearly equal ratio of male and female participants (5,027 males and 5,403 females) between 10 and 70 years old completed the gradCPT on the TestMyBrain.org website between March and September of 2014. Most participants found their way to the website through search engines or social media sites. The participants were told to press the space bar key whenever they saw a city scene, but to withhold a response when the image was a mountain scene.

The goal of the gradCPT was to create a task that required frequent responses from participants while having a relatively low cognitive demand. Identifying the difference between the two scenes was easy, but carefully attending to the transitions repeatedly became challenging over time.

By analyzing mean reaction time, reaction time variability, hits, misses, discrimination ability, and criterion (a measure of strategy or willingness to respond in the case of uncertainty), the researchers were able to tease apart the changes in sustained attention across the lifespan. From ages 10 through 16, gains in both reaction times and discrimination ability were extremely large. After age 16, gains in these skills were much smaller until they peaked around age 43.

A factor analysis of the results suggests that people also begin to use different cognitive strategies as they age. Younger individuals demonstrated faster reaction times (due to either superior information-processing speed or a more liberal response strategy), whereas older individuals showed a slower, more cautious strategy and evidence that they made more adjustments after a mistake.

In particular, Fortenbaugh and colleagues calculated the degree to which individuals slowed down their responses following an incorrect response. This phenomenon, referred to as "post-error slowing," is thought to reflect reactivity to making errors; essentially, it is the cognitive "Oops! Why did I do that?" after a wrong answer. Results of the study showed that post-error slowing consistently increased with age (3.5 ms per year), indicating that older adults engage in more self-monitoring after an error.

"While young adults may surpass people of other ages in the speed and flexibility of information processing, and older adults may possess the most stored knowledge regarding the world, we found that middle-aged adults have the greatest capacity to remain attentive," the researchers conclude.

### The Happiness U-Curve

Despite the growing aches, pains, and other cons of aging, researchers consistently find a happiness paradox: As the body declines, happiness tends to increase. Across the lifespan, this “positivity effect” follows a U-shaped pattern — happiness starts out high in late adolescence, bottoms out in middle age, and reaches a second zenith in old age.

According to a 2011 Gallup analysis of more than 500,000 phone interviews, “a septuagenarian is far more likely than someone in their 30s to have high emotional health.” The old-age happiness advantage held true even after controlling for myriad demographic factors, including gender, race, education, marital status, employment, and regional location.

This happiness U-shape appears in populations across the world. Economists Andrew Oswald (University of Warwick, United Kingdom) and David G. Blanchflower (Dartmouth College) documented this pattern in more than 500,000 people living in more than 70 different countries. Their analysis concluded that from Azerbaijan to Zimbabwe, people around the world tend to be happiest in their old age — regardless of their nationality.

"Only in their 50s do most people emerge from the low period. But encouragingly, by the time you are 70, if you are still physically fit then on average you are as happy and mentally healthy as a 20 year old," Oswald says. "Perhaps realizing that such feelings are completely normal in midlife might even help individuals survive this phase better."

The universality of the happiness U-curve implies that aging actually may play a positive role in the brain. One team of Australian researchers, led by Leanne Williams (now at Stanford University School of Medicine), argues that a combination of neurological changes and life experiences account for this phenomenon. Using functional magnetic resonance imaging (fMRI) to monitor emotional processing as people of various ages viewed photographs of different facial expressions, Williams and colleagues found that older people were more emotionally stable and less reactive to negative emotional stimuli than younger people.

Contrary to pervasive negative stereotypes of declining memory and cognitive integrity, Williams and colleagues found
that emotional well-being may increase with normal aging.

Their study included 242 individuals (122 males and 120 females) divided up into four major age categories: 12–19 years, 20–29 years, 30–49 years, and 50–79 years. In the scanner, participants were assessed for the neural activation evoked by emotions of threat and happiness depicted in facial expressions. After being shown a photograph of a face, participants had to select the best option for identifying the emotion being displayed in the photograph. They also were instructed to rate, using a 1-to-5 scale, the intensity of the emotion being displayed.

The results of the brain scans support a positive view of the aging brain: Rather than showing an inevitable decline across all functions, the images displayed a linear increase in emotional stability with age. This means that people in their 70s ultimately experience better emotional well-being than most people in their 20s.

The fMRI results suggest that as people age, the way their brains process emotional stimuli changes in ways that favor emotional stability. Brain scans indicated that the medial prefrontal cortex (mPFC), a brain area involved in the governance of emotional functions, processed stimuli differently across the lifespan, contributing to better emotional stability for older adults. As people aged, the mPFC areas became increasingly active while processing negative emotions compared with positive ones, suggesting that older people were comparatively better at controlling their reactions to negative emotions.

Ultimately, Williams and colleagues argue that as we age, this combination of neural processing, as well as an accumulation of life experience, provides older adults with the neural tools to take life in stride — a capability their younger counterparts will just have to wait for.

References
Global Warming and Violent Behavior
By Courtney Plante and Craig A. Anderson

Environmental scientists from multiple disciplines have overwhelmingly acknowledged human-driven climate change as fact. Similarly indisputable is the fact that the effects of rising temperatures will be global in scope and resoundingly negative: droughts, coastal city flooding, decreased food production, and extreme weather, to name just a few. What you may not have considered, however, are some of the subtler psychological and social consequences of rapid climate change — including aggression and violent conflict. A growing body of evidence shows that rapid global warming can (and is) increasing violent behavior in three different ways.

Immediate Effect of Heat Stress on Aggression and Violence
When people get uncomfortably hot, their tempers, irritability, and likelihood of physical aggression and violence increase. This is perhaps best demonstrated in a series of laboratory studies conducted by APS Fellow Craig A. Anderson and his colleagues (Anderson, 1989, 2001; Anderson & Anderson, 1984, 1996, 1998; Anderson, Anderson, Dorr, DeNeve, & Flanagan, 2000; Anderson, Bushman, & Groom, 1997; Anderson & Delisi, 2011). Across several studies, undergraduate participants completed measures of perceived hostility, anger, or behavioral aggression, but were randomly assigned to do so in one of several temperature-controlled rooms. For some, the room they sat in was a comfortable temperature (e.g., 75°F). For others, the room was particularly cold (e.g., 57°F) or hot (e.g., 97°F), and participants themselves indicated that these rooms were quite uncomfortable. In one study, participants in the cold and hot rooms perceived a series of filmed interactions as being more hostile and aggressive than participants in the comfortable room. In another, participants in the cold and hot rooms scored higher than those in the comfortable room on a state hostility scale. For some, the room they sat in was a comfortable temperature (e.g., 75°F). For others, the room was particularly cold (e.g., 57°F) or hot (e.g., 97°F), and participants themselves indicated that these rooms were quite uncomfortable. In one study, participants in the cold and hot rooms perceived a series of filmed interactions as being more hostile and aggressive than participants in the comfortable room. In another, participants in the cold and hot rooms scored higher than those in the comfortable room on a state hostility scale. In a final study, participants in warmer and cooler rooms, relative to those in comfortable rooms, responded to an opponent's ambiguous provocation during a competitive reaction-time task with outbursts of intense blasts of noise. The researchers conclude, based on the collection of studies, that uncomfortably hot temperatures increase aggression.

Although laboratory forms of aggression may seem trivial, other studies illustrate the deadly implications of these findings. Researchers Aldert Vrij, Jaap van der Steen, and Leendert Koppelaar (1994) randomly assigned 38 Dutch police officers to complete a firearms training simulator in either a comfortable-temperature room (70°F) or a warmer-temperature room (81°F). In the simulation, officers responded to a scenario being displayed life-size on a projector screen in front of them. The scenario involved approaching a shed in response to a burglary alarm and being confronted with a suspect brandishing a crowbar. Officers’ responses were recorded and coded by the researchers, along with the officers’ post-scenario impressions. The officers completing the simulation in the warmer room were more likely than those in the cooler room to perceive the suspect as being aggressive, were more likely to consider them to be a threat, and were more likely to draw their firearm from its holster (85% vs. 59%). Findings such as these illustrate the contributing role that temperature plays in escalating minor disputes into full-blown assault or homicides.

Numerous cross-sectional and time-series studies using real-world heat and violence data provide converging evidence. Cities and regions with higher temperatures tend to experience more violent crime than cooler regions, even after controlling for a dozen sociocultural factors such as age, race, poverty, and culture of honor. Further ruling out alternative explanations, some studies have assessed temperature and violence within the same geographic region over time. Across hours, days, months, and even years, similar trends emerge: When it is hotter, violence increases. From Chicago to Brisbane to Vancouver to Dallas, whether looking at domestic violence or physical assault, the same relationship emerges. In one of the most thorough and illustrative studies, Anderson and Delisi (2011) compared data from the 1950–2008 FBI Uniform Crime Reports for violent crime (rates of homicide and assault per 100,000 people) and nonviolent crime (rates of burglary and motor vehicle theft per 100,000 people) with average annual temperature data from the National Oceanic and Atmospheric Administration for the same years. Average annual temperatures were significantly positively correlated with violent crime rates but not with nonviolent crime rates. More importantly, this relationship persisted even after controlling for numerous alternative explanations (e.g., incarceration rates). The researchers estimated, based on these findings, that a 1°C increase in average temperature — a fairly conservative estimate of climate change in the following decades — will likely yield a 6% increase in violent crime rates, as many as 25,000 more serious and deadly assaults per year in the United States alone.

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Rapid Climate Change and the Creation of Violence-Prone Individuals

In addition to the direct heat effect, there are at least two indirect ways that rapid climate change (whether rapid heating or rapid cooling) increases the risk of violence. One involves known developmental pathways that lead infants, children, and adolescents to become violence-prone adults.

A major outcome of rapid climate change is food insecurity. Increased drought, extreme weather, and wildfires are all on the rise, and all of them represent threats to vital crop production and large-scale food shortages. And although the starvation associated with food scarcity is a problem in and of itself, it has the added detriment of contributing to individual-level aggression. Studies have shown that malnourishment — both prenatal and in early childhood — is a precursor to adulthood antisocial behavior, aggression, and violence. Illustrating this, in a longitudinal study of Mauritanian children conducted by Jianghong Liu and her colleagues (2004), 3-year-olds who were malnourished were found, more than a decade later, to be more aggressive and antisocial and more likely to show signs of conduct disorder than were sufficiently fed children. Given that hundreds of millions of people are estimated to be affected by climate-driven food insecurity, the magnitude of malnutrition effects on aggressive behavior should not be underestimated.

Increasingly frequent and extreme weather destroys homes and jobs and requires considerable emergency and recovery spending. The economic impact is disproportionately felt by disadvantaged and vulnerable populations, resulting in increased rates of poverty and income disparity. As with malnourishment, this is a problem by itself, but it also can lead to increased aggression: Income disparity can lead to life dissatisfaction, resentment, dissent, a desire for retribution, and even violence. In one example, political scientists Christopher K. Butler and Scott Gates (2012) studied the impact of adverse weather on East African cattle herders. They developed a model, grounded in game theory, of conflict in the region that takes into account available resources, their distribution, property rights, and the role of the state. The authors conclude that droughts and climate-driven resource shortages lead to income disparity increased among the herders, which, in turn, foments resentment and conflict that manifests itself as the banditry and retaliatory aggression often seen in the region.

In fact, many of these same climate-change-driven factors aid in terrorism recruitment: Uncertainty and frustration about one's livelihood, seeing others who seem unfairly unaffected, and the belief that there are no other viable options to sustain oneself may all contribute to terrorism. These factors are thought to have played a role in regional conflicts such as those in Sierra Leone, Palestine, and Managua. And, given that droughts and other climate-driven natural disasters already are increasing in intensity and frequency (as was predicted years ago by climate-change models), it seems likely that conflict and violence will continue to worsen as resources become scarcer and wealth disparity increases.

Rapid Climate Change and Intergroup Conflict: War and Civil War

That rapid climate change will (and already is) negatively affecting the livelihoods and aggressive tendencies of individuals is obvious, but it is informative to consider how entire populations respond to these effects. Among the most prominent group-level effects anticipated is ecomigration, where entire groups migrate in response to the physical, economic, or political instability brought about by an ecological disaster. Although ecomigration is not, and in and of itself, a sign of aggression, it can lead to hostility and conflict through a sudden increase in competition for an area's resources, bringing together people with opposing or incompatible worldviews, concerns about the intentions of both the migrant group and the local population, and a host of socioeconomic issues. Indeed, there are numerous historical examples of climate disasters leading to ecomigration, war, and even dynastic collapse.

As a recent example, consider the possible role of droughts on ecomigration and conflict in the Syrian civil war. After a very unusual years-long drought (now seen by many as climate-change induced) destroyed much of the country's arable land and cattle, rural farmers and herders migrated en masse to cities. Unrest regarding the government's perceived role in the disaster and failure to do more to help grew, creating conditions that were fertile for conflict and terrorism. A comparable drought in Uganda similarly led to an escalation in food prices, violent internal strife, and mass migration of more than a million people, who clashed with armed cattle herders from Sudan who were fleeing from the same drought. Kenya, Sudan, and Ethiopia also have seen similar climate-driven conflicts, leading researchers to predict, based on models that include decades of data and dozens of countries, that civil wars, protests, coups, rebellions, riots, and large-scale conflicts are all likely to rise as temperatures increase and as changes in rainfall become increasingly extreme.

Ecomigration-driven conflict should not be seen solely as an African or Middle Eastern issue, nor is it one exclusively limited to droughts. A confluence of socioeconomic factors and environmental disasters in the past 6 decades has led to the cumulative migration of more than 10 million Bangladeshis into India. This influx of migrants was a source of continuous tension in the region, as many Indians believed the migrants were stealing farmland. Ultimately, the tension led to a rampage in 1983 that left 1,700 Bengali migrants dead. And more recently, Hurricane Katrina displaced hundreds of thousands of Americans, many of whom fled to neighboring states seeking refuge. Homicide rates in cities where refugees were taken in rose in the following months, and polls suggested that tensions were mounting between refugees and residents. Federal aid and other moderating factors prevented these tensions from escalating into armed conflicts, but the incident stands as an example of the role climate change plays in violent behavior. Indeed, there is a growing research literature examining the relationship between weather-related (and therefore climate-change related) disasters and outbreaks of violence. A recent study in Science reported on the huge increase in “water conflict events” that have occurred in the last decade or so.

Moving Forward

It is easy to overlook the relevance of psychological science to climate change. Therefore, it is unsurprising that many people also overlook the important role that psychological scientists can play in reducing climate change and its effects. One obvious way is to apply what
we know about attitude change, decision-making, and behavior change to help educate the general population (e.g., public service announcements, teaching modules), public policymakers, and politicians. For example, psychological studies show that fostering a long-term perspective in people makes them more likely to consider their legacy and engage in more proenvironmental behavior. Other psychologists have found that when you frame climate change in global terms, rather than in terms of specific, localized disasters, people become more peaceful and reconciliatory — something that could prove very useful as a means of counteracting the effects of climate change on aggression. Clearly, there is a need, and indeed there are many ways, for psychologists to weigh in on the issue of climate change and its relation to violent behavior.

In the future, psychological scientists also may find themselves conducting more interdisciplinary research — working hand-in-hand with climatologists, political scientists, and economists. Some of the best psychological studies on the relationship between temperature and aggression have proven just how fruitful it can be to integrate climatological data into analyses of behavioral data. Incorporating techniques and data from other fields may help to build more accurate models of climate-change effects that include subtler, less-frequently considered outcome variables. An interdisciplinary approach also may prove vital in bridging the gap between what scientists know, what the general public believes, and what government policies exist.

**Recommended Reading**


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**CALL FOR NOMINATIONS: APS PRESIDENT AND BOARD**

The APS Election Committee seeks nominations for President and for two vacancies on the Board of Directors. The election will take place in April 2017.

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Candidates must be Members of APS. Nominees should be distinguished psychological scientists committed to the goals of APS and interested in contributing their time, expertise, and leadership to the organization.

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including name and institutional affiliation
Remembering Jerome S. Bruner  
(October 1, 1915—June 5, 2016)

Jerome Seymour “Jerry” Bruner was born on October 1, 1915, in New York City. He began his academic career as psychology professor at Harvard University; he ended it as University Professor Emeritus at New York University (NYU) Law School. What happened at both ends and in between is the subject of the richly variegated remembrances that follow. On June 5, 2016, Bruner died in his Greenwich Village loft at age 100. He leaves behind his beloved partner Eleanor Fox, who was also his distinguished colleague at NYU Law School; his son Whitley; his daughter Jenny; and three grandchildren.

Bruner’s interdisciplinarity and internationalism are seen in the remarkable variety of disciplines and geographical locations represented in the following tributes. The reader will find developmental psychology, anthropology, computer science, psycholinguistics, cognitive psychology, cultural psychology, education, and law represented; geographically speaking, the writers are located in the United States, Canada, the United Kingdom, and the Netherlands. The memories that follow are arranged in roughly chronological order according to when the writers had their first contact with Jerry Bruner.

**Patricia Marks Greenfield**  
*University of California, Los Angeles*

Jerry Bruner was born blind. Cataract operations restored his sight at age 2. He once said that, during his 2 years of blindness, he had constructed a visual world in his mind. Those early experiences may help explain why, in the 1940s and ’50s, he developed the groundbreaking theory that perception is controlled by the mind as well as by the senses.

This was the beginning of what came to be known in psychology as The New Look in Perception. The New Look and Jerry’s subsequent research on how people form concepts ushered in the cognitive revolution — this was a shift in psychology from focusing on how behavior is controlled by stimuli to trying to understand the workings of the mind.

A few years ago at NYU, we celebrated the 50th anniversary of Jerry’s book, *The Process of Education*. This book applied insights from the cognitive revolution to educational practice. Jerry’s concepts of enactive, iconic, and symbolic representation were formulations about cognitive development and, at the same time, practical suggestions about how to teach: The teacher communicates concepts through action, image, and symbol, preferably in that order.

In 1963, after my first year in graduate school at Harvard, Jerry, the unique mentor, arranged for me to go to Senegal to study culture and cognitive development. Because his book had tightly linked schooling with cognitive development, he was delighted when my data from Senegal showed that children’s cognitive performance depended not just on their age (as the pioneering Swiss psychologist Jean Piaget had theorized), but also on whether they had attended school.

In the 1980s, Jerry turned his attention to storytelling. He concluded that narrative, not logic, is the universal mode of thought. Applying ideas about narrative to legal processes, Jerry worked with Anthony Amsterdam at NYU Law School. Their book *Minding the Law* describes how cultural stories shape legal argumentation and how these stories change as culture changes.

Jerry made seminal contributions to an astonishing number of fields. Each field was a stop on a single road — the road to finding out what it is that makes us human — and in traveling that road, he was not afraid to fight the prevailing zeitgeist. For example, in the 1960s, cognitive psychologists started using computer simulations to model the human mind. But reducing humans to computers was antithetical to Jerry’s humanistic perspective.

Ironically, Jerry’s ideas of representing information through actions, icons, and symbols inspired Alan Kay to design the user interfaces everywhere in use today — interfaces that combine actions, images, and symbols. Icons in particular now permeate the culture. So although Jerry rejected computer models of human cognition, he ended up having a worldwide impact on the computer revolution.

Now for some personal memories of Jerry. My head is full of them, from the late 1950s until my last visit with him in February 2016.

When I returned from Senegal with the data for my dissertation, Jerry made me feel as if I had done the most exciting research in the world. His enthusiasm fueled the rest of my career, which has centered on culture and human development.
Jerry supported my family life as well. He visited me in the hospital when I gave birth to my first child. Years later, he and wife Carol Feldman (d. 2006) hosted an elegant reception for that same child in their Mercer Street loft on the occasion of her first photography exhibition in New York.

Jerry also loved boats, as do I. During a sabbatical year at Harvard, I rowed a shell for the first time and communicated my excitement to Jerry. Before I knew it, he had gone to Florida and taken a sculling course; not only that, but when I next visited him at Mercer Street, he had a rowing machine in his living room. Over the years we enjoyed rowing together in Vermont and Los Angeles. The only hitch was the time we tried to row a double together: I was the lead rower, and he was meant to follow my stroke. However, Jerry, never a follower in anything he did, basically did his own thing. As any rower will recognize, that simply does not work. After that, we went back to each rowing our own boat.

About 3 years ago, I was invited to give a talk at The City University of New York (CUNY) Graduate Center. Jerry, who was not very mobile at that time, made a huge effort to be there, which touched me greatly. Some of my own former students also came, and I was moved to have the chance to introduce them to my beloved intellectual mentor. In my talk, I said how much I had learned from Jerry; he graciously replied that he was now learning from me. That was a transformative moment in our relationship and one I will always treasure. He had the same birthday — October 1 — as my own father, a fitting coincidence.

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Dan Slobin
University of California, Berkeley

Jerry Bruner shaped my entire professional life, beginning in 1960 — by being a role model for adventurous diversity of interests, by getting me my job at Berkeley, by giving me wise advice on retirement, and by becoming a friend through many, many years. His ideas shaped me in many ways — more than I can summarize. I was fortunate to have landed in Jerry’s office at the beginning of what came to be known as the cognitive revolution. He was my advisor and he involved me immediately in the new Center for Cognitive Studies. There, I was shaped by a collection of thinkers and teachers who became my guides. George Miller and Roger Brown, together with Jerry, were my thesis committee, melding cognitive and language development with the emerging field of experimental psycholinguistics. Noam Chomsky and Roman Jakobson provided two quite different kinds of linguistics. And Eric Lenneberg was exploring the biological foundations of language. Bärbel Inhelder came to spend time with us, and Jean Piaget was there on long-distance phone calls to “Le Patron” on our regular research meetings. Jerry brought back Russian books from his meetings with Aleksandr Romanovich Luria, which I set about translating, while our seminar explored a draft of the English translation of Vygotsky’s *Language and Thought*. Jerry was the navigator, the steady hand at the tiller. Heady times indeed!

During that period, Jerry published a slim volume called *On Knowing* (1962), laying forth a position that has become part of my worldview: “Man does not respond to a world that exists for direct touching. Nor is he locked in a prison of his own subjectivity. Rather, he represents the world to himself and acts on behalf of or in reaction to his representations. The representations are products of his own spirit as it has been formed by living in a society with a language, myths, a history, and ways of doing things” (p. 129).

We became friends and remained so through his long life. Jerry’s personal letters were as pithy and elegant as his professional writing and lectures. And he was an attentive teacher: Already in 1961 he wrote to me — a first-year grad student — in response to my research ideas. Here he was formulating what became one of his landmark contributions: “I am convinced that the idea of the abstraction cycle that starts with concrete material is rather a gross oversimplification. All of the concrete embodiments in the world will not produce an abstraction unless the child has also developed a symbolic technique for transforming the embodiments with which he is confronted in an appropriate manner. Once such symbolic transformations are established — and they involve verbal activity — then, varied embodiments are a tremendous help in allowing the child to grasp the new abstraction.”

In a 1984 letter to me, he mused about the paths of intellectual careers, his as well as mine: “Oh pure form that unfolds along its own creases! It is the tempress that lures us into the game. And then we fight our way out as best we can: context, use, intent, and all those other messy signs telling us that people were there.” Indeed, one can see his life work as tracking down all those traces of human thought and action while not losing sight of the forms of their cognitive products (most particularly, in later years, narrative).

He and his wife Carol Feldman had a glorious retreat on the southern coast of Ireland, where he docked his boat. He described the setting in a 1978 letter with a sailing ship on the letterhead:

“This is a delicious corner of the world, perched on a cliff looking out to sea and islands, funghi in the fields, whimbrels and oyster catchers in the cove, an odd assortment of amusing people.”

Years later, he invited me and my wife to visit him and Carol there, which we did in the summer of 2004. It was there in Glandore that he and I spent an afternoon at a pub, and over Guinneses I sought his advice on how to deal with my recent retirement. I was 65 and he was reaching 89. I asked him how to deal with running out of time. His advice was simple: “You don’t. Just be involved in something you’re passionate about.” I objected that I had still had unfinished projects to finish. He smiled and said, “Isn’t all of life leaving unfinished projects behind?” I’ve turned to that helpful aphorism many times through the years.

I last visited Jerry in his book-filled apartment near NYU in 2014, shortly before his 99th birthday. He was as alert as ever, reading and commenting on the latest books on his desk and still concerned about the relevance of the profession of psychology and the state of education.

Michael Cole
Laboratory of Comparative Human Cognition, University of California, San Diego

A curious combination of circumstances led me as a young scholar to Jerry. When I returned from a postdoc with Alexander Luria in 1963, I obtained a temporary job at Stanford University as a lecturer/postdoc in the Institute for Mathematical Studies in the Social Sciences. The director of that program, Patrick
Suppes, was engaged with Jerry and others at the Education Development Corporation seeking to extend the then-popular “new mathematics” into Africa. At his suggestion, I was sent as a consultant to assist in an interdisciplinary project to seek ways to implement a new math curriculum in Liberia.

In 1964, the principal investigator of the project, John Gay, and I wrote up a report on our earliest tentative findings. That report was given to Jerry to evaluate, and Jerry in turn sought the opinion of a young anthropologist. The evaluator found some interesting ideas in the project, but thought it naive and not worth funding.

Jerry may have agreed about the naiveté (we were naive!), but he did not agree concerning the funding. I had already begun a serious of “backwards cross-cultural” experiments based on mathematical tasks that noneducated Liberians performed well on, posing a challenge of interpretation that has not gone away in the succeeding half-century. So Jerry was a pivotal figure in launching me on the study of culture and development, and he remains a central figure in that work to the present day.

In 1964, I accepted a position at Yale University, where I met William Kessen, who was involved in a classroom evaluation study of a new social science curriculum called Man: A Course of Study (MACOS, for short). (The nice Connecticut teachers we observed were convinced that the !Kung, indigenous hunter-gatherer people in Southern Africa are more similar to chimps than humans … a very inauspicious finding for the project.) But the experience was auspicious for my relationship with Jerry because I was simultaneously continuing the work that had begun with John Gay, and it was becoming crystal clear that a developmental-psychological approach to understanding how differences in cognitive performance arise in ontogeny was essential. I had never taken a class in developmental psychology, so I had (and still have!) a lot to learn. Jerry served as my mentor along with Bill Kessen and Joe Glick, who joined the follow-up projects in Liberia.

In 1969, I moved to The Rockefeller University, where my colleagues and I wrote up the results of that follow-up project in a monograph titled The Cultural Context of Learning and Thinking. Patricia Greenfield had returned from her path-breaking work on developmental changes in cognitive processes in Senegal resulting from schooling, and Jerry brought us together to discuss our different approaches to the issues and the different conclusions we had reached.

This conversation is still ongoing, fueled by the application of ideas generated from research in Africa to the problem of “cultural deprivation” evident in the performance gap between poor people of color in the United States and their largely Anglo, middle-class peers. Based upon our findings that modifications of task environments revealed cognitive competencies that were masked by the use of standard experimental procedures, Courtney Cazden, a colleague of Jerry’s at Harvard, asked me to write an article on the concept of cultural deprivation. I did not wish to take on this task alone, so I agreed to write on the condition that Jerry would be a coauthor. I was not happy with his characterization of cultural deprivation in his monograph, and I thought that the constraints of having to write together would be a great way to work through the issues. He readily agreed, and over the next few months we sought to hammer out our disagreements. Our conclusions satisfied (Cole & Bruner, 1971):

In the present social context of the United States, the great power of the middle class has rendered differences into deficits because middleclass behavior is the yardstick of success (p. 874) … When cultures are in competition for resources, as they are today, the psychologist’s task is to analyze the source of cultural difference so that those of the minority, the less powerful group, may quickly acquire the intellectual instruments necessary for success of the dominant culture, should they so choose. (p. 875)

One thing leads to another. When Harvard University Press proposed to create a series of small, introductory-level texts, also aimed at the general public, on the developing child, Jerry invited me to be a part of the editorial board. This undertaking, over several years, provided me with a kind of “mid-life” graduate education in the study of human development. Following a discussion about the many books that were published, and which covered a wide range of topics, the idea arose to create a synthetic summary text. Although that book did not come to fruition, it did provide the impetus for my wife, Sheila, and I to write The Development of Children.

In later years when I had returned to California, Jerry and I corresponded frequently, but we were both moving on to new topics. Among them was the creation of a digital recording in which I interview Jerry Bruner and Oliver Sacks, who discuss Alexander Luria, my Russian mentor and the subject of our joint admiration (see video here: http://bit.ly/2iclGpK).

Through all of these projects, I was afforded a unique education in the study of culture and development. And if I stumbled, Jerry was there to consult about the problems I was encountering. I miss our conversations and am grateful that he left a rich archive of his thoughts for the development of future generations.

Reference

Howard Gardner
Graduate School of Education, Harvard University

As I was about to graduate from college in the late spring of 1965, I met Jerry Bruner after following a tip from a mutual acquaintance, and shortly thereafter he offered me a summer job.

Little did I know that job would change both my personal and my professional lives. The explicit job was to join the Instruction Research Group to evaluate the MACOS (Man: A Course of Study) social science curriculum that was being developed for children. And indeed, nearly every day for a month, a small group of us would evaluate sample lessons — how they
worked, how they fell short, and how they might be revised and improved. Our efforts, along with those of dozens of other workers that summer and thereafter, eventually culminated in a brilliant curriculum, which introduced kids ages 9, 10, and 11 to gritty nutritious ideas and practices from the range of social science — from the principles of Chomskian linguistics to the evolutionary similarities between human beings and higher apes. In addition, Jerry introduced me to another researcher, Judy Krieger from the University of California, Berkeley, whom I then married and who is the mother of three of my children.

In working on the curriculum, I was exposed not only to these important ideas but also to many of the scholars who had developed them and were teaching them in the university. As one who had never taken a psychology course, I was introduced to cognitive and developmental psychology and made a career change to pursue that.

If that was not enough, I also learned how to motivate and inspire a multidisciplinary team of students, scholars, teachers, and administrators. Jerry brought us together at times throughout the day. He asked questions, pointed in new directions, improvised, joked, listened. In a brilliant move, he converted the basement of the Underwood Elementary School in Newton into a delicatessen, and each day, Sandy Whipple and Zanny Kaysen brought in delicious sandwich spreads. In the evening, he and his wife Blanche opened up their spacious home on Follen Street, and people of wildly different ages, expertise, and status mixed freely. There I could actually talk to individuals who were legendary — Carl Kaysen, Irv DeVore, E. Z. Vogt, Bob Gardiner.

MACOS explored three guiding questions: What makes human beings human? How did they get to be that way? How can they be made more so? Only in recent years have I realized that much of my own research career has been devoted to answering these questions — and I hope that the way that I have approached them also bears the stamp of Jerry’s way of thinking.

A quarter of a century later, I went to an interdisciplinary educational conference in Paris. This was a big deal for me. I found myself sitting around a dinner table with a dozen people from several countries, none of whom I knew. For some reason, I found myself sitting around a dinner table with a dozen people from several countries, none of whom I knew. For some reason, I found myself sitting around a dinner table with a dozen people from several countries, none of whom I knew. For some reason, I found myself sitting around a dinner table with a dozen people from several countries, none of whom I knew.

And that was just the area of education. In early life, Jerry transformed experimental psychology; late in life, he provided powerful ideas for the laws and the humanities. And throughout his life, as a public intellectual, he educated that important audience — the intelligent generalist.

All of us writing our remembrances had the privilege of knowing Jerry in person, from one venue or another. He lived a long time and visited many places all over the world. But even those who only knew him at a distance — from his brilliant writings, his exciting in-person public presentations, and, more recently, his presentations online — were influenced, sometimes in life-changing ways, by his powerful ideas and the compelling ways in which he presented them. And that’s the reason we know that, even though Jerry is no longer here with us, he has joined that small galaxy of individuals who have transformed the landscape of the mind — the landscape that he so loved.

Kathy Sylva
Department of Education, University of Oxford, United Kingdom

As an undergraduate at Radcliffe College in the 1960s, I took a course known as “Soc Sci 8,” an exciting introduction by Jerry Bruner to the profound question, “What does it mean to be human?” Jerry’s answer to the question was fourfold: language, cosmology, technology, and social organization bound by rules. After graduating from college, I joined Bruner’s team as a research assistant at the Education Development Center just off Brattle Street. Here, a small group of psychologists and teachers adapted the Bruner undergraduate course to offer it to 10-year-olds in schools in the Boston suburbs. It was called “Man: A Course of Study,” a stunning example of the Bruner maxim that it is possible to teach complex ideas to children in “some honest form” at any age. He called it the spiral curriculum, in which complex ideas could be taught at any age through “discovery.” However, at each “level” in the spiral, a child would apprehend ideas in a different form. The 10-year-olds in our innovative classrooms encountered poems, games, narrative myths, and anthropologists’ field notes to stimulate their own hypotheses about what makes us human. I became so excited by discovery learning in these innovative classrooms that I returned to Harvard for doctoral study in developmental psychology — with Jerry Bruner as my supervisor.

I was the last graduate student Jerry accepted at Harvard. At the end of my first year, Jerry and his wife Blanche sailed their ocean-going yacht to England, where he took up the Watts Professorship in Psychology at the University of Oxford. He continued to supervise my thesis from abroad, and when I completed my doctorate in 1974, a National Institutes of Health postdoctoral fellowship allowed me to follow him to Oxford. There, I joined the newly formed “Oxford Preschool Research Group,” another mixture of psychologists and teachers investigating how children learn and how that learning could be enhanced. This time, the children under investigation were children ages 3 to 5 enrolled in local nursery schools and childcare centers. On the basis of systematic observations, Jerry explored the social nature of learning through extending his earlier ideas about mother–child interaction to teacher–child interaction. This work culminated in 1980 with Under Five in Britain, an intelligent and practical book that laid the foundation for reform of early childhood education across the United Kingdom. During his years at Oxford, I believe Jerry enjoyed his frequent visits to childcare centers as much as — and perhaps more than — attending academic seminars.

I was privileged to work closely with Jerry for almost a decade as he applied his insights into the social nature of children’s minds.
to educational practice on both sides of the Atlantic. These years shaped my own research. Inspired by Jerry’s commitment to applying psychology to education, I have continued research at the intersection of these two disciplines. And Jerry taught me one more important thing: Doing research with children can be enormous fun.

Willem Levelt
Max Planck Institute for Psycholinguistics, The Netherlands

Jerry Bruner played a critical and generous role in the establishment of my Max Planck Institute for Psycholinguistics in Nijmegen, as quite modestly described in his autobiographical In Search of Mind. It was not at all obvious at the time that this great initiative of the Max Planck Society would be supported by the relevant political and scientific bodies in Germany. As chair of the Scientific Council of our try-out Project Group, Jerry time and again lifted up the controversial discussions by sketching the grander perspectives of European psycholinguistics and the leading role Germany was going to play in that field, facilitated by the historical tradition of Dutch tolerance. “Think big” was his message, and it worked.

Bruner presented the Institute’s opening lecture on March 18, 1980. This is how he remembered that important occasion in his autobiography:

“When the Institute at Nijmegen was ‘founded,’ I presented it with a gift of a seventeenth-century print, a map of the heavens, in the four corners of which are engravings of the observatories at Greenwich, Leiden, Copenhagen and Padua. It was to wish them good luck in mapping the world of language. That mapping task will be harder than mapping the heavens. The heavens stay put while you are looking at them. Language changes when you think about it. Certainly as you talk it. In the end, probably, full linguistic mapping will be impossible. For you cannot exhaust the subject by studying language ‘just’ as a symbol system with its inherent structure — or ‘just’ in any single way. Language is for using, and the uses of language are so varied, so rich, and each use so preemptive a way of life, that to study it is to study the world and, indeed, all possible worlds.”

But that was only the beginning: Jerry also served on our Scientific Council for more than a decade. He was our most outstanding scientific advisor during these intensive pioneering years. He involved himself as much with us directors as with our beginning PhD students. He was generous with his ever-stimulating ideas, with his precious time, and especially with his personal, cordial attention.

Jerry’s magnanimity to me never subsided — from my postdoc fellowship at his Center for Cognitive Studies, via the crucial founding years of my Institute, to the valedictory symposium my Institute organized in 2006 when I became emeritus. To my great surprise (and kept secret from me), 90-year-old Jerry had come for that occasion. It was only weeks after he had lost his beloved Carol, and it was the dearest gift he ever bestowed on me.

The Bruner family made it possible for my Max Planck Institute to establish a permanent tribute to Jerome Bruner. They donated his scientific library, containing some 4,000 volumes, to the Institute in Nijmegen, which will make it accessible to any interested scholar. It is a fascinatingly rich collection of cognitive psychology, linguistics, psycholinguistics, developmental and educational psychology, anthropology, and philosophy — beaming Jerry’s great intellectual breadth. Many books contain personal dedications from their authors, such as in George Miller’s, Alexander Luria’s, and Jean Piaget and Bärbel Inhelder’s books. It is definitely unique, not only as a mirror reflecting the mental world of one of the greatest scientists in our field, but also as a window on the postwar reestablishment of our sciences, in particular the “cognitive revolution” and its long-lasting effects — a crucial period for our present scientific world.

Joan Lucariello
The Graduate Center, The City University of New York

Jerome Bruner was among our first cognitive psychologists. Emblematic of his leading role was his 1960 cofounding (with George Miller) of the Center for Cognitive Studies at Harvard University. This great accomplishment was matched by his other and subsequent countless achievements. Those that I emphasize here originate and develop from his being among the first cognitive psychologists who stressed the critical role of culture in human development and, in particular, the role of education as a cultural activity.

Jerry Bruner’s contributions to the study of education are evident, of course, in his signature accomplishments in the field. He developed a curriculum, Man: A Course of Study, and generated no fewer than four volumes on education: The Process of Education (1960), Towards a Theory of Instruction (1966), The Relevance of Education (1971), and The Culture of Education (1996). In his later years, he and his wife, the engaging and gifted Carol Feldman, worked on the Reggio Emilia approach to education with the current leaders of this approach in Italy. Two core ideas ran through all this work in education; they also coursed through many of his seminal concepts — representational modes, scaffolding, linguistic formats, narrative organization. One core idea was the efficacy of organizing the sociocultural environment to advance human learning and cognition. The second was the notion of the child as an active, curious learner in possession of a constructive mind. The mind receives, transforms, and advances from the input it experiences. More powerful still is that these two fundamental ideas are in synergistic relation. Given an active mind, it is all the more important that input not be random or uncalibrated, but be orchestrated to meet that mind where it is, where it is going, and where it needs to go.

All of my experiences with Jerry, which ran throughout my career, were infused with his commitment to these ideas. Our initial meeting occurred during my graduate-student years when I gave my first-ever conference presentation. The subject was the role of maternal input in child language acquisition. You might well imagine how welcoming he was of this work. This proved a happy circumstance indeed, given the intimidation I felt when, as a wholly inexperienced doctoral student, I was compelled to speak at length with — well, you
know, the legend: Jerry and I were inadvertently seated next to each other on the plane ride back from Austin to New York City. No need to have worried, though; he was, as ever, so very gracious in that interaction. Jerry subsequently came to serve on my dissertation committee. The topic of that work was children’s early vocabulary acquisition in interactive routines with their mothers. I had placed the greater contribution to children’s word learning on child cognition, with the child’s concepts of these routines underlying word learning. Given that, you might anticipate Jerry’s major question to me in my oral defense of the dissertation — what was the mother doing? How was she essential in the process?

Despite this “misstep,” after I completed my doctoral work, Jerry invited me to do a postdoc with him. This was the mid to late 1980s, when he was launching his major work on narrative thinking. I arrived to find a team of mainly literature scholars already working with Jerry, studying narrative by examining great literary masterpieces. To fully grasp the essence of narrative thought and language, they were studying, as Jerry was fond of saying (after William James), “the most religious man at his most religious moment.” I entered the scene, National Institute of Mental Health postdoc grant in hand, to study the opposite end of the spectrum: the development of narrative thinking in children. Speak of the “odd man out”! I was apprehensive, to say the least. However, and as you would predict, Jerry embraced this goal as well. Hence was born our study of the emergence of narrative in the monologic speech of one child, Emmy (Bruner & Lucariello, 1989). This work was part of a larger and very significant effort, spearheaded by Katherine Nelson and eventually published in the edited volume Narratives from the Crib, wherein many of the stellar child language scholars in the New York City area studied this child’s speech from a variety of angles. Quite a unique and exciting experience for a newly minted postdoctoral fellow, to be sure. My study of narrative with Jerry influenced me to conduct a second study on children’s narrative thinking. I was guided by his view, also consistent with scholars of narrative, that “breach/imbalance” and character “consciousness” are key elements of narrative. I examined how child understanding of canonical events, “scripts,” or “event representations” (as Schank & Abelson and Nelson termed that understanding) served as a primary basis for understanding breach/imbalance and how grasp of breach in turn leads children to launch into the subjective plane of characters — to consciousness — as an explanatory mechanism for the breach.

Looping back to Jerry’s focus on education, his seminal concepts, such as narrative, relate very powerfully to education. Considerable research since has shown how the “narrative organization of input” facilitates student learning.

Jerry’s thinking on education has had far-reaching consequences. It inspired me still much later in my career when I assumed high-level education administrative positions wherein I was to lead education reform efforts. Remembering the great value he placed on education and how to think about it, including applying his concepts in their broadest terms (that itself is very Brunerian), was foundational in my approach to the work. Much of the current (and past) education reform efforts can be understood as efforts to organize and calibrate the sociocultural environment of the student to advance student learning. One can view teacher and leader preparation as preparation of the social–cultural agents who orchestrate the context of schooling for the nation’s children. Student learning is intricately linked to that context. The fundamental preparation question, especially for the university, is how to ensure that teachers and leaders become “scaffolders” of student learning. With their study of the role of tutoring in problem solving, Bruner and his colleagues originated the concept of scaffolding, the structuring experts provide to see that learners ever advance in their thinking and skills (Wood, Bruner, & Ross, 1976).

I, and I know many others, will miss Jerry deeply, both personally and professionally. We will certainly miss all the great ideas whose tremendous theoretical significance is matched by their potency in transforming the lives of young learners.

References

Alan Kay

Viewpoints Research Institute, Los Angeles

Jerry Bruner was the warmest, widest, and deepest of human beings — a builder of civilization who helped us learn to think while he was learning to think. I used many of his ideas and observations in the designs I contributed to the “midwifing” of personal computing and to the deep uses of computing as ways to dynamically represent, learn, and think with modern ideas.

Some of my other “heroes from writings” had sojourned in person, so I stupidly held off meeting Jerry until, while I was at Apple in the early ’80s, I gave him a Macintosh as a token of appreciation for how pervasively his ideas had lifted a mere computer to an intellectual amplifier usable by all, including “children of all ages.” That day started with his usual “Call me Jerry,” followed by a 14-hour conversation about everything — and with Jerry, it was about everything! This turned into a more-than 30-year conversation and friendship to the day his body gave out (his mind is still everywhere in our lives, our cultures, and our futures).

This is a good place to stop for all who knew Jerry. For those who have missed that pleasure, let me just say that one of his striking characteristics, to go along with his warmth, was his genuine ability to completely relate to whomever he was talking to in the most wonderful way — a way that expressed his complete confidence and happiness to have you as a companion in a discussion and a coconspirator and colleague in whatever would help make the world better. To know him was to love him. We love you, Jerry!
**Anthony Amsterdam**  
*New York University School of Law*  

“It’s a curious thing,” Jerry would say. He would say it maybe six or seven times in the course of any 2-hour seminar, no matter what the seminar’s topic. He would say it at least 15 times in every one of the hundreds of 90-minute working lunches that we took together in my office. He would pause and look up from peeling the wax paper off a grilled cheese sandwich or from tugging at the refractory seal on a half-pint orange-juice container and his eyes would gleam behind those round spectacles and he would say, “but then again the curious thing is...”

The curious thing might be the simultaneous need of the human organism for stimulation and for repose. It might be the chicken-and-egg relationship between language and narrative. It might be the reciprocal tug among the 5th Century B.C. Athenian forums of the theater and the law courts, Council and Assembly. It might be the tension between selfishness and generosity within the iconic concept of opportunity that makes the U.S. of A. the Land of Opportunity. It might be Anacharsis Cloot's appearance before the National Constituent Assembly in 1790 as the leader of the embassy of the human race. (On Jerry's ninth or tenth reading of *Billy Budd*, he homed in on Melville's page 1 reference to Cloots and spent a joyful couple of hours devouring everything he could read about this “Orator of Mankind” and “Personal Enemy of God.”)

Jerry’s curiosity was cosmic and insatiable. No precept or principle, theory, text, or brute fact was armored in a shell that could resist his fascinated penetration. Brilliant as he was, the depth and clarity of his insights were matched only by the breadth of his excitement and concern, his instinctive and irrepressible intellectual stance: *homo sum, humani nihil a me puto alienum.*

For all who have read or will read Jerry’s writings, it is doubtless the rich creativity of his ideas and their contribution to understanding the human mind and culture that leave indelible impressions. But for those who knew him personally, his equally important legacy is his modeling of a life of unrelenting, exuberant, and boundless inquiry. Never cease to seek answers, never accept the answers you come up with, and never stop enjoying their intriguing inadequacy.

**Bradd Shore**  
*Department of Anthropology, Emory University*

I was late to the feast, only meeting Jerry Bruner in the mid-90s, when he was entering his eighth decade. Long a fan of his work, I took a gamble and mailed him the manuscript of my new book *Culture in Mind*. Never having met Bruner, and the manuscript being rather thick, I never expected that he would read it. About 2 months later, having just returned from a family trip, I was shocked to find urgent messages from Bruner on both my office and home phones. “Who are you?” the voice on the recording asked, “and how can I get this book into the hands of psychologists?” He left me his number. I phoned him immediately. Not only had he read through the manuscript, but he promised to contribute a preface. And so began a momentous friendship for me.

In 1996, the year *Culture in Mind* was published, the Editor of *Ethos*, the journal of the Society for Psychological Anthropology, asked me if I would inaugurate a new forum, comprising long interviews with prominent scholars in cultural psychology and psychological anthropology. The consensus of the editorial board was that Bruner would be a perfect choice for the first of these interviews and that I might do the interviewing. The journal would send me to New York to spend 4 or 5 days recording a set of conversations with Bruner that would then be transcribed and edited into an article.

Though I was honored and delighted to be cast as the interviewer, I was also intimidated. Here was a world-renowned psychologist, a prolific researcher, teacher, and writer with 6 decades of books and articles behind him. He had been a founding figure in numerous branches of psychology — cognitive psychology, developmental psychology, educational psychology, cultural psychology, the psychology of law, and the study of narrative and meaning-making, among others. To even begin to do justice to interviewing such a figure, I clearly had my work cut out for me and set about acquainting myself with a reasonable cross-section of his work, getting a feeling for the shape and scope of his capacious career and his long and consequential life.

Arriving at his spacious loft on Mercer Street in Greenwich Village, I came armed with a cassette recorder, a wad of notes on my reading, and some 16 pages of questions that I assumed would frame our interview. But instead of a formal interview, Jerry and I quickly slipped into a thrilling 4-day conversation that threaded its way through our hours in his study and continued uninterrupted through restaurant meals and periodic walks. The only breaks from the talk were the frequent phone calls or brief visits by some of Jerry’s many friends, which included the likes of Susan Sontag and Oliver Sacks. I was dazzled by the company Jerry kept, but even more by his seemingly inexhaustible capacity for lively conversation, for “one interesting thing leading to another” for hours on end.

This was the most interesting and engaging person I had ever met. We hit it off immediately, and although I did manage to get to a handful of my questions, the conversation inevitably took on a life of its own. I had done a fair amount of interviewing in my time, but never with anyone like Jerry Bruner. For Bruner, thinking aloud in cheerful company was high play. I quickly learned to forget my interview outline and let the talk go where it would. Yet even when the subject would seem to drift, as it often did, our talk always returned to a few foundational issues. Bruner “minded” human life like no other. He spoke of the human “effort after meaning,” the character of different modes of thought, the distinctive capacity of the human mind to “go meta,” the mind’s journey through a life course, the rootedness of mind in culture, the role of the classroom in shaping young minds, and most generally, of the necessity for a conceptual and methodological bridge between psychology and anthropology.

Though he was in his 80s at the time, I was struck by the dancing eyes of a 15-year-old sparked by the excitement of
emerging ideas as we talked. Bruner had long ago written about the importance of paedompornism for human evolution and the centrality of play in human development. Here he was vividly encompassing a childlike energy and playfulness in the body of an octogenarian. Talking with Jerry was enthralling and life-affirming. He brought ideas to life.

Everything was grist for the mill from which his ideas poured — physics, psychology, literature, anthropology, and philosophy. His ideas were always rooted in anecdotes, personal relationships, consequential encounters, and key life events: his having been born (temporarily) blind, his years at Duke, his having sailed across the Atlantic in an effort to understand human navigation, his early friendship with Robert Oppenheimer, his debates with Jean Piaget, his relationship with his wife and colleague Carol Feldman, his years in Paris as cultural attaché to the American Embassy, his time in Cambridge, Massachusetts, and at Oxford in England. And on and on.

Bruner’s ideas were not siloed away in a separate “intellectual” part of his mind; they threaded their way through everything and everyone he engaged. Bruner’s conversational energies did not flow on a one-way street. During our 4-day talking marathon, Jerry was just as enthusiastic about my life and my ideas. As talented a listener as he was a talker, Bruner enjoyed the “back-and-forthness” of communication. Jerry had the rare ability to make those he talked with feel smarter and more important than they were. What a teacher he must have been!

One comment he made during our conversation stands out for me as particularly salient. With some hesitation, I worked up the nerve to ask him why he had not founded a distinct school of psychology like Piaget or B. F. Skinner.

“You,” I asked, “were there no Brunerians in the way that we have Skinnerians, Piagetians, Chomskians, and the like?”

He thought about it for a moment and smiled as he said, “I think because I have no interest in making people into me, but rather helping them become the best version of themselves.”

Continuing to muse on my question, he said that what he enjoyed was not founding closed-off subdisciplines or building bandwagons for followers to mount, but rather helping to start a set of investigations on a big question and letting his students and colleagues pick up the threads and develop them in their own ways while he moved on to something else. Keep everything open and moving, he seemed to say. Live a life of maximal joint attention. Celebrate the power of the subjunctive mood. I never forgot his amazing answer to my rude question, an answer which helped shape my own sense of my job as a teacher.

When I returned to Atlanta, the interviews were all transcribed and I spent many weeks working them up into a coherent set of reflections. In the process, I learned that there was a big difference between my memory of our conversation as seamless and coherent, and the more ragged contours of actual talk, which often proceeded with many more fits and starts than the smoothed-over memory of our talk that comes to mind. Such is the way of memory. I eventually ended up with a 300-page manuscript of our reconstituted conversation, and then selected and wove together chunks of the 4-day conversation into an article-length conversation titled “Keeping the Conversation Going: An Interview with Jerome Bruner,” which finally made it into the pages of *Ethos* in March 1997. The complete conversation remains unpublished.

Shortly after the interview, a number of us at Emory hatched a plan to try and lure Bruner to our university as a Woodruff Professor of both Psychology and Anthropology. Woodruff Professors are the highest distinguished professorships Emory has. We met with the then-president of the University, Bill Chace, to get him on board with the plan. Having read Bruner’s CV, President Chace was more than impressed, but he expressed strong reservations about the prospect of hiring an octogenarian, who, he assumed, had largely exhausted his energies and accomplishments. Would he bring serious energy to the job? Would his appointment bear fruit for the university beyond his past reputation?

“How about if we brought him to campus and arranged for the two of you to have lunch,” we proposed.

The president accepted, and Jerry came to Atlanta for a job interview.

It was, I was to discover, the first academic job interview Bruner had ever had. His prior appointments to Harvard, Oxford, and NYU had been matters of offers made over the phone by close friends. At Oxford, I learned, it had been Isaiah Berlin who had made the call. Back then, no job interview was necessary for someone like Bruner, but this was a different time and place, and so Jerry graciously accepted the role of job interviewee. He wowed everyone, of course. Following Bruner’s lunch with President Chace, the president called me and exclaimed that he had just had one of the most engaging conversations of his life.

“Some octogenarian!” he said. “I hope we can convince him to come here.”

With President Chace’s blessing and counting on the leverage of the large Woodruff endowment, we did everything in our power to tempt Bruner away from New York. But alas, the cultural riches of New York City and the exciting Law School at NYU provided too strong a counterweight, and Jerry finally, with his usual grace and tact, turned us down. But his relationship with Emory through his many friends in the Psychology and Anthropology departments would remain strong to the end of his life, and he would make many appearances on our campus.

But now, alas, if reports are true, Jerry has finally left town. It’s hard to believe he is gone. Honestly, I don’t know how to think about his passing: He never spoke to me of death, or retirement, or finishing up in any sense. One never had a sense of his departing. He was interested in beginnings and continuations, but not so much in endings. Whatever private musings he may have had about his own mortality, his public persona was always focused on life, on the next thing. Like our consequential 4-day chat, Jerry Bruner’s life was devoted, multimindedly, to keeping the conversation going. And as the collected musings in these pages suggest, he still seems to be working his magic.
Why Don’t Psychologists Know More About Childbirth?

By C. Nathan DeWall

doi:10.1177/0963721416677096

Childbirth is one of the most painful experiences for which people repeatedly volunteer. People will go to great lengths to avoid back pain, cancer pain, or a toothache. But childbirth, whose pain outranks each of those other experiences, often leaves people asking for more (Melzack, Taenzer, Feldman, & Kinch, 1981). What makes childbirth so special that people can’t keep themselves from repeating their painful pasts? The answer, according to Darby E. Saxbe (in press), has eluded psychological scientists. Many psychologists have explored how mothers think, feel, and act before and after childbirth. But almost no psychological research has made its way into the delivery room.

To understand childbirth, Saxbe argues, psychologists should use a biopsychosocial approach, which integrates biological, psychological, social, and cultural factors (Suls & Rothman, 2004). In her research, Saxbe focuses on two prominent features of childbirth: pain and social support. Most women use anesthesia, but psychological and social factors also can dull their pain (Holt-Lundstrad, Birmingham, & Light, 2008; Moyer, Rounds, & Hannum, 2004). To manage the pain of childbirth, mothers rely on multiple methods. Thus, researchers can identify which combination of biological, psychological, social, and cultural factors offers the most benefit and why.

Social support plays a prominent role in childbirth. In one study, 99% of mothers reported experiencing social support during labor (Declercq, Sakala, Corry, Applebaum, & Herrlich, 2013). Compare that with the 83% of women who report using some form of anesthesia. Social support pays biological, emotional, and financial dividends. Expectant mothers who report high levels of social support have lower chances of birth complications, need fewer pain medications, and experience greater satisfaction with the birth than those who do not (Hodnett, Gates, & Sakala, 2007; McGrath & Kennel, 2008). To take this cutting-edge research into the classroom, instructors can have students complete the following activity. The activity teaches students how the biopsychosocial model can aid understanding of the pain mothers experience during childbirth.

Instructors can ask students to imagine that they are, or a female partner is, about to experience childbirth. In the weeks leading up to the baby’s birth, the mother is given several options that may reduce the pain and distress of childbirth. She will need to select two of the following four options:

**Option 1**
Anesthesia: During labor, 83% of women use some form of anesthesia (Declercq et al., 2013). This option would include a standard amount of anesthesia to help keep the mother comfortable during childbirth.

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People Need People: Why Close Relationships Predict Health

By David G. Myers

Before offering answers such as those proposed by Slatcher and Selcuk, instructors might pause to invite students — perhaps in small groups — to brainstorm possible explanations for the marriage—health link. Not only will such discussion engage students in thinking psychologically, it also will drive home the big lessons: 1) the mind matters — our emotional experiences influence our bodies, and 2) relationships matter — the flourishing life prioritizes not just me but also we.

Slatcher also suggests asking, “Are there any kinds of marriages that might NOT be good for your health? Can you think of when it might be healthier to be single?” In addition, he invites his students to complete the four-item Couples Satisfaction Index, made freely available for use by Ronald D. Rogge (Funk & Rogge, 2007; Rogge, Fincham, Crasti, & Maniaci, 2016). To experience how relationship quality can be assessed, students can describe a current or past romantic relationship or can imagine what a future such relationship might look like.

1) Please indicate the degree of happiness, all things considered, of your relationship: extremely unhappy (0), fairly unhappy (1), a little unhappy (2), happy (3), very happy (4), extremely happy (5), perfect (6).

2) I have a warm and comfortable relationship with my partner: not at all true (0), a little true (1), somewhat true (2), mostly true (3), almost completely true (4), completely true (5).

3) How rewarding is your relationship with your partner: not at all (0), a little (1), somewhat (2), mostly (3), almost completely (4), completely (5).

4) In general, how satisfied are you with your relationship: not at all (0), a little (1), somewhat (2), mostly (3), almost completely (4), completely (5).

Summed scores can range from 0 to 21. Rogge (www.courses.rochester.edu/surveys/funk/CSI-4.docx) reports that scores below 13.5 “suggest notable relationship dissatisfaction.”

Slatcher and Selcuk classify the possible psychological explanations of marital influence as

Option 2
Mindfulness-based stress reduction. A mother will complete several training sessions to help her become aware of pain related to childbirth and to accept it in a nonjudgmental manner.

Option 3
Cognitive behavioral therapy. This option would follow Saxbe’s (in press) recommendations to use cognitive behavioral therapy to help a mother "reframe the meaning of pain, develop more positive expectations for labor, and challenge cognitive errors (e.g., the belief that labor pain signals something abnormal)."

Option 4
Modifications to a mother’s birth plan that increase her feelings of personal control. APS Fellow Ellen J. Langer (1983) famously stated, “Perceived control is basic to human functioning” (p. 291). Numerous studies reveal a direct link between feelings of personal control and lower levels of psychological distress (Humphrey, Nahrgang, & Morgeson, 2007; Rodin, 1986; Wang, Bowling, & Eschleman, 2010). Giving pregnant mothers a sense of personal control over as many aspects of their birth plans as possible may increase their feelings of comfort.

Ask students to form pairs and discuss which two options they would select. Why did they favor some options over others? When might someone benefit from selecting options that did not include anesthesia? How would students’ responses differ if they were members of the other sex?

Most parents will never forget the birth of their children. Amidst the pain, confusion, and positive emotions, parents leave the delivery room forever changed. They deserve attention from psychological scientists, who can help them understand the constellation of biological, psychological, social, and cultural factors that shaped their childbirth experience. And despite the immense physical pain, psychological science may improve parents’ next time in the delivery room.
1. **Marital strengths**: Intimacy and social support buffer the negative effects of work and life stress. Responsive partners care for, understand, and validate their partners. By so doing, they engender a health-promoting attachment security.

2. **Marital strains**: Conflict intensifies the toxicity of stresses. Inconsistent partners breed attachment anxiety. Unresponsive partners breed attachment avoidance.

This psychology of marital strengths and strains impacts physical health in several ways:

1. **Stress responses**: A strong relationship calms us — reducing stress hormones such as cortisol and lowering blood pressure — while a strained relationship does the opposite. In one study, partner responsiveness predicted lower daytime cortisol a decade later (Slatcher, Selcuk, & Ong, 2015).

2. **Immune functioning**: Attachment anxiety predicts a weaker immune system, including lower T-cell counts and exacerbated inflammatory responding. And it’s a cold fact — those with strong social ties are less vulnerable to an administered cold virus (Cohen, Doyle, Turner, Alper, & Skoner, 2003).

3. **Health behaviors**: Marriage has been linked with healthier living, including a lower smoking rate (Nielsen, Faergeman, Larsen, & Foldspang, 2006). Moreover, marital responsiveness predicts better sleep and less anxious arousal (Selcuk, Stanton, Slatcher, & Ong, 2016).

4. **Pain management**: Having a responsive partner predicted greater endogenous opioids and less pain 3 months after knee surgery (Khan et al., 2009). Even viewing a partner’s picture can reduce pain (Master et al., 2009).

Such mechanisms, discerned mostly in research with midlife and older adults, extend what attachment researchers have gleaned from the study of unresponsive caregiving of young children — which similarly “affects developing stress neurobiology and health,” report Slatcher and Selcuk. Moreover, early caregiving affects later romantic attachment; ergo, partner responsiveness is a process that extends across the lifespan.

The marriage–health studies were nearly all conducted during an era of exclusively heterosexual marriage, which raises a final question for student discussion:

What do you think: Does the need to belong, and the health benefits of close relationships and marriage, pertain only to straight people? Or do all humans, regardless of sexual orientation, tend to flourish when connected, affirmed, and supported in enduring close relationships, such as marriage? 

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**The articles in this issue will be available in the February 2017 issue of Current Directions in Psychological Science.**

**References**


You Need Technology to Survive Graduate School

By Samantha Dubrow and David M. Wallace

A Google search anthropologist reported that 90% of the population did not know what CTRL/Command + F does (Madrigal, 2011). Yes, you read that right. Hopefully that number has decreased by now, but if you are part of the majority, stop what you’re doing and try it. It allows you to search for any term on nearly any page of any application or browser you have on your computer. When you have more work than you can do in a day, shortcuts like this one can be game changers.

In this article, we will introduce you to some of the key applications that we use to survive graduate school. Plus, we include the part you really care about — the cost. Many of these apps have free trials, or even free versions, but consider them with an open mind, because some of them are really worth digging into your pockets for.

First things first: if you have never had a computer crash on you before, your day is coming. It happens to all of us at the worst possible moments. Back everything up. We mean everything.

Backups: The Cloud

When your advisor was in graduate school, he or she backed up data, documents, and writing onto floppy disks and CD-ROMs. Flash drives provided the next step in this storage evolution, but they require manual updates, are often too small, and are usually collocated with your computer, making them susceptible to any physical disasters that may be inflicted upon your computer.

Although many solutions exist, your first backup option is the cloud. Cloud-based storage is a system whereby a service provider (e.g., Dropbox) provides storage of your information on computers (servers) that are remote from you and accessible via the Internet (Zeng, Zhao, Ou, & Song, 2009). Whether you use Google Drive, Dropbox, iCloud, or Box.com (or many, many others), cloud-based storage offers three significant benefits: (1) backups can update automatically, (2) backups are offsite, and (3) the service is affordable.

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These cloud-based services can be tied to your computer’s file storage system so that they automatically send your documents to the service provider. There is no need to reupload the documents as long as you save all of your files in folders that are tied to cloud storage. You’ll be saved if your computer crashes.

**Collaboration: Google Drive or Dropbox**

These cloud-based storage providers not only provide backup storage, but also provide important collaboration tools, allowing you to share documents easily without back-and-forth emails, collaborate with colleagues in real time, and avoid conflicting copies.

Google Drive appears to have the best tools for real-time collaboration, allowing colleagues to access the same document simultaneously. (Think of Ginny Weasley and Tom Riddle simultaneously writing in his diary.) Changes are saved nearly instantaneously, and conflicted copies are never created. The only downside is that you must use Google’s applications (Google Docs, Google Sheets, etc.) to collaborate. Dropbox does not yet support real-time collaboration (though it is getting closer, and does let you know when others are editing the same document), and it is still useful for file sharing and non-simultaneous collaboration. An advantage of Dropbox is that the files reside natively on your computer, and no set up is required to work with them when you are not connected to the Internet. Additionally, Dropbox is format agnostic — that is, it doesn’t care what format your file is in to support collaboration.

**Cost:**

- Google Drive: 15 GB for free, 100 GB for $1.99/month, and 1 TB for $9.99/month
- Dropbox: 2 GB for free, 1 TB for $8.25/month if billed annually ($10/month if billed monthly)

**Evernote**

In college, did you take all of your notes by hand or save them in Microsoft Word? If you used Word, were they all named “10/16 notes” or something horribly generic, which meant you had to open at least seven different documents before finding the notes you were looking for? This problem is not worth your time in graduate school. Evernote can be your solution. The magic of Evernote is its search function. It is a great way to combine notes from classes, research projects, teaching, meetings with your advisor, and lab meetings.

**Cost:**

- Basic for free, Plus for $34.99/year, and Premium for $69.99/year

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**David M. Wallace** is a Commander in the US Navy and a PhD candidate in industrial–organizational psychology at George Mason University. His work focuses on descriptive and prescriptive research on leadership in multiteam systems as well as individual processes of leader development, such as identity development and self-regulation. He can be contacted at dwallac8@masonlive.gmu.edu.
**Task Managers: Todoist and Omnifocus**

Trying to remember everything you have to do takes up a lot of cognitive space that can be better spent trying to figure out which Starbucks will have the shortest line. Although a paper and pencil task list is a good start, a to-do app is better. There are dozens of to-do list apps out there, but we want to focus on two.

First, Todoist allows you to create normal task lists, as well as projects (e.g., Teaching, Classes, Research). It includes filters that let you only look at what’s due this week or this month. It also gives you the ability to set priorities and will integrate with all of your other favorite apps. You can also set priorities, so there is a difference between “I should do that at some point” and “I have a paper due next week” without letting you lose track of the things in the “should do” category. For this application, we definitely suggest getting the premium version.

Omnifocus has many of the same features as Todoist but takes it one step further. Now, you can embed projects within one another, defer tasks into the future, and even set interdependencies among project steps. There are few things more discouraging than seeing a list of 100 things that you need to do. Through deferment and dependencies, you only have to look at the list of tasks that you are going to work on today.

**Cost:**
- Todoist: Basic for free, Premium for $28.99/year
- Omnifocus: Basic license for $24.99 (education discount), Pro license for $49.99 (education discount)

**Writing: Scrivener**

Microsoft Word is great for formatting documents for printing, but there are better options out there for the writing process. Scrivener can help you to not only format your work, but also to structure and organize it, and it provides a place to keep your supporting literature and information. With an intuitive workspace, you can easily isolate sections of your paper to work on, jump between sections, drag and drop sections around the paper, and even see two sections at the same time in the same window. If you are writing anything from comprehensive exam answers, to a class paper, to a dissertation, to a book chapter, this is worth a look.

**Cost:**
- $38.25 for Mac (education discount) or $35 for Windows (education discount)

There are dozens (arguably hundreds) of other useful apps and computer shortcuts that will help increase your productivity and your efficiency. These are the few you should get started with immediately, if you have not implemented them already.

*Note: Parts of this article have been adapted from the fall 2016 version of the George Mason University I/ON Newsletter at www.gmu.edu/org/iopsa/ion.php.*

**References and Further Reading**


Frank Farley, Temple University, CNN, December 22, 2016: Violence Spreads Among Teens Like a Contagious Disease, Study Says.

Alison Gopnik, University of California, Berkeley, The Wall Street Journal, December 22, 2016: When Awestruck, We Feel Both Smaller and Larger.


Kiley Hamlin, University of British Columbia, Canada, The Huffington Post, December 22, 2016: When Awestruck, We Feel Both Smaller and Larger.

Timothy B. Jay, Massachusetts College of Liberal Arts, TIME, December 15, 2016: Swearing Is Scientifically Proven to Help You *%$!ing Deal.


Joachim I. Krueger, Brown University, The Wall Street Journal, December 5, 2016: When Is It OK to Brag?


Nira Liberman, Tel Aviv University, Israel, Scientific American, December 29, 2016: Why We Think We Can Keep Those New Year’s Resolutions.


Yaacov Trope, New York University, Scientific American, December 29, 2016: Why We Think We Can Keep Those New Year’s Resolutions.


Elanor F. Williams, Indiana University, Los Angeles Times, December 16, 2016: If Your Gift Choices Seem to Disappoint, Psychology May Explain Why.


Laurie Santos, Yale University, The Christian Science Monitor, November 23, 2016: Does Your Dog Remember What You Did?

Linda B. Smith, Indiana University Bloomington, The Atlantic, December 9, 2016: How to Predict a Baby’s First Word.


Elanor F. Williams, Indiana University, Los Angeles Times, December 16, 2016: If Your Gift Choices Seem to Disappoint, Psychology May Explain Why.

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Psychology Instructor

The Psychology Program at Penn State Behrend has an opening for a full-time, non-tenure track instructor (multi-year, renewable position) beginning in fall 2017. Candidates must have an earned doctorate in clinical or counseling psychology or in a related field. Evidence of research productivity is required. The successful candidate will teach undergraduate and graduate clinical psychology courses and supervise undergraduate internships. Other courses may include introduction to psychology, statistics, research methodology, and courses in area of expertise. Experience working with graduate students and licensure or license-eligibility in Pennsylvania are preferred. Faculty members are expected to participate in scholarly activity involving students.

The Psychology Department has laboratory space including a sound attenuating chamber, individual testing rooms, small group rooms, and observation rooms. Technology and library resources are excellent. Other resources include an on-campus child care center and affiliation with the applied research and outreach center—the Susan Hirt Hagen Center for Community Outreach, Research, and Evaluation.

Penn State Behrend is a comprehensive four-year and residential college of Penn State in Erie, PA. The college prides itself on the balance it achieves between teaching and research. Located on a beautiful, wooded hilltop campus, Penn State Behrend offers its 4,350 undergraduate and graduate students an inspiring and technologically-advanced environment characterized by close student/faculty interaction. For more information about the college, please visit our Web site (www.behrend.psu.edu).

To apply, upload letter of application, curriculum vitae, graduate transcripts, statement of teaching philosophy, statement of research interests, and three letters of recommendation.

Review of applications will begin immediately and will continue until the position is filled.

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.

Job URL: http://apptkr.com/932003

Randolph-Macon College

The Psychology Department at Randolph-Macon College invites applications for a Visiting Assistant Professor position of one or more years to begin in Fall semester 2017. Applicants must hold an advanced degree in psychology at the time of appointment. Area of specialty is open; an emphasis in applied developmental, community, or health psychology is preferred. Teaching experience is also preferred. Successful candidates will be prepared to teach Research Methods as well as courses in their area of interest at introductory and upper levels. Preference will be given to candidates demonstrating a potential to build an engaging undergraduate research program. Randolph-Macon is a selective, residential liberal arts college located in the beautiful Virginia piedmont in Ashland, Virginia, 15 miles north of Richmond and 90 miles south of Washington, DC. Review of applications will begin on January 13, 2017 and continue until the position is filled. Qualified candidates should submit electronically a cover letter, a curriculum vitae, a statement of teaching philosophy, a statement of research interests and future research plans, a diversity statement (describing how your background prepares you to incorporate diversity in your teaching, research, and/or service), and contact information for three individuals who can serve as references to Ms. Barbara Wirth (bwirth@rmc.edu), subject line Visiting Psychology Search. Please submit as one attachment titled with the candidate’s last name and first initial. For specific inquiries about the position, please contact the Chair of the search committee, Dr. Kristen Klaaren (kklaaren@rmc.edu). Randolph-Macon College, an Equal Opportunity Employer, believes that students learn best in a diverse, inclusive community and is therefore committed to academic excellence through diversity in its faculty, staff and students. We seek candidates who are committed to Randolph-Macon’s efforts to create a climate that fosters the growth and development of a diverse student body, and we actively welcome applications from members of groups that have been historically underrepresented in higher education.
ANNOUNCEMENTS
Send items to apsobserver@psychologicalscience.org

MEETINGS

2nd International Convention of Psychological Science
23–25 March 2017
Vienna, Austria
www.icps2017.org

29th APS Annual Convention
May 23–28, 2017
Boston, Massachusetts, USA
www.psychologicalscience.org/convention

2017 Prague Summer Schools
July 1–8, 2017
Prague, Czech Republic
praguesummerschools.org/

RAND Summer Institute Conferences on Aging
July 10–13, 2017
Santa Monica, California, USA
www.rand.org/labor/aging/rsi.html

GRANTS

Call for Papers for Special Issue With the Topic ‘Addressing Gender Inequality’
Group Processes & Intergroup Relations has issued a call for papers for a special issue examining gender inequality. The aim of this special issue is to provide an overview of the many ways in which gender inequality can, and has been, addressed and the consequences — both intended and unintended — that different approaches, interventions, and policies may have. The journal encourages submissions that examine approaches combatting a range of gender inequalities including workplace, social, political, and economic inequalities as well as inequality in the family and other private spheres. They also encourage submissions of work looking at intersectional issues. The submission deadline is April 1, 2017. For more information, please visit http://gpi.sagepub.com/site/CFPs/SI_Gender_Inequality.pdf. Please direct any inquiries to the guest editors Michelle Ryan at M.Ryan@exeter.ac.uk and Thekla Morgenroth at T.Morgenroth@exeter.ac.uk.

Grants Announced for Child Care, Head Start, Family Strengthening, and Behavioral Intervention
The Administration for Children and Families (ACF) is excited to announce that the Office of Planning, Research, and Evaluation (OPRE) has forecasted their intent to fund Child Care, Head Start, Family Strengthening, and Behavioral Interventions graduate student dissertation grants in 2017. Please visit grants.gov for more information.

TRAINING

Alcohol Research Training Summer School & Internship (MU-ARTSS)
Undergraduate students interested in alcohol and addiction research are invited to apply to the University of Missouri’s Alcohol Research Training Summer School & Internship (MU-ARTSS). This program, funded by the National Institute on Alcohol Abuse and Alcoholism (NIAAA), is now in its second year. MU-ARTSS offers students a week-long introductory course on alcohol research followed by an 8-week research internship with an MU-ARTSS professor. Participants will benefit from career development and graduate preparation seminars and trainings led by University of Missouri (MU) predoctoral researchers, postdoctoral researchers, and faculty. The program will provide participants with a $3,600 stipend, 1 hour of academic credit from MU, and room and board. Students will be responsible for travel costs. For eligibility criteria and more information about MU-ARTSS, please visit http://alcoholresearch.missouri.edu/relatedtraining.html. Eligible applications must be received by February 15, 2017, and applicants will be notified of decisions by March 15, 2017.

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starting annual (Non-licensed)

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