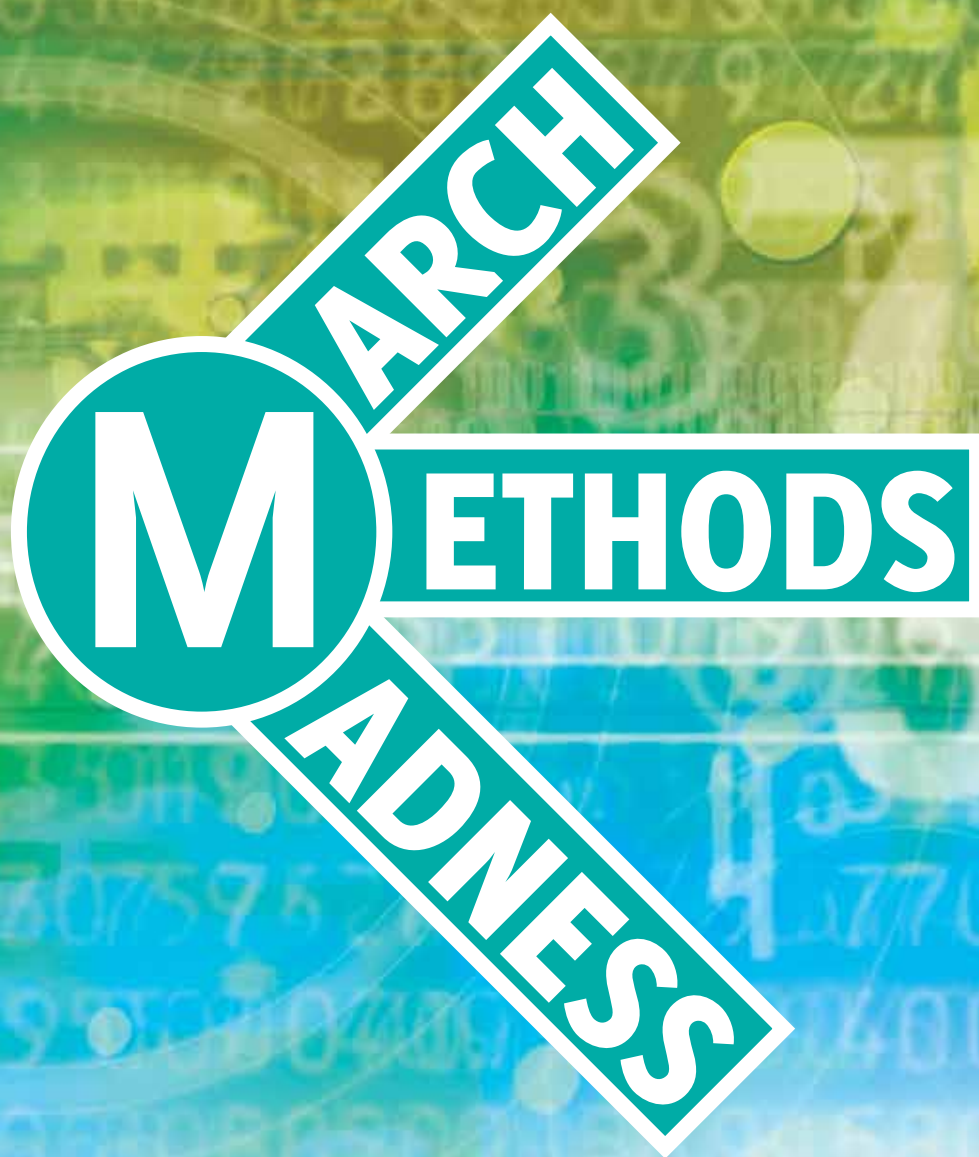


Observer

Vol. 25, No. 3 • March 2012



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2012 APS CONVENTION

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Huddle up! The *Observer* presents a mix of old-school fundamentals and game-changing innovations from the methodological playbook of psychological science.

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Stars on the Rise

The *Observer* profiles up-and-coming psychological scientists.

Douglas L. Medin
Northwestern University



A Dangerous Dichotomy: Basic and Applied Research

How can I be so confused by a simple distinction like the difference between basic and applied research? I did an initial draft of a column on this topic months ago, and honestly, it was mostly gibberish.

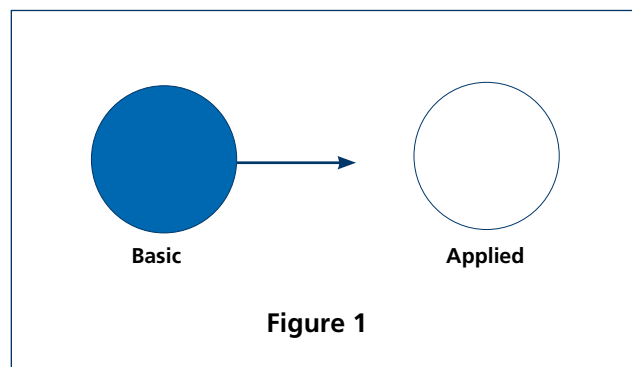
In his 1997 book, *Pasteur's Quadrant*, Donald Stokes reviewed a good deal of the history and political significance of different ideas about the relation between basic and applied research. It may be worth examining our own ideas on the topic. Many of us in academia may be walking around with an implicit or explicit "basic is better" attitude. Imagine two assistant professors coming up for tenure and one has plenty of publications in *Psychological Science* and the other has plenty in *Applied Psychological Science* (a hypothetical journal). Which of the two has a better chance of getting tenure? Correct me if I'm wrong, but it seems to me that — hands down — it is the former. My academic appointment is both in psychology and in education, and at least some of my psychology colleagues look down on educational research as (merely or only) applied and justify their attitude on grounds that it is largely atheoretical and not very interesting (and on this point they simply are wrong).

But imagine that psychological science arose in a developing country that was continually facing crucial issues in health, education, and welfare, and universities were dedicated to addressing national needs. Now perhaps the assistant professor who published in *Applied Psychological Science* would get the nod.

In *Pasteur's Quadrant*, Stokes argues for a three-way distinction between pure basic research, pure applied research, and use-inspired basic research (for which the prototype is Louis Pasteur). I do like the term *use-inspired* because it suggests quite literally that considerations of use can stimulate foundational research. But I'm pretty dubious about "pure" being attached to either category for the reasons that follow.

My psychology colleagues might point out that the categories basic and applied are incomplete because, by themselves, they do not capture the causal history between basic and applied research. The short version goes like this: We psychologists ask basic questions about how the mind works and achieve fundamental insights into the nature of cognitive and social processes such as judgment, perception, memory and the like. These insights have implications and applications as wide-ranging as the design

of cell phones, determining the optimal size of juries, stopping smoking, or mounting an effective political campaign. The path is from theory to application. People in applied settings have to do something, but the standard of evidence-based practice and knowing *why* something works has to wait for the underpinnings provided by basic research (see Figure 1).



Of course, there are numerous steps between the initial basic research and the eventual practical applications. These steps often involve messy details and many decisions about factors that probably don't matter, but maybe they do. One can get the sense that clean experimental design is being gradually compromised by these minor details. And it doesn't help that the theory we are working with may have nothing to say about these decisions. Someone should do this work but, from the perspective of those of us doing basic research, maybe it should be someone else (other than us).

At one point in my work history this stereotype corresponded pretty well with my own attitudes. My opinion was that there was such a gulf between theory and application that we needed not two, but three subtypes of research: basic, applied, and an interface that occupies the middle ground between the two (Figure 2). Of course, if you prefer a more analytic approach rather than seat-of-the-pants intuitions, you probably can't do better than APS Fellow and Treasurer Roberta Klatzky's 2009 thoughtful paper on application and "giving psychology away" (borrowing from Miller, 1969).

Douglas L. Medin is a professor at Northwestern University. He can be reached at medin@psychologicalscience.org.

PRESIDENTIAL continued on Page 33

Creating Benefits for Research Participants

Regarding “Subject to Participation” (Presidential Column, January 2012): APS President Douglas Medin should be applauded for raising questions about the relative costs and benefits for participants in psychological research. I hope that one consequence of his article is that more reports on assessments of US research participation will be forthcoming. I know that APS works with other social science organizations on proposed revisions in federal regulations for protecting human research participants. I encourage the views of actual former and potential future participants be taken into account when deciding on the ethicality of psychological research. Some studies have been done on participants’ judgments of research ethics, but measures of them should be done on a more routine basis. When conducting research with college students from the Introductory Psychology participant “pool,” I take about five minutes to describe the connection between participation in psychological research and the idea of “service learning.” Providing some kind of service to people and organizations while at the same time learning something about them has been a popular theme in education for many years. After making sure everyone understands the concept, I try to make the case that research participation is a form of service learning with benefits to all involved. On the “service” side, most students are impressed that many of the studies in their psychology textbooks were conducted with college students like themselves, and, furthermore, future textbooks might refer to some studies in which they personally participated — thereby providing a service not only to psychology and researchers but also to future students. On the “learning” side, I explain that since introductory psychology courses, unlike introductory courses in other sciences like biology, chemistry, and physics, do not have separate lab sections, the research participation component is an opportunity for hands-on experience with the methods and tools of psychological science. After participating, they also receive a take-home souvenir statement about the study plus information about where to learn more about the topic. The rationale for connecting research participation to service learning is to increase benefits to participants by showing how their contributions relate to practices valued in educational institutions and society. Medin’s article has challenged me to consider additional ways of increasing educational benefits to participants in my studies.

-John David Edwards

Loyola University

OBSERVATIONS

apsobserver@psychologicalscience.org ATTN: Observations

Crossing Borders to Build a Better Robot

Roberta Klatzky has spent much of her career getting to know robots. Thanks to the Humboldt Research Award, Klatzky, who serves as APS Treasurer, got to experience a new aspect of robotics during her stay at the Institute of Automatic Control Engineering (LSR) at the Technical University of Munich in Germany.

Klatzky, a professor of psychology and human-computer interaction at Carnegie Mellon University, studies human perceptions and cognition with an emphasis on haptic perception and spatial cognition. She is interested in designing robots that can respond to humans in a way that is convincing and personal. Her work has implications for haptic interfaces, navigation aids for the blind, and exploratory robots.

“Having the opportunity to reside in an Institute dedicated to issues of robot control was really enlightening,” Klatzky says. “I can proudly claim that not only have I socialized with a robot by shaking its hand, but we’ve danced together! So far, you’d never mistake a robot for a human when dancing in a dark bar, but you’d be surprised how effective these interactions can be.”

While in Munich, Klatzky collaborated with **Angelika Peer**, **Raphaela Groten**, and **Daniela Feth** on a paper “that describes how two people can collaboratively steer an object by communicating their intentions through haptics.”

“It was a wonderful experience personally and professionally,” Klatzky says. “I’m very grateful to the von Humboldt Foundation for facilitating my visit.”



APS Fellow Roberta Klatzky receiving the Humboldt Award from Humboldt Foundation President Helmut Schwarz

Bandura and Bobo

How a Doll Revolutionized Social-Learning Theory

Kick him! Sock him! He sure is a tough fella. And he keeps coming back for more.

In 1961, children in APS Fellow **Albert Bandura's** laboratory witnessed an adult beating up an inflatable clown. The doll, called Bobo, was the opposite of menacing with its wide, ecstatic grin and goofy clown outfit.

But when it was their own turn to play with Bobo, children who witnessed an adult pummeling the doll were likely to show aggression too. Similar to their adult models, the children kicked the doll, hit it with a mallet, and threw it in the air. They even came up with new ways to hurt Bobo, such as throwing darts or aiming a toy gun at him. Children who were exposed to a non-aggressive adult or no model at all had far less aggression toward Bobo.

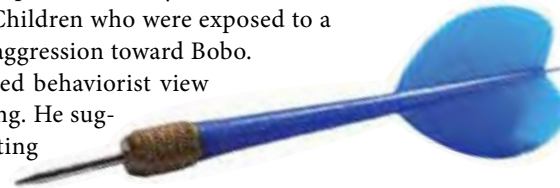
Bandura's findings challenged the widely accepted behaviorist view that rewards and punishments are essential to learning. He suggested that people could learn by observing and imitating others' behavior.

"In many respects, this research helped create the shift in psychology from a behavioristic to a social-cognitive approach to learning," says **Cathy Faye**, Assistant Director of the Center for the History of Psychology at The University of Akron. Since Bandura donated his original Bobo doll in May 2010, it has been one of the Center's most popular exhibits.

Faye notes that the Bobo doll experiments were also influential outside of the scientific community. "Bandura's findings were particularly important in 1960s America, when lawmakers, broadcasters, and the general public were engaged in serious debate regarding the effects of television violence on the behavior of children," she says.

Today, questions about violent media and video games linger, so Bandura's research on aggression remains relevant. His Bobo-inspired social learning theory also contributed to the development of cognitive-behavioral therapy. Bandura is a member of an elite group who received both APS lifetime achievement awards: the William James and James McKeen Cattell Fellow Awards. He was also named among the top five most eminent 20th century psychologists by the *Review of General Psychology*. It's an impressive legacy for a project that began with a little creativity and an inflatable clown.

In May, the original Bobo doll will be on display at the 24th APS Annual Convention, courtesy of the Center for the History of Psychology at The University of Akron. Attendees can photograph the legendary doll, and an imitation will be available for pummeling.



Biases and Brackets

Americans typically prepare for the month-long basketball frenzy known as March Madness by filling out a bracket and placing a bet on the accuracy of their predictions. But deciding which of the 68 teams in the single-elimination tournament will reach the “Sweet Sixteen” and eventually the “Final Four” is no easy task. Many people will look at the team’s statistics, while others might make decisions based on the team’s new players. Yet, psychological science research suggests there may be other biases people aren’t thinking about when they’re putting together their brackets.

Peter Ayton, a researcher from City University London, UK, investigates how people make judgments and decisions under conditions of risk, uncertainty, and ambiguity. One way he studies decision making is through sports. “Thanks to the Internet,” says

Ayton, “people have coded in all sorts of interesting and elaborate ways, the outcomes of games and events in games, and that provides a very rich sort of data for not studying sport *per se*, but decision making generally... sporting statistics provide a kind of test bed for things we can look at.”

One bias discovered through sports statistics, says Ayton, is the “hot-hand fallacy,” which was first coined by APS Fellow **Tom D. Gilovich**. The fallacy arose from the belief that a basketball player is more likely to score if he or she just scored, making that player “hot.” By analyzing data from professional basketball games, Gilovich showed that the idea of players being “hot” was false.

But Ayton says this finding doesn’t stop people from believing in the fallacy and making bets based on it. So if you’re filling out a bracket, don’t forget to let psychological science be your guide as you make your picks.

For more on decision making, attend the Invited Symposium Emotional Influences on Decision Making at the 24th APS Annual Convention in Chicago, or attend Peter Ayton’s talk in this symposium, Dread Risk: Terrorism and Bicycle Accidents.



Watch Peter Ayton discuss the “hot-hand fallacy” and the psychological science behind decision making at www.psychologicalscience.org/r/observer/ayton

Everybody’s Talking About Online Dating

According to the latest *Psychological Science in the Public Interest* study, the matchmaking algorithms used by online sites aren’t necessarily based on good science. So leading up to Valentine’s Day, the hottest topic wasn’t chocolates this year — it was psychological science.

The *Washington Post*’s Ellen McCarthy reported on February 5 that “Online Dating Has Its Pros and Cons.”

Then, in the “langue d’amour,” *Slate France*’s Michel Albergente declared “The Virtual Romance, It Works!”

On February 11, *PSPI* authors Eli J. Finkel and Benjamin R. Karney explained why online dating is no better than meeting people in a bar in “The Dubious Science of Online Dating” in *The New York Times*.

Next, Finkel appeared February 12 on the *CBS News* segment “The Science of Love,” suggesting that singles should think twice about paying for an online dating service.

The same day, Julia Spira pointed out in the *Huffington Post* that “Experts and Researchers Say Online Dating Has Lost Its Stigma.”

Overall, people in 14 countries are talking about the science of online dating, demonstrating the universal appeal of psychological science and the quest for true love.

For links to these stories as well as a Twitter Q&A with study author Eli Finkel, go to www.psychologicalscience.org/r/observer/online-dating.



Take Your Pick! March Madness Reading

Bring your A game this season. APS journals offer the latest research on sports — for competitors and fans.



Compensatory Control: Achieving Order Through the Mind, Our Institutions, and the Heavens

<http://cdp.sagepub.com/content/18/5/264.full>

Current Directions in Psychological Science

The rituals that athletes count on to win a tip off or sink a free throw might teach us something about beliefs in superstitions and divine intervention.

The Perils of Perfectionism in Sports and Exercise

<http://cdp.sagepub.com/content/14/1/14.full>

Current Directions in Psychological Science

An obsession with perfection doesn't necessarily turn average athletes into champions.

Self-Talk and Sports Performance: A Meta-Analysis

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Perspectives on Psychological Science

Self-talk training may help athlete hone their skills, especially fine skills such as hand-eye coordination.

The Accuracy or Inaccuracy of Affective Forecasts Depends on How Accuracy Is Indexed: A Meta-Analysis of Past Studies

<http://pss.sagepub.com/content/23/2/161.full>

Psychological Science

Your favorite team's loss might not be as heartbreaking as you anticipated.

Predicting Soccer Matches After Unconscious and Conscious Thought as a Function of Expertise

<http://pss.sagepub.com/content/20/11/1381.full>

Psychological Science

Who can predict which teams are going to make it to the Final Four? Experts who think about the tournament unconsciously, says this study.

Keep Your Fingers Crossed! How Superstition Improves Performance

<http://pss.sagepub.com/content/21/7/1014.full>

Psychological Science

A lucky charm — like the old college basketball shorts Michael Jordan used to wear under his NBA uniform — may boost game-time performance.

Feelings Not Forgone: Underestimating Affective Reactions to What Does Not Happen

<http://pss.sagepub.com/content/21/5/706.full>

Psychological Science

Forgoing the office pool this March won't necessarily stifle your excitement for the NCAA basketball tournament.

Coming Soon!

Visual Illusions Improve Sports Performance

Psychological Science

Basketball players who look directly at the hoop without moving their eyes are better at making free throws because looking directly at a target creates the illusion that the target is bigger.



Courtesy of
The Daily Tar Heel



The Arch Lab came into being in 1996 when Debbie Boehm-Davis and Wayne Gray (then a faculty member in the department) decided to combine forces and merge their laboratories. For 15 years, the Arch Lab has existed as a merged lab for all faculty members in the Department of Human Factors and Applied Cognition at George Mason. Faculty members have their own areas of research, but they share lab facilities. This level of collaboration and cooperation is what makes the Arch Lab unique, says lab director Raja Parasuraman.

The name “Arch Lab” was coined to represent the broad spectrum of research conducted in the lab, from basic research on one side all the way to applied research on the other. “In an ideal world,” says Boehm-Davis, “those two sides are connected — we don’t have people doing work in the academy that is not related to what’s happening in the real world. But we also hope the real world is aware of the work that is being done in the university.”

The faculty and graduate students in the Arch Lab research various areas of cognition, including attention, audition, biological motion, eye movements, imagery, memory, and visual perception. And their research is applicable to automation, aviation, driving, robotics, and human-computer interaction.

According to Parasuraman, human-factors research is important because real-world systems are often designed without taking human capabilities into account. “Only after the fact, when there is some incident, some accident, or problems in using the system, do they come to light,” he observes.

Ultimately, the goal of the Arch Lab is to conduct research that will help develop better systems and to provide graduate students with the tools to do so, whether they end up in an academic, industry, or government positions.



Raja Parasuraman



Debbie Boehm-Davis

Watch leaders of the Arch Lab explain more about their exciting human-factors research at www.psychologicalscience.org/r/observer/gmu-profile

Quick Facts

Lab Name/Location

Arch Laboratory, Human Factors and Applied Cognition program in the Department of Psychology at George Mason University in Fairfax, Virginia, USA

Goals/Mission Statement

The Arch Lab has approximately 5,000 square feet of space dedicated to research in human factors, cognitive psychology, cognitive neuroscience, and neuroergonomics.

Technology/Equipment Used

EEG, fMRI, Pet, ERP, fNIRS, TMS, Transcranial Doppler Sonography (TDS), eye tracking, flight and driving simulators, genetic testing.

Funding

NIH, NSF, ONR, DARPA, FAA, NASA, NTSB, DoD, the Army Research Laboratory, the Air Force Office of Scientific Research, and the National Highway Transportation Safety Administration.

Website

<http://hfac.gmu.edu/>

Meet the Scientists!

Raja Parasuraman
Carryl Baldwin
Debbie Boehm-Davis
Matt Peterson
Tyler Shaw
Jim Thompson
Robert Youmans



Watch video clips of lab personnel as they explain their research in the Arch Lab.

www.psychologicalscience.org/r/observer/gmu-scientists

Small Articles Fuel Big Debate

In the January 2012 issue of Perspectives on Psychological Science, two articles were published in which the authors argued that the trend of increasingly shorter journal articles could have a negative impact on research efforts. Two of the authors, Marco Bertamini and Marcus Munafò, reiterated their arguments in an editorial published in The New York Times on January 28. Their column is reprinted below along with a response from the current Editor and four former Editors of Psychological Science. We invite you to read their points and determine for yourself what “bite-sized” science means for psychological science.

The New York Times

The Perils of Bite-Sized Science

In recent years, a trend has emerged in the behavioral sciences toward shorter and more rapidly published journal articles. These articles are often only a third the length of a standard paper, often describe only a single study and tend to include smaller data sets. Shorter formats are promoted by many journals, and limits on article length are stringent — in many cases as low as 2,000 words.

This shift is partly a result of the pressure that academics now feel to generate measurable output. According to the cold calculus of “publish or perish,” in which success is often gauged by counting citations, three short articles can be preferable to a single longer one.

But some researchers contend that the trend toward short articles is also better for science. Such “bite size” science, they argue, encourages results to be communicated faster, written more concisely and read by editors and researchers more easily, leading to a more lively exchange of ideas.

In a 2010 article, the psychologist Nick Haslam demonstrated empirically that, when adjusted for length, short articles are cited more frequently than other articles — that is, page for page, they get more bang for the buck. Professor Haslam concluded that short articles seem “more efficient in generating scientific influence” and suggested that journals might consider adopting short-article formats.

We believe, however, there are a number of serious problems with the short-article format.

First, we dispute the importance of Professor Haslam’s finding that short articles get more bang for the buck. Suppose that you conduct two studies, each offering evidence for the same conclusion, and you can opt to publish them either as one long article or as two short ones. Suppose that the scientists who will cite your studies will cite them in either format, either the long article or the pair of shorter articles. Based on citations, each of the three articles would have the same impact, but on a per-page measure, the shorter articles would be more “influential.” But this would reflect only how we measure impact, not a difference in actual substance or influence.

Psychological Science

Essential Findings Can Be Concise

Recently, *Perspectives on Psychological Science* published two critiques of short research reports, by Alison Ledgerwood and Jeffrey Sherman and by Marco Bertamini and Marcus Munafò (Vol. 7, No. 1, 2012). The criticisms were disseminated more widely by a blogger for the *Chronicle of Higher Education* (“Bite-Size Science, False Positives, and Citation Amnesia” by Tom Bartlett, January 3), and an opinion piece in the *New York Times* “Sunday Review” section (January 29).

Both articles castigated the short-report format of *Psychological Science* and other journals for promoting a variety of problems, including an overemphasis on eye-catching findings, selective reporting, and piecemeal publication without theoretical integration.

Science and *Nature*, the world’s two most prestigious and highly-read scientific journals, are exclusively devoted to brief reports of the latest advances in theory and research. We don’t hear many complaints about the articles published in those journals. *Psychological Science* was expressly modeled on them. In fact, for a time, the informal motto at our journal was “We publish the psychology that *Science* doesn’t.”

Frankly, we don’t find anything particularly eye-catching about most of the articles that appear in *Science*. What we do find is an awful lot of first-rate research, concisely reported, with the occasional blockbuster that decodes the human genome or announces a new human ancestor. We would remind critics of short reports that Einstein announced that $E = mc^2$ in an article only three pages long, while Watson and Crick required just 842 words to describe the double-helix structure of DNA.

The critics admit that short articles are cited more frequently than long ones. The reason for this is not, as they suggest, that journals like ours encourage scientists to break their research up into the least publishable unit. The real reason is that the short-report format forces scientists to report only those experiments, and those results, that really matter and to eliminate studies and analyses that amount to little more than dotting *is* and crossing *ts*. Supplemental experiments, analyses, and references that flesh out the main material can be archived online.



The New York Times

Continued

Second, we challenge the idea that shorter articles are easier and quicker to read. This is true enough if you consider a single article, but assuming that there is a fixed number of studies carried out, shorter articles simply mean more articles. And an increase in articles can create more work for editors, reviewers and, perhaps most important, anyone looking to fully research or understand a topic.

Third, we worry that shorter, single-study articles can be poor models of science. Replication is a cornerstone of the scientific method, and in longer papers that present multiple experiments confirming the same result, replication is manifestly on display; this is not always so with short articles. (Indeed the shorter format may discourage replication, since once a study is published its finding loses novelty.) Short articles are also more likely to suffer from “citation amnesia”: because an author has less space to discuss previous relevant work, he often doesn’t do so, which can give the impression that his own finding is more novel than it actually is.

Finally, as we discuss in detail in this month’s issue of the journal *Perspectives on Psychological Science*, we are troubled by the link between small study size and publication bias. Theoretically, if several small studies on a topic, each with its own small data set, are sent to publishers, the overall published results should be equivalent to the results of a single large study on that topic using a complete data set. But according to several “meta-studies” that have been conducted, this is often not the case: rather than the small studies’ converging on the same result as a large study when published, the small studies give a very different result.

The reason is that small studies generate a wide variety of results, and those studies that generate boring results or results contrary to what their authors predicted are either never submitted for publication or rejected. This doesn’t mean that the authors or the journal editors are being dishonest; it just means that they look for significant effects and give priority to novelty. Small studies are inherently unreliable — larger studies or, better still, multiple studies on the same topic, are more likely to give definitive, accurate results.

The rise of bite-size science is worrisome. We urge that editors demand more replication of unexpected findings and that the importance that the academic community gives to quantity of citations be balanced with a greater awareness of potential publication bias.

Until then, bite-size science will be hard to swallow. •

Marco Bertamini, University of Liverpool

Marcus R. Munafò, University of Bristol

Editor’s Note: “The Perils of Bite-Sized Science” was reprinted from *The New York Times*, January, 28, © 2012 *The New York Times*. All rights reserved. Used by permission and protected by the Copyright Laws of the United States. The printing, copying, redistribution, or retransmission of the Material without express written permission is prohibited.

Psychological Science

Continued

The critics confuse the medium with the message, and small studies with short articles. Often, the essential findings of a study involving thousands of subjects can be reported in the same concise format as those of a perception experiment with just 20. It’s for those cases that journals like *Psychological Science* are intended. •

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APS Award Address

Making Goals Count

APS Fellow Gary Latham had many goals when he left graduate school, but returning to academia was not one of them.

"I made the decision that I did not want to be an academic," said Latham in his 2011 James McKeen Cattell Fellow Award Address. "At the time, I wanted to go directly into industry and have a positive effect on the lives of employees."



Mahzarin Banaji (APS President 2010-2011) presents the James McKeen Cattell Fellow Award to Gary Latham.

Many years later, Latham is what he never predicted he would be — an academic at the University of Toronto. But before returning to the ivory tower, Latham spent decades as a staff psychologist in industry, and at the 23rd APS Annual Convention, Latham gave attendees a "bird's-eye perspective" of the practical theories he developed over his many decades of field work.

One of the theories Latham is most proud of, and best known for, is goal-setting theory. Latham developed the theory with Edwin Locke (who received the James McKeen Cattell Fellow Award in 2005) in the late 1960s. The gist of the theory, said Latham, is that a specific high-level goal leads to higher performance than no goal or an abstract goal such as encouraging people to try hard.

"Goals affect choice, goals affect effort," said Latham. "If you have a high goal you're going after, it stimulates the pursuit of strategies."

Some of the first evidence to support their theory came from a study Latham conducted with loggers. He found that loggers who were given a specific number of trees they had to chop down performed better than loggers who were just told to do their best. Latham said goals likely led to improved performance because "the goals turned an otherwise meaningless task into a game."

Latham's later studies examined the connection between goals and employees' motivation. He found that how the goals are determined makes a difference in performance. When employees had the chance to participate in setting goals, they performed better than when goals were assigned to them or they were given no goals at all. People in the participative condition also set significantly higher goals. Yet, Latham also found that assigned goals were just as effective as participative goals when employees were provided the rationale behind the assigned goals.

Though a good portion of Latham's research revolves around goal setting, he has also explored other behavioral aspects of work environments. He tackled the ubiquitous performance review, developing a tool called the *behavioral observation scale* so that employers could evaluate employees based on specific desirable behaviors, rather than general traits such as being a "self-starter."

When he was assigned to help hire employees for a saw mill in St. Louis, MO, Latham got a chance to work on improving hiring processes. While sitting in the airport on his way to St. Louis, drink in hand, Latham came up with a new approach for interviewing employees.

"Suddenly it came to me," said Latham. "The behavioral observation scales are derived from a job analysis procedure called the critical incident technique...and goals are the immediate regulator of behavior. So I went wow, suppose we pose a situation and we simply said, 'Here's the situation, what are you going to do?'"

The result was an evidence-based interview strategy called the *situational interview* in which potential employees are asked how they would act during specific work situations. Then their answers are scored based on a Likert-type scale that reflects the values of the hiring organization.

"Intentions or goals predict behavior," said Latham. "If you can figure out what their intentions are, you've got a high likelihood of being able to predict how they are going to do on the job."

Latham may not have intended to become an academic when he left graduate school, but even when he was working in industry, one thing that tied all of his various projects together is that they were based on strong theories.

"Nothing is as practical as a good theory," said Latham. "Because it's theory that helps you develop a framework for what you want to do."

And nothing helps scientists set their own goals better than a good theory. ●

—Meagen Voss

Advancing New Frontiers with *Clinical Psychological Science*

Founding *Clinical Psychological Science* Editor Alan E. Kazdin is the John M. Musser Professor of Psychology and Child Psychiatry at Yale University and Director of the Yale Parenting Center, a clinical-research service for children and families. He received his PhD in Clinical Psychology from Northwestern University (Evanston, Illinois).

Kazdin is a world-renowned researcher and methodologist who has developed, rigorously tested, and implemented effective cognitive-behavioral treatments, including parent-management training and problem-solving skills training, for children

with severe aggressive and antisocial behavior. He has provided a model for how to implement high-quality, programmatic treatment research that examines moderators and mediators of change, as well as core issues of treatment efficacy, breadth of impact at home and in school, and factors such as parent psychopathology, stress, and perceived barriers in treatment

KAZDIN INTERVIEW continued on Page 17



Founding Editor Alan E. Kazdin



The Association for Psychological Science has launched a new journal, *Clinical Psychological Science* (CPS), to publish advances in clinical science and provide a venue for cutting-edge research across a wide range of conceptual views, approaches, and topics. The journal encompasses core domains that define clinical psychological science, but also developments from all disciplines and areas of science that enhance our understanding of clinical dysfunction broadly conceived. For example, among the key topics of the journal are underlying mechanisms and etiologies of psychological health and dysfunction; basic and applied work on the diagnosis, assessment, treatment, and prevention of mental illness; service delivery; and promotion of well-being. Many disciplines connect with these topics and are welcome in the journal.

CPS takes a unique role among journals in clinical psychology. First, the journal presents the best science from all domains of clinical psychological science. This is different from many journals that divide the field by domain, subtopic, or conceptual view about the nature of dysfunction or interventions (e.g., abnormal psychology, addictions, violence, personality disorders, family psychology, and psychotherapies of various persuasions, to mention a few). Specialization has its obvious advantages, but bears a price of fractionation of our field. Some might ask,

Meet the *Clinical Psychological Science* Associate Editors



Tyrone D. Cannon

APS Fellow Tyrone D. Cannon is the Staglin Family Professor of Psychology and Psychiatry and Biobehavioral Sciences at University of California Los Angeles (UCLA), as well as Director of the Staglin Center for Cognitive Neuroscience. Since receiving his PhD from the University of Southern California in 1990, Cannon has been investigating the causes of schizophrenia and bipolar disorder and

developing early detection and prevention strategies based on understanding the genetic and neural mechanisms that give rise to these disorders.



Emily A. Holmes

Emily A. Holmes is a professor of clinical psychology at the University of Oxford in the United Kingdom. She leads the research team on Experimental Psychopathology and Cognitive Therapies. Holmes has been a practicing clinician since she earned her doctorate in clinical psychology from the University of London in 2000. She earned a PhD in cognitive neuroscience from the University of

Cambridge in 2005. Holmes has focused on developing empirically driven innovations in cognitive therapies for trauma memory, depression, and bipolar disorder.

“Where would be the one place to see the latest research from the many areas of clinical psychology?” *CPS* was conceived to answer the question.

Second, connecting clinical psychology to core topics of the larger field is strongly encouraged by the journal. The field of clinical psychological science draws on key models, paradigms, and findings from other areas of psychology. Cognitive and social neuroscience, memory, attention, perception, emotion, decision making, and choice — all topics of psychological science with strong traditions and research — can inform and elaborate clinical phenomena (e.g., schizophrenia, autism, domestic violence, and trauma).

Third, the journal draws from the many disciplines that inform and can be informed by clinical psychological science. Among the relevant domains are psychiatry, neuroscience, epidemiology and public health, and genetics and epigenetics. Advances in science include, among other things, recognition of the interdependencies of fields as specific phenomena (e.g., health, psychopathology) are more finely studied. These interdependencies are reflected in core topics of the journal, such as the underpinnings of mental health, psychological precursors of physical health, and biological precursors of mental disorders, as well as shared methodologies (e.g., neuroimaging techniques) that often bring together collaborators from diverse fields.

Fourth, the journal is keenly interested in clinical psychological science world-wide. Nationality, culture, and ethnicity are rich moderators in need both of theory- and hypothesis-driven research to inform our understanding of clinical functioning and its many manifestations. Further, collaborative work in the sciences spans many boundaries, including national boundaries, and the accelerated development of science in many nations means that advances are coming from several quarters, not just a small set of countries. At the same time, there is increased recognition that psychological dysfunction plays a critical role in the health, welfare, and care of citizens of the world and

relates directly to other issues of national and international concern (e.g., economic disadvantage, natural disasters, war). These influences argue for recognition and fostering of clinical psychological science from a global perspective.

Substantive Focus of the Articles

I have conveyed that the journal is open to the range of topics within clinical psychology and from other disciplines that study and inform clinical dysfunction. The range of topics is broader than most journals can consider. For example, *CPS* is quite interested in:

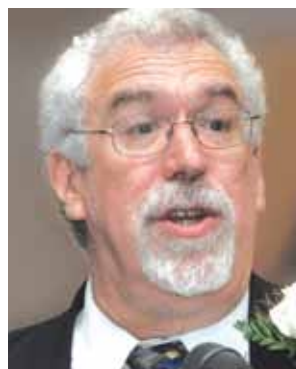
- Translational articles that help move from basic research to application or point the concrete paths through which that could be accomplished;
- Research using animal models that has clear and direct implications for understanding mechanisms underlying development of clinical dysfunction and its prevention or amelioration;
- Research on novel preventive and treatment interventions and models of delivering them to the large swaths of individuals in need of services;
- Investigations using diverse methodologies (e.g., novel statistical models, qualitative studies, single-case designs) that reveal or elaborate phenomena in new ways;
- Mathematical, computer, and computational models that can place clinical psychological phenomena in a new light and that enhance empirical research; and
- Theory-driven research that recasts important phenomena in novel ways and that tests predictions to show what we have gained from the theory.

It is useful to focus on the broader notion these examples reflect; namely, the journal is keen on publishing research that advances the field, is of broad interest to clinical researchers, and reflects if not sets the standards for clinical psychological science. By the very nature of this work, we cannot identify all of the domains ahead of time.



Jill M. Hooley

APS Fellow and Charter Member Jill M. Hooley is a professor of psychology at Harvard University as well as the head of the experimental psychopathology and clinical psychology program. Since receiving her doctorate in 1985 from the University of Oxford, Hooley has investigated the psychosocial predictors of psychiatric relapse in patients with severe mental disorders, including schizophrenia and depression.



Kenneth J. Sher

APS Fellow Kenneth J. Sher is the Curators' Distinguished Professor in the Department of Psychological Sciences at the University of Missouri. Sher earned his PhD in clinical psychology from Indiana University, Bloomington in 1981. He is best known for his investigation of individual differences in the effects of alcoholism, risk/protection mechanisms associated with intergenerational transmission of alcoholism, psychiatric comorbidity, developmental aspects of substance dependence, and longitudinal research methodology.

Types of Articles

The journal is intended to emphasize empirical research, although both empirical studies and reviews are welcome. We plan to publish the following types of articles:

- *Empirical articles* (12,000-word maximum, inclusive of front and back matter, plus a combination of up to four tables and figures in total)
- *Brief empirical reports* (5,000-word maximum, inclusive of front and back matter, plus a combination of up to two tables and figures in total)
- *Theoretical, review, or methodological articles*, (17,000-word maximum, inclusive of front and back matter; plus a combination of up to five tables and figures in total) that clearly provide an advance beyond encapsulating the current status of a given literature, that are likely to have broad appeal, and that are not readily accommodated by review journals.

- *Short communications and commentaries* (3,500-word maximum, inclusive of front and back matter, plus one table or figure) that cast multiple perspectives and conceptual views that might advance research or recast findings in a given area of clinical research. Although most of these will be invited, they may be submitted in response to an article.

Review Process and Article Selection

The review process is slightly different from that of many other journals, in keeping with the overall mission. The review process has two tiers. The submission will be evaluated by the editors to determine whether the manuscript will be sent out for review. If one of two editors (editor and an associate editor) views the submission as constituting a potentially important contribu-

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* As of February 17, 2012.

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that predict participation, adherence, and therapeutic change. In a field that has a history of flashy treatments that have proven to be failures, Kazdin has used carefully designed experimental methodology to show the effectiveness of his treatment protocols. As a leader in the field of clinical methodology, Kazdin has been an advocate for expanding the range of methods we

use in psychological research, as reflected in his influential texts on research designs in clinical psychology. He has also been an articulate proponent for how research methods can be used in clinical practice as well as a central influence on how to develop and synthesize the evidence needed to identify evidence-based treatments.

A prolific and distinguished scholar, Kazdin has approximately 700 publications, was editor of five journals prior

to *CPS*, and was the recipient of the 2010 James McKeen Cattell Fellow Award from APS and the 2011 Distinguished Scientific Achievement Award for the Application of Psychology from the American Psychological Association, along with many other grant awards and honors. Kazdin has advanced the application of psychological science throughout his career and is considered to be among the highest-impact psychologists of any era.

Kazdin shared some thoughts with the *Observer* about APS's newest journal.

Why is this the right time to start this new journal?

Beginning a new journal in clinical psychological science is timely for several reasons related to changes in science itself — how research is done, by whom, and where. *Clinical Psychological Science (CPS)* is part of an effort to accommodate these changes. First, clinical psychological science and its many publication outlets are fractionated into specialties and subspecialties (types of disorders, personality, treatment or prevention, subtypes of addiction, and so on). Specialization has its virtues, but we recognize that several phenomena span many specialty areas and that at some point, integration is just as important as specialization. For example, interpersonal violence and stress are two topics well within the domain of clinical psychological science. Research on either topic can focus on underlying processes leading to clinical dysfunction;

on risk and resilience; on treatment, prevention, and rehabilitation; or on multiple mental and physical health consequences. Understanding these and other clinical phenomena requires integration of diverse perspectives and lines of inquiry. *CPS* publishes work from all the specialty areas of clinical psychological science, but like few other journals, it is keenly interested in understanding phenomena from diverse perspectives that usually could not be accommodated in a single outlet.

Second, enormous advances in core areas of psychological science (e.g., cognitive neuroscience, emotion, learning, perception) often elaborate processes and mechanisms directly related to clinical phenomena. For example, our understanding of disorders will increasingly stem from basic psychological processes on emotion and emotional processing that help explain broader in areas of functioning in daily life. *CPS* provides an integrative home for such work to convey the full range of psychological research that informs clinical phenomena.

Third, science is increasingly multidisciplinary and collaborative. The needed expertise in conceptual models, methodological tools, and data analyses rarely emanates from a single lab or group. For example, understanding mechanisms that foster clinical dysfunction and its amelioration requires multiple levels of analysis and methodologies to elaborate core processes. Among the barriers to such research is a lack of suitable publication outlets explicitly committed to such collaborations. *CPS* recognizes that multiple disciplines are required to advance knowledge on topics that we might once have considered an exclusive or relatively exclusive domain.

Fourth, the other APS journals have established well-recognized standards for high-quality research and substantive advances. Along with our sister journals, we too seek the best of science. The successes of the APS journals and the changes in science on which I have touched make this an opportune time to expand the reach of the journal program to develop and help define clinical psychological science.

How do you think CPS will reflect what is happening in the field of clinical psychological science?

What is happening in clinical psychological science has a larger and more diverse stage than ever before. Science is accelerating in many countries because research not only helps drive economic advances but also addresses critical social and personal issues (e.g., engaging in healthful life-style practices, promoting environmentally sustainable behaviors, adhering to medication regimens). Globalization characterizes many fields, including clinical psychological science, and many core topics in our field have captured global attention — global initiatives to address mental health, drug addiction, and cigarette smoking for example. We seek to elaborate clinical phenomena with the best empirical research free from geographical and disciplinary boundaries.

CPS is interested in *reflecting* what is happening in the field and in related disciplines that speak to clinical psychological

topics. At the same time, the journal is interested in *guiding* the field ever so gently. The journal itself ought not to have any substantive or content agenda, but could take a role in accelerating advances by fostering dialogue that sparks new lines of work, new collaborations, or breakthroughs. What is happening reflects where we are at the moment. Perhaps with *CPS* we can advance empirical research by considering priority areas that will enhance progress for the future.

Clinical Psychological Science is not just the name of the journal. I see it as a term that can help define a field; a field that is not clinical psychology as it was traditionally conceived, but rather a field that encompasses the full range of clinical theory, research, and practice.

What do you hope to accomplish as Founding Editor?

As Founding Editor, I have three major goals. First, those who conceived the idea of the journal had a vision of developing it to reflect the highest standards of relevance and rigor, to reflect multiple disciplines that connect with clinical psychological science, and to be open to conceptual and methodological diversity. I enthusiastically embrace the wisdom of their view and, with the help of others, seek to implement that vision.

Second, a Founding Editor ought to assemble a leadership team that exemplifies key features of the journal's goal and standards. I have been extremely fortunate to have enlisted Associate Editors who not only share the vision but have made remarkable theoretical and empirical contributions. The works of Tyrone D. Cannon (University of California, Los Angeles), Emily A. Holmes (University of Oxford), Jill M. Hooley (Harvard University), and Kenneth J. Sher (University of Missouri) demonstrate the standards we intend to set for *CPS*. We have also recruited a distinguished group of Consulting Editors, whose scholarly records traverse diverse disciplines and whose areas of expertise reflect the mission of the journal.

Third, the mission of the journal is novel, and I hope to convey that as the journal begins. We wish to capture the best science worldwide, and that requires reaching out in ways that are quite different from other journals. One can be open for business but still have no customers. As Founding Editor, I hope to communicate with leading researchers throughout the world about the mission and our interest in reflecting the best science worldwide.

Moving from vision to action and from laudatory intentions to implementation is challenging. We are founding not merely a journal but a new way to conceptualize clinical psychological science and the domains that will elaborate key topics. Implementation of our goals will require a stellar set of collaborators in both the Associate and Consulting Editor positions. I believe we have that now. Even so, the position is not worry free. It is such a small change to move from Founding Editor to Floundering Editor. A final hope of course is to not allow that to happen.

How do you think *CPS* will shape the field?

Clinical Psychological Science is not just the name of the journal. I see it as a term that can help define a field; a field that is not clinical psychology as it was traditionally conceived, but rather a field that encompasses the full range of clinical theory, research, and practice. For example, in clinical science, we wish to understand traditional topics within clinical psychology (e.g., trauma, schizophrenia, the nature of spectrum disorders, prevention of teen smoking, disparities of mental health). Clinical psychological science goes beyond the topics by asking what disciplines could possibly inform them. The list is long and includes public health, psychiatry, law, neuroscience, and molecular and cellular biology, among other fields. The goal of *CPS* is to deepen our understanding of critical topics, and diverse conceptual and empirical approaches from various disciplines can help tremendously. Types of research — molecular and molar, basic and applied, non-human and human animal studies, and small-scale to international-scale studies — can all contribute to the common goal of understanding these clinical topics and defining clinical psychological science.

We can also shape the field by being open to diverse methodologies. For example, intervention researchers are fond of noting that randomized controlled trials are the “gold standard.” This characterization has moved in some quarters from the gold standard to the only standard. *CPS* is quite interested in randomized trials. There are multiple methodologies, however, and a broad lesson from science is that different methods, ways of observing, and ways of collecting data can contribute greatly and in different ways to our understanding (e.g., NASA's Great Observatories program). We seek to advance clinical psychological science, and diversity of methodological approaches (e.g., qualitative research, single-case designs, and well-controlled non-randomized designs using advanced statistical controls) is quite relevant to that pursuit.

Finally, we can shape the field by encouraging, by being open to, and by seeking the involvement of many scientists. We are interested in publishing the best empirical research available and in helping the field move toward needed but not-yet-available research. It is a privilege to be part of an organization and editorial team committed to these goals. ●

MARCH METHODS ADDRESS

This issue of the *Observer* features a number of articles on methodological innovations, ranging from the measurement phase to the data-analytic phase, offering a glimpse at some of the problems psychological scientists are currently working on and the ways in which they try to tackle them. Time will tell whether these innovations will prove to be invaluable contributions, or whether they will only be of interest to a small community of researchers. Either way, new methods are essential for psychological science, as they have the potential to change the way research is conducted in particular fields and may even change the way we think about certain psychological phenomena.

-Ellen Hamaker

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Do We Need More Methods?

By Ellen Hamaker

Let's be honest: Methods and statistics are not the average student's favorite aspects of psychological science. Many graduate and undergraduate students seem to hold the viewpoint that courses in methods and statistics are a necessary evil, a rite of passage needed to obtain an MA or a PhD.



Ellen Hamaker

As a researcher and teacher in the field of methods and statistics, I wish this would be different, but the fact is that most psychology students are much more interested in what goes on in the brain, in therapy, or in relationships, than in mastering the tools needed to actually figure out what is going on.

These students may be surprised to learn that there are many more methods than the ones they are being taught, and that new methods are being developed *every day*. These developments pertain to either the *measurement phase* of research or the *data-analytic phase* of research. Innovations for the measurement phase — such as new methods for measuring or manipulating psychological constructs — are typically developed by substantive researchers as part of their specialization. Due to the nature of these innovations, their purpose and utility are often easily recognized, especially by potential users who come from the same field as the developer, such that there is relatively little discussion about the need for new methods (although the need for a particular new method may be debated). Data-analytic innovations, however, are typically developed by psychometricians (including applied statisticians and quantitative psychologists) who specialize in techniques for the analysis of psychological data. Because statistics and other data-analytic innovations are often highly technical, the need for these new methods may be much less apparent to the average scientist, often leading them to ask, do we really need more data-analytical methods?

The short answer to this question is: “Yes, we do.” To elaborate, there are at least three reasons we continue to need new and different data-analytical methods in psychological science. First, while the value of traditional statistical methods, such as ANOVA and regression analysis, is beyond any doubt, these techniques are not appropriate for handling *every* interesting

question that may arise in psychological science. In my own field of expertise, there is an ongoing debate regarding the value of *between-person results* when the interest is in *within-person processes*. For instance, if we want to know whether increases in stress lead to increases in negative affect at the process level (i.e., within an individual over time), how informative is it to know that people who reported more stress than did others are also reporting more negative affect? Although it has been shown time and again that the relationship between variables may differ across levels (Hamaker, 2012), the omission of cross-level generalizations is easily made and occurs all too often. Another example is the continuing debate between those who favor the frequentist approach to statistics (i.e., frequentists) and those who favor the Bayesian approach (i.e., Bayesians). Many Bayesian supporters claim that a Bayesian approach allows researchers to answer the *actual questions* we have (e.g., “Based on the observed data, can we conclude the manipulation had an effect?”), rather than questions that are *related but far from identical* to the actual questions (e.g., “Are these data, or more extreme data, likely to occur if the manipulation did not have an effect?”; see Wagenmakers, 2007). Due to recent technological developments, Bayesian alternatives are now being incorporated in mainstream software packages, such that more psychological researchers are confronted with this possibility. To be able to make an informed decision about whether or not to use these alternatives, researchers need to familiarize themselves at least to some extent with the arguments used by Bayesians and frequentists.

Second, when new methods of data collection are being developed, new forms of data arise that ultimately require new data analytical methods. An obvious example of this trend is the data that result from fMRI studies: The number of measurements — both in space and time — are huge and incomparable to the forms of data that psychological scientists encountered before. How to correctly handle such data has led to considerable debate (see, for instance, the many responses triggered by Vul, Harris, Winkielman & Pashler, 2009). Another example is the data obtained with experience sampling methods (ESM), which involve participants filling out questionnaires at random time points throughout the day to measure processes in real time. Such data are characterized by a relative high frequency, unequal intervals, sequential dependency, and circadian rhythms, and each of these characteristics may require specific attention when handling these data. A pragmatic approach to these new forms of data is to aggregate them over time and/or space so that they become more like our “traditional” data and allow us to use traditional methods. However, not only does aggregation lead to the elimination of a lot of valuable information, it also requires one to make decisions on *how* to aggregate. Suppose that a researcher's interest is the individual differences in vari-

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ability of affect in ESM data. An obvious measure to quantify variability would be the within-person variance, but one can also use mean squared successive differences (MSSD), which capture moment-to-moment variability (Jahng, Wood, & Trull, 2008). Clearly, these two summary measures represent different features of within-person variability, and it depends on the specific question at hand which measure is more appropriate.

Third, the development of new methods may also guide the formulation of new questions that we would not have been able to think of before. For instance, multilevel analysis was primarily developed to handle the dependencies in nested data. However, the fact that all kinds of effects may be random and may be related to each other or be predictable from other person/cluster characteristics has added an entirely new perspective to many research areas. One way in which this is currently being explored is in affect regulation research, in which it has been shown that the strength by which current affect depends on preceding affect (e.g., previous day, hour, or second) differs across individuals, and is related to individuals' levels of neuroticism, depressiveness, and self-esteem (e.g., Kuppens, Allen, & Sheeber, 2010). This approach is providing exciting new insights in regulatory processes and maladaptive forms of coping.

If we acknowledge the continuing need for new data-analytical methods, the question is: How should a psychological scientist — who is already juggling teaching, management, and substantive research obligations — balance his or her resources between developing and exploring new data-analytical methods, and applying tried and established ones? Clearly, it would be unreasonable to expect a researcher to be an expert on his/her particular topic as well as to be aware of all the ins and outs of methods and statistics, including how to develop and evaluate new techniques.

The solution to this problem is to organize knowledge by investing in a solid and creative force of well-trained psychometricians who develop and evaluate new data-analytical methods and communicate their findings to potential users in an ongoing discourse. One way to contribute to this solution is by having a number of psychometricians within each psychology department, who not only teach methods and statistics but who are also engaged in innovative research. Having such a group in each department ensures that there are regular contributions to psychometric developments and allows students with an interest in and talent for methods and statistics to be trained and encouraged to pursue a career in this area.

Furthermore, both psychometricians and substantive psychological researchers should invest in a dialogue to bridge the gap between theory and practice. This really should be a mutual

endeavor in which both parties bring their specific expertise to the table and develop a language to communicate about the subject matter. Ideally, psychometricians should be closely involved in *all* research lines that are conducted in a psychology department, and they should be involved *at every stage* (rather than just at the beginning to do some power calculations for a grant application or at the end to do some post-hoc consultation once all the data have been gathered). That way, psychological scientists — and psychological science — can benefit maximally from the unique and valuable expertise of psychometricians, and psychometricians

will be well-informed on the specific problems that substantive researchers would like to see solved.

Finally — and this may sound a little patronizing — it is important for psychological scientists to regularly take courses and workshops on methods and statistics in order to keep their knowledge up to date and to familiarize themselves with new developments. (Note that the workshops offered by APS at the annual convention are an excellent way to get introduced

to diverse specialized methods.) Clearly, one does not need to jump on every bandwagon that comes along, but when certain innovations have been around for a while and have proven their utility in a specific area, researchers should be given (and should take!) the opportunity to master them. Whether you love methods and statistics, or dread them, it is important to acknowledge that there are too many developments in this area to assume that the few courses taken to obtain one's PhD will be enough for the rest of one's scientific career. And besides, as I tell my students, methods and statistics are like olives: Most of us do not like them initially, but they can certainly grow on you. ●

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Network Analysis: Bringing Psychological Science Together

By Denny Borsboom

Do you remember when you first kissed? Probably. I am pretty sure you can't think about it without feeling something. Maybe you're reliving the joy of it, or the awkwardness, or the excitement. It's possible that, in addition, my question will trigger some behavioral response on your part. Perhaps you'll talk about it with your spouse when you get home from work. If your spouse happens to be the person you first kissed, you may together recall the event with a smile. Alternatively, my question may painfully expose that whatever you shared isn't there anymore. I certainly don't intend to, but given the large audience of this brief essay, I cannot exclude the possibility that this innocuous introduction is causing a breakup somewhere.

Out of methodological necessity, we have often studied psychological processes in isolation; but outside our labs, almost everything is somehow connected to almost everything else.

There is an important message here, namely that the human system features an extremely high level of connectivity between what we may — for lack of a better term — consider to be its “components”: thoughts, feelings, actions, social relations, etc. This idea has been a major source of tension in psychological science. Out of methodological necessity, we have often studied psychological processes in isolation; but outside our labs, almost everything is somehow connected to almost everything else. Psychological scientists have been very successful in tearing the human system apart and assessing how each part functions in isolation. But they have not been very successful at putting the system back together again.

The problem has often been noted, usually in tandem with calls for interdisciplinary integration and holistic approaches. Such calls have invariably been sterile, simply because they were not accompanied by a workable methodology. And without method, there can be no science. This methodologi-

cal void, however, is quickly being eliminated in current research on complex systems and large networks. Under the rubric of network analysis, we now have a significant range of systematic, exact, and scientifically respectable methods that allow researchers to study large systems of interconnected components.

So what are networks? A network is just a set of entities that are connected through relations. Both the entities and the relations can basically be anything. For instance, by simply mapping who eats who, one can construct a food web of animal species; by noting which website refers to which other website, one represents the structure of internet connectivity; by noting which symptoms belong to the same *DSM-IV* disorder, one can determine the structure of the diagnostic system. In each of these cases, entities (species, websites, symptoms) are connected to each other whenever they stand in a given relation (eating each other, referring to each other, being part of the same disorder). When I first learned about the ways these networks are studied, I was excited by the simplicity of the basic material. You can just open an Excel sheet, create a row and a column for each entity, think up an interesting relation between them, jot down one whenever the row and column entity stand in this particular relation, and off you go!

Once you have a matrix that represents the relations between entities, you can feed that to any of a number of free software platforms to represent the network visually. Figure 1 shows such a network for the *DSM-IV* example (for details, see Borsboom, Cramer, Schmittmann, Epskamp, & Waldorp, 2011). Often, simply visualizing the network is insightful in itself. For instance, one immediately notices the big connected component in the *DSM*-network, which involves almost 50 percent of the symptoms. This result means that many *DSM-IV* disorders are directly or indirectly connected through the pattern of symptom overlap in the diagnostic system. We have recently developed freely available software to construct similar network visualizations using correlations between variables (Epskamp, Cramer, Waldorp, Schmittmann, & Borsboom, 2011).



Denny Borsboom

Ingmar Visser

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Going beyond the visualization, one can study, assess, and analyze networks. For instance, how *large* is a network? How heavily *connected* is it? What is the *structure* of the connectivity? Which of the entities in the network is most *central*? Network analysis offers concepts

and computational tools to answer these questions. For instance, in the *DSM-IV* network, the most prevalent mental disorder (depression) is located dead in the middle of the big clustering component. The most central individual

...one can imagine charting the network structure of an individual person, for instance by representing how components like sleep, fatigue, concentration problems, and social support affect each other over time.

symptom is “insomnia.” Newman (2010) offers a good overview of measures and methods for answering questions of network structure, and Kolaczyk (2009) presents an excellent overview of statistical analyses appropriate to network structures.

In addition to visualizing networks and studying their structure, one can think about dynamics in new ways. For instance, considering the *DSM-IV* symptoms of insomnia, fatigue, and hypersomnia, there are clear dynamic dependencies: if you don't get sleep over a longer period, you will get tired (insomnia → fatigue); but if for some reason you are tired all the time, you will tend to sleep more (fatigue → hypersomnia). So there is a danger of “infection” between these symptoms that creates an intricate pattern of interdependence that (in normal circumstances) has a stable equilibrium that we consider “healthy.” But how does a system with these properties evolve over time? How can it be disturbed, and if it is disturbed, what is the most

efficient way of restoring balance? To study such questions, one can use both analytical and simulation methods. Scheffer (2009) offers an accessible introduction in the analysis of dynamical networks, and the NetLogo simulation environment contains a number of simulation methods for network models (<http://ccl.northwestern.edu/netlogo/>).

Finally, one can imagine charting the network structure of an individual person, for instance by representing how components like sleep, fatigue, concentration problems, and social support affect each other over time. This approach creates an entirely new way of thinking about what makes individual people tick. Individual networks could be highly idiosyncratic, in the sense that important components of your psychological ‘economy’ may be irrelevant or even absent in mine. We might need to represent the memory of your first kiss in modeling your mood structure, but for modeling mine, it might be utterly dispensable. ●

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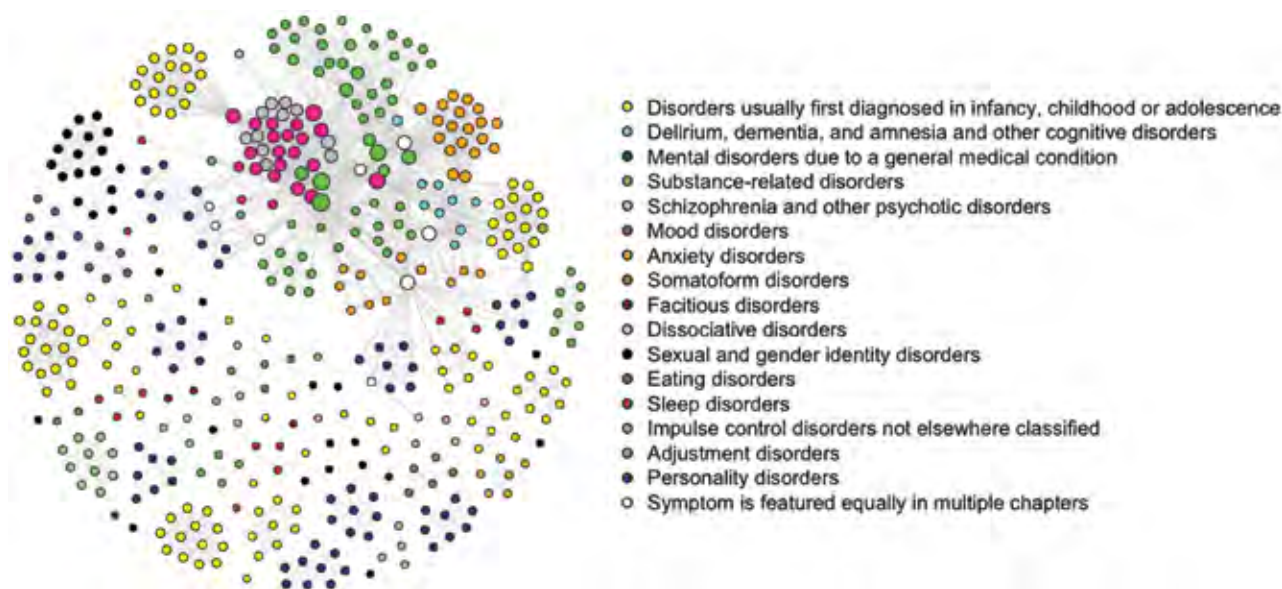


Figure 1. The structure of the *DSM-IV*. Every *DSM-IV* symptom is represented as a node. Symptoms are connected by an edge whenever they are criteria in the same disorder. The color of nodes represents the *DSM-IV* chapter in which they occur most often.

Psychological Science Needs A Seat at the Informatics Table

By Tal Yarkoni

Scientific progress depends on our ability to harness and apply modern information technology. Many advances in the biological and social sciences now emerge directly from advances in the large-scale acquisition, management, and

synthesis of scientific data. The application of information technology to science isn't just a happy accident; it's also a field in its own right — one commonly referred to as *informatics*. Prefix that term with a Greek root or two and you get other terms like *bioinformatics*, *neuroinformatics*, and *ecoinformatics* — all well-established fields responsible for many of the most exciting recent discoveries in their parent disciplines.

Curiously, following the same convention also gives us a field called *psychoinformatics* — which, if you believe Google, doesn't exist at all (a search for the term returns only 500 hits as of this

writing; Figure 1). The discrepancy is surprising, because labels aside, it's clear that psychological scientists are already harnessing information technology in powerful and creative ways — often reshaping the very way we collect, organize, and synthesize our data. Take the very notion of a psychological science “lab.” It used to imply a physical space in which researchers collect data from human participants; yet there are now many psychological scientists who rarely conduct conventional lab-based studies and instead rely on Web-based samples. And why not? As several studies have shown, online samples are typically more diverse, larger, and cheaper to acquire than university samples. While there are many things one can't do online (e.g., shock people or scan their brains), the availability of an effectively limitless userbase has fundamentally altered the data collection landscape in many areas of psychological science.

Or consider the way our increasingly networked lives offer unprecedented opportunities for psychological investigation. In the simple act of living, many of us generate a continuous stream of information: We text our friends, track our locations with GPS, upload pictures of our activities, and stream music and movies through the air. Thanks to modern technology,

much of this information persists indefinitely in our Gmail, Facebook, and Netflix accounts. And psychological scientists are discovering that the mundane residue of our everyday lives makes extraordinary data. Recent studies have harnessed data from online services to study the structure of social networks, the way personality shapes bloggers' writing, and the evolution of people's mood over the course of the day, to name just a few applications. Such efforts are undoubtedly just scratching the surface; an unprecedented wealth of data on people's activities, relationships, thoughts, and feelings is increasingly available to us for research purposes — if we just know where and how to look.

Then there's mobile technology. We're told there's an app for everything, and psychological science is no exception. In the past few years, we've seen psychological scientists use mobile phones to study everything from daydreaming to

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visual word recognition. Ironically, new mobile technologies are already rendering slightly less new technologies obsolete. A few years ago, Matthias Mehl and colleagues at the University of Arizona developed an innovative recording device called the EAR (Electronically Activated Recorder). People wear the EAR while they're out and about, and the device periodically records audio snippets of their daily lives. As a long string of publications attests, data from the EAR has taught us some very interesting things about what people do when they're not in the lab. Yet the EAR is arguably already obsolete — deprecated in favor of the iEAR, an iPhone app that does exactly the same thing, but runs on hardware many people already own. This trend underscores the growing role of passive data collection in psychological science: People are already generating masses of data voluntarily and effortlessly, so why not put it to good use?

Of course, no matter how we obtain our data, we still need to synthesize it into a meaningful form. And here again, psychological scientists can benefit from approaches pioneered in other informatics disciplines. For instance, much of bioinformatics has focused on developing databases and software for large-scale



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genomic data mining. Admittedly, psychological data aren't as structured as genetic data; we can't yet sequence mental states using just four DNA bases. Nonetheless, there are plenty of opportunities for more modest applications. For example, my colleagues and I recently developed a platform called Neurosynth (<http://neurosynth.org>; Yarkoni et al., 2011) that uses data reported in thousands of published neuroimaging articles to automatically generate fMRI meta-analyses and "decode" mental states from patterns of brain activity. From a technical standpoint, our work offers little in the way of innovation; the text mining and machine learning techniques we used have been around for decades. But by

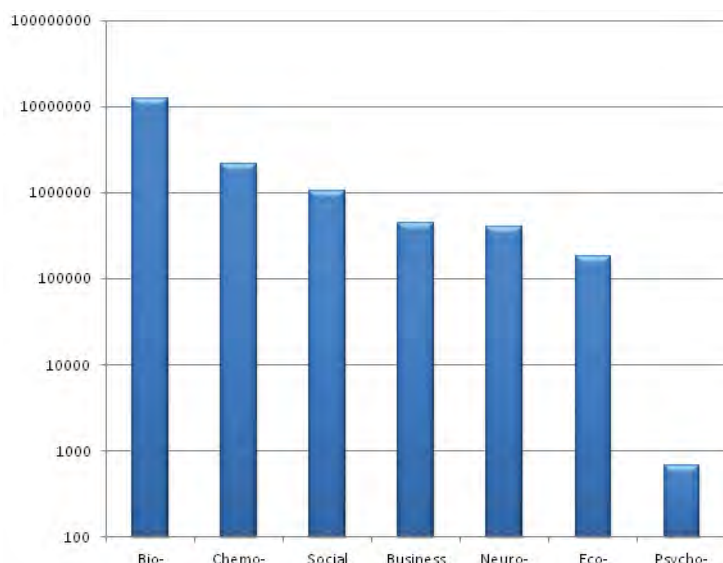


Figure 1. Number of Google search hits for informatics-related terms, by prefix.

applying old techniques to a new domain, we were able to develop tools that offer neuroimaging researchers new insights into brain and cognitive function. A similar approach could potentially help address problems in many other areas of psychological science.

Lastly, an increased emphasis on technological applications could help improve procedural aspects of psychological science research. As a number of commentators have recently pointed out in APS journals, psychological science, like any

science, is an imperfect enterprise. Replication is under-emphasized, reporting standards can be lax, and peer review can be unreliable. There's a tremendous opportunity to develop tools and platforms that can help address such problems. One promising recent example is PsychFileDrawer (<http://psychfiledrawer.org>), an online archive of replication attempts in experimental psychology. Further down the road, one can envision a broad range of applications — for example, automated quality-control algorithms that detect patterns suggestive of publication bias (e.g., too many p values just below $p < .05$ in a researcher's published output), new publishing models that emphasize post- rather than pre-publication review, or text mining tools that automatically identify unexpected relationships between findings in different areas of psychology.

Importantly, our collective ability to develop platforms that take on the challenges and opportunities discussed above will require us to train researchers with skill sets that cut across traditional disciplinary boundaries. These researchers — call them psychoinformaticians — will have a strong grounding both in substantive psychological science and in relevant areas of the information and computer sciences. They'll build platforms to acquire and mine rich new datasets on an unprecedented scale. They'll develop tools for efficiently exploring and synthesizing huge amounts of information while minimizing the opportunity for human bias. And they'll come up with new ways of reporting and disseminating psychological findings to other scientists and to the public at large. If the trajectory of fields like biology and neuroscience is any guide, such developments will pay enormous dividends. We should embrace the emergence of psychoinformatics as a full-fledged discipline and work to ensure that psychological science remains a vibrant, forward-looking field, ready to benefit from technological advances as soon as they emerge. ●

We should embrace the emergence of psychoinformatics as a full-fledged discipline and work to ensure that psychological science remains a vibrant, forward-looking field...

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Intramural Research and Virtual Reality at the NIH

By Susan Persky

Most psychological scientists are well aware of the National Institutes of Health's (NIH) role as a major grant funding institution, but few know the details of the major research effort that goes on within its walls. The NIH Intramural Research Program directly employs and funds thousands of scientists and fellows to conduct research that contributes to health enhancement and disease reduction. Psychological and behavioral scientists are among these intramural researchers; they are distributed across several of the 27 institutes and centers that comprise the NIH.

The Social and Behavioral Research Branch (SBRB), part of the National Human Genome Research Institute, has one of the largest intramural behavioral-science research programs within the NIH. The branch is comprised of six faculty members, several pre- and post-doctoral fellows, and professional research staff. Some have backgrounds in psychological science, while others have backgrounds in disciplines such as epidemiology, public health, public poli-

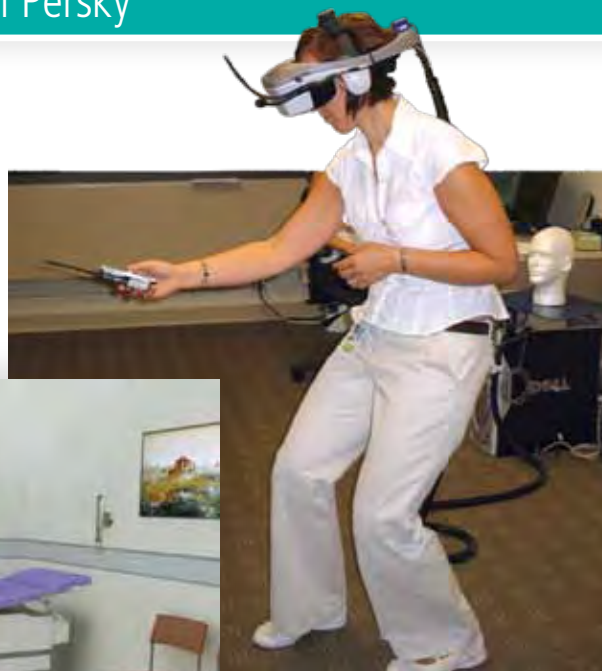
cy, and health services. The primary goal of SBRB re-

searchers is to investigate social and behavioral factors that influence the translation of genetic and genomic discoveries that have the potential to improve clinical care, prevent disease, and reduce health disparities. Beyond our commitment to this goal, we are also challenged to conduct research that is high risk, high reward, and potentially high impact.

To contribute to this charge, I joined the SBRB in 2005 and founded the Immersive Virtual

...virtual-reality scenarios give us a test platform upon which to conduct research in which participants directly experience and respond to situations that are expected to occur in the future, but may not yet be a reality.

Susan Persky is an associate investigator at the Social and Behavioral Research Branch at the NIH. Her primary research interest is how integration of genomic information into clinical and public contexts influences social stigma and health promotion. She can be contacted at perskys@mail.nih.gov.



A lab member demonstrates virtual reality gear worn by study participants.



A scene from a virtual-reality scenario in which volunteers interact with an obese patient.

Environment Testing Area (IVETA). The IVETA is a behavioral research lab located within the NIH Clinical Research Center. Its purpose is to apply

virtual reality-enabled methods to explore the social and clinical ramifications of new genetic and genomic developments. We also aim to find ways of translating genetic discoveries to improve clinical care and public health.

Because our research lies in the rapidly developing area of genetics, the ability to be future-focused is particularly important. Only by anticipating the effects of upcoming scientific and clinical advances can we shape their deployment. Applying virtual-reality research methods to investigate psychological and behavioral factors in health and health care is still relatively rare. However, virtual-reality scenarios give us a test platform upon which to conduct research in which participants directly experience and respond to situations that are expected to occur in the future, but may not yet be a reality. For example, we can assess how integrating genomics-based obesity risk information into a medical visit impacts the beliefs and behaviors of doctors and/or patients.

Indeed, much of the research we perform in the IVETA involves simulated clinical encounters between a virtual health care provider and an actual pa-



Susan Persky

tient, or a virtual patient and an actual health care provider. Some of my research in this vein, performed in collaboration with Collette Eccleston, investigated how providing information about genetic underpinnings of obesity to medical students impacted the care and treatment of a (virtual) patient. Our findings suggested that obesity genetics information can partially decrease medical students' stigmatization of an overweight patient; however, it may also result in reduced

counseling and care related to dietary and physical activity behavior. In current projects, my collaborators and I attempt to identify strategies for communicating genetic information related to obesity and other health conditions such that it results in decreased stigmatization, but also encourages treatment decisions that lead to health-promoting behavior among patients.

Research in the IVETA has also employed virtual reality to create opportunities for precise and controlled measurement of participant behavior. For example, in collaboration with Colleen McBride, Chief of the Social and Behavioral Research Branch, we are using a virtual reality model of a buffet restaurant to investigate how provision of genomic information about a young child's obesity risk affects mothers' food choices for that child. In projects like this one, we perform lab studies that elucidate the impact of genomic risk information provision on the kind of behaviors that occur in daily life and community settings. Therefore, we bring experimental, psychological studies a step closer to informing public health practice.

The IVETA and the investigations conducted within it represent just one example of how psychological scientists in the NIH Intramural Research Program apply psychological methods and theories to conduct leading-edge research. Psychological scientists within the NIH study a variety of diseases and conditions using a variety of approaches in varying interdisciplinary environments. However, we all have the shared goal of applying our research to improve human health. ●

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Behavioral Science at the Speed of Light

By Anna Mikulak

Scientists have long studied the brain as a way of connecting mind to behavior, of linking a person's inner life to the outer world. And they have used many different methods to explore this connection, including lesion studies and neuroimaging. But even sophisticated tools like transcranial magnetic stimulation (TMS) and functional magnetic resonance imaging (fMRI) are somewhat blunt instruments when it comes to understanding just how the goings-on in the brain contribute to our ability to think, feel, and act. But now an emerging field called optogenetics is providing researchers with an unprecedented opportunity to control brain cells with the push of a button.

ing (fMRI) are somewhat blunt instruments when it comes to understanding just how the goings-on in the brain contribute to our ability to think, feel, and act. But now an emerging field called optogenetics is providing researchers with an unprecedented opportunity to control brain cells with the push of a button.

The Power of Light

In the mid 2000s, Karl Deisseroth, a neuroscientist at Stanford University, and Ed Boyden, one of Deisseroth's graduate students at the time, discovered that certain algae could be used as a way to turn brain

cells on and off. Specific algae, they noted, are photoreceptive and are able to convert incoming light into electricity. Boyden and Deisseroth figured that if these photoreceptive properties could somehow be integrated into neurons, then the neurons themselves could be stimulated with light.

The researchers isolated the DNA that coded for these photoreceptive properties, and they were able to transfer those genes into rat neurons. Once inserted, the genes started producing *opsins*, proteins that can turn light into electricity and, when exposed to the right kind of light, the neurons began to fire (Boyden et al., 2005).

By harnessing the power of these opsins, Boyden and Deisseroth had successfully developed a tool that allowed them precise control over the firing of neurons.

Anna Mikulak is a Public Affairs Coordinator at APS and a doctoral candidate in the Department of Psychology at Georgetown University. Throughout her graduate studies, she has pursued research that combines her interests in developmental science, policy, and science communication. Her dissertation will examine the various factors that influence people's attitudes toward, and decision-making about, vaccination. Anna can be contacted at amikulak@psychologicalscience.org.

To Boyden, now a professor at the Massachusetts Institute of Technology with cross-departmental appointments in biological engineering as well as brain and cognitive sciences, optogenetics opens up an entirely new avenue for studying the brain. "The brain is an incredibly densely wired computational circuit, made out of an enormous number of interconnected cells...it is difficult to analyze how these different classes of neurons work together in the intact brain to mediate the complex computations that support sensation, emotion, decisions, and movements," he says. With optogenetics, researchers now have the ability to make neurons light controllable without affecting the functioning of neighboring neurons — we can "determine the role that that type of neuron plays in the computations and functions of the brain."

Optogenetics not only allows scientists to target specific cell types, says Ilana Witten, a post-doctoral researcher in Karl Deisseroth's lab at Stanford, it also allows for a more precise timescale. Previous methods, like electrical stimulation, "indiscriminately impact all cells near the electrode tip," she observes, "while pharmacological techniques can be targeted for cell types, but have very slow temporal resolution." In other words, drugs can be used to change the activity of specific neurons, but the changes won't happen in real time. Because optogenetics allows researchers to target specific cells in real time, Witten says, "we can gain new insight into the neural underpinnings of virtually any behavior."

An Arsenal of Opsins

Neuroscientists have rapidly adopted optogenetics as a critical tool for understanding the basic science of brain function. With a combination of special hardware and software, they can set up fiber optic cables to deliver light with a precise wavelength to specific areas of a mouse's brain at precise times. Furthermore, since



Ilana B. Witten



Edward Boyden

Boyden and Deisseroth's first optogenetics study in mammals was published, optogenetics researchers have found additional opsins in bacteria, fungi and other microorganisms.

Perhaps the most important use of optogenetics is in its application to understanding disease and disorder. Armed with this arsenal of different opsins, scientists can better pinpoint the types of neurons that might be responsible for driving pathological processes in the brain.

Channelrhodopsin, the opsin Boyden and Deisseroth isolated from algae in their first study, can be used to stimulate neurons. But other opsins, such as halorhodopsin and archaerhodopsin, have the opposite effect and deactivate, or silence, neurons instead. To illustrate exactly what this means for the field, Boyden notes that researchers have used these tools to demonstrate that silencing a small cluster of neurons in the hypothalamus of living mice causes them to fall asleep, while activating these neurons causes the mice to wake up.

Perhaps the most important use of optogenetics is in its application to understanding disease and disorder. Armed with this arsenal of different opsins, scientists can better pinpoint the types of neurons that might be responsible for driving pathological processes in the brain. As part of her post-doctoral work, Witten is trying to figure out how to use optogenetic approaches to counteract brain changes that are characteristic of addiction (e.g., Witten et al., 2010). And research teams around the world are using optogenetics to study a variety of other disease processes including Parkinson's, depression, and anxiety.

Boyden also believes that the precision of optogenetics can help researchers identify specific drug targets that could be used to treat a variety of disorders, including behavioral ones. For example, drugs that selectively modulate that cluster of neurons in the hypothalamus could potentially be used to treat sleep disorders.

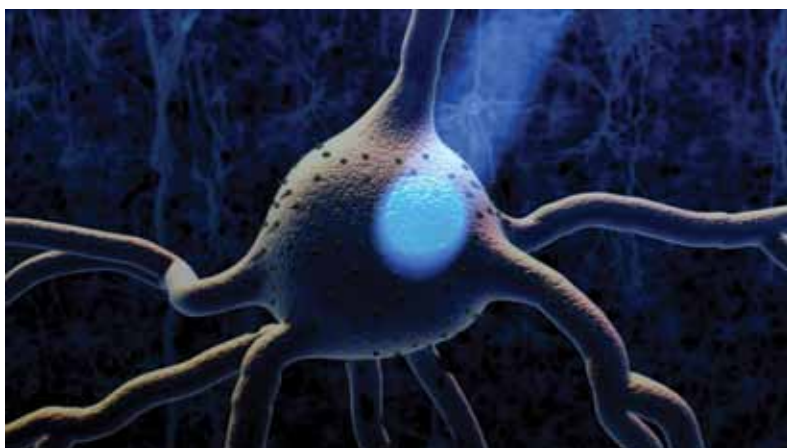
The Future of Optogenetics is Bright

In less than a decade, optogenetics has revolutionized neuroscientific approaches to studying brain function. But simply being able to control neurons is far from the whole story. Both Witten and Boyden note that being able to observe and record those neurons is equally important. "We need equally precise and fast ways to observe neural activity in normal and diseased brains," says Witten. It is no surprise, then, that Boyden's group at MIT is now heavily focused on developing tools for neural recording.

Boyden and his team now find themselves in the vanguard of an area of research that is rapidly evolving. The field of neuroscience is now at a point where being able to tackle the big challenges of understanding the brain will require diverse

sets of skills and sources of knowledge. Boyden, who himself has a background in both neuroscience and engineering, is collaborating with experts across technology domains and problem domains as they attempt to address these big challenges. Together, Boyden and his collaborators continue to work on a number of different technologies for "perturbing and observing neural circuits," including hardware that will allow for three-dimensional light delivery into the brain. This hardware will enable scientists to use more complex fiber optic arrays in optogenetics research.

To date, optogenetics research has been limited to rodent models, but the promise of clinical applications in humans still



When blue light hits neurons containing opsins, the opsins open and the neurons fire.

looms large. Excited by its potential contributions to both basic and applied neuroscience, Witten acknowledges that optogenetics is "very widely accepted to be a powerful approach." But she also urges caution: Just like any other technique, "it needs to be applied thoughtfully to lead to meaningful and interesting results."

References

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- Witten, I.B., Lin, S.C., Brodsky, M., Prakash, R., Diester, I., Anikeeva, P., & Deisseroth, K. (2010). Cholinergic interneurons control local circuit activity and cocaine conditioning. *Science*, 330(6011), 1677-1681. doi:10.1126/science.1193771

Editor's Note: For more about optogenetics, you can watch Ed Boyden's talk from the 2011 TED conference at www.ted.com/talks/ed_boyden.html. Boyden's group at MIT is also working with nonprofit distributors of viruses, DNA, and transgenic mice to make these resources more widely available to scientists.

Workshop Preview

Mixing Methods

*At the 24th APS Annual Convention, **Rebecca Campbell** will host a workshop called Integrating Qualitative and Quantitative Methods: Mixed-Methods Designs for Psychological Research. Campbell is a professor of community psychology and program evaluation at Michigan State University. Her own mixed-methods research focuses on violence against women and how the legal, medical, and mental health systems respond to rape survivors. She took a few minutes to give the Observer a sneak peek of her upcoming workshop.*

What are some examples of the quantitative and qualitative methods you'll be highlighting in your workshop?

My primary goal in this workshop is to show how qualitative and quantitative methods can be “mixed and matched” to form a variety of interesting research designs that can answer both exploratory and explanatory research questions. For example, qualitative focus groups can be used in an exploratory Phase I to understand a phenomenon of interest and to guide formalized quantitative hypothesis testing in Phase II. Alternatively, traditional experimental designs can be used to establish key significant findings in Phase I of a project that are then “unpacked” using qualitative methods to elucidate underlying mechanisms. Qualitative methods such as focus groups, interviewing, and ethnographic observations combine nicely with traditional quantitative methods (e.g., surveys, experimental designs, and quasi-experimental designs).

I will also touch on some methods that can be “all inclusive,” meaning they provide both quantitative and qualitative data within one study/one phase of research. For example, calendar and timeline/diary methods can provide detailed quantitative data regarding frequency and pattern of behavior (which can be analyzed using advanced longitudinal techniques, such as HLM or growth curve modeling). If timeline/diary data are collected as part of an interview, the participants’ open-ended narratives about these behaviors can be recorded simultaneously for a more in-depth perspective.

What challenges do researchers encounter when they conduct mixed-method studies? Can you provide an example from your own research?

There are two main challenges researchers often face in mixed-methods studies. The first is epistemological: How do we reconcile traditional, positivist approaches to social science (typically associated with quantitative methods) with alternative, constructivist approaches that are nearly 180-degrees different in ideology? Finding a unifying conceptual framework for mixed-methods studies is essential.

The second challenge is analytical, and there are established methods for the analysis of quantitative data; There are established methods for the analysis of qualitative data. Then what?



Rebecca Campbell

Are the results supposed to be combined? Compared? Contrasted? What if the findings are contradictory across methods? The mixed-methods literature is growing rapidly to address these kinds of challenges.

In a recent project, I used a quasi-experimental design to evaluate the effectiveness of a community-based service program for victims of sexual assault. The quantitative results demonstrated significant change over time that could be reasonably attributed to the implementation of the program. Great — that’s good news, but how did it do that? We used qualitative methods to interview key stakeholders to understand the mechanisms by which the intervention was effective. We struggled with how to integrate the results across studies to come up with one single “answer” regarding the effectiveness of this program.

What are the benefits of mixed-method studies?

Quite simply, another set of “eyes” on the phenomenon of interest. Each methodological paradigm can only “see” so much; the other can help shed light on what the first paradigm often misses. In instances where the findings converge across methods,

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24TH ANNUAL CONVENTION

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Keynote Address



James S. Jackson
University of Michigan, Ann Arbor

The Masquerade of Racial Group Differences in Psychological Sciences

Racial group disparities are common and widely accepted in many areas of psychological and biological sciences. Rarely is the basic underlying nature of these differences questioned. The growing emphasis in the social and behavioral sciences on biological and neurological processes creates a need to examine the "easy" assumptions of racial group differences. The *Environmental Affordances Framework of Health Disparities* is used to illustrate the intersection of the environment, stress, and self-regulatory behaviors which may account for observed racial group disparities in physical and mental health statuses that, in the final analysis, are fundamentally only a masquerade.

Bring the Family Address



Barry Schwartz
Swarthmore College

Practical Wisdom: The Right Way to Do the Right Thing

"America is broken," says Barry Schwartz. "None of the institutions we rely on — schools, clinics, courts, banks — give us what we want and need. Our efforts to repair these institutions rely on two tools — rules and incentives. Neither can do the job. What is also needed is virtue and character and especially the virtue that Aristotle called 'practical wisdom,' the will to do the right thing and the skill to figure out what the right thing is. Psychological research tells us that whereas people aren't born wise, they are born to become wise, if they have the right experience. And rules and incentives provide the wrong experience. Too many rules undermine the development of skill and too much reliance on incentives undermines the needed will. Current institutional practices threaten wisdom. Efforts can and should be made to nurture it instead."

Psi Chi Distinguished Speaker



Is Music Training Predictive of Cognitive, Social, and Emotional Abilities?

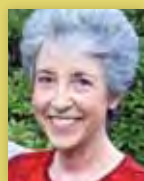
E. Glenn Schellenberg
University of Toronto, Mississauga, Canada

Introduced by



Michael D. Hall
James Madison University

APS-David Myers Distinguished Lecture on the Science and Craft of Teaching Psychology



Debunking Pseudoneuroscience

Carol Tavris
Social Psychologist and Writer

APS William K. Estes Symposium The Career and Impact of William K. Estes

Chair: Lawrence Erlbaum
Upper Saddle River, NJ



Margaret Beale Spencer
University of Chicago

Interviewed by

Douglas L. Medin
Northwestern University



William Kaye Estes: A Man for All Reasons

Robert A. Bjork
University of California, Los Angeles



Brenda Milner
McGill University, Canada

Interviewed by

Carol Tavris
Social Psychologist and Writer



What Is Modeling, How Is It Useful, and Why Is It Inevitable?

Richard M. Shiffrin
Indiana University

Presidential Symposium

Diverse Perspectives: Who Owns Science?



Douglas L. Medin, Chair
Northwestern University

In this symposium four scholars analyze diversity in science and explore the ways in which the nature of science may depend on who is doing it.



Margaret Beale Spencer
University of Chicago

Advancing Grounded Portrayals of Human Development for Diverse Communities: The Advantages of Systems Theory and Mixed-method Approaches for Challenging Stagnant Science

A professor of Urban Education, Spencer studies resiliency, identity, and competence formation processes for African-American, Hispanic, Asian-American, and Euro-American youth. She designed a CNN study to test racial bias in children and was awarded the 2006 Fletcher Fellowship, which recognized work that furthers the broad social goals of the U.S. Supreme Court's *Brown v. Board of Education* decision.



Richard A. Shweder
University of Chicago

Fundamentalism in Mainstream Psychology versus Other Big Currents: Cultural Psychology, For Example

A professor of Human Development, Shweder is a cultural anthropologist whose research interests include psychological anthropology and cultural psychology. Over the past 40 years, he has conducted research in the Hindu temple town of Bhubaneswar, India. He is a Fellow of the American Academy of Arts and Sciences and a recipient of a John Simon Guggenheim Fellowship and the American Association for the Advancement of Science Socio-Psychological Prize.



Helen E. Longino
Stanford University

Science, Diversity, and Objectivity

Longino's teaching and research interests are in philosophy of science, philosophy of biology, social epistemology, and feminist philosophy. She has argued influentially for the significance of values and social interactions in the practices of science. Longino is well known for her books *Science as Social Knowledge* and *The Fate of Knowledge*.



Megan Bang
University of Washington

Seeing Relational Epistemologies and Impacts on Cognition: Towards Improving Science Education for Native Youth

Bang's work is broadly focused on issues of culture, cognition, and development. More specifically, she focuses on community-based and culturally based science education. Her academic work has explored the kinds and forms of explanations, arguments, and attentional habits Native American children are exposed to and learn in community settings as they relate to school science learning.

Award Addresses

William James Fellows



Elaine Hatfield
University of Hawaii, Manoa

Introduced by co-recipient

Ellen Berscheid
University of Minnesota

Passionate Love: Looking Back and Looking Ahead



Henry L. Roediger, III
Washington University in St. Louis

The Surprising Power of Retrieval Practice in Improving Retention: From the Lab to the Classroom



David H. Barlow
Boston University

The Origins, Diagnosis, and Treatment of Neuroticism: Back to the Future



Geraldine Dawson
University of North Carolina at Chapel Hill

New Directions in Early Detection and Intervention in Autism



Gail Goodman
University of California, Davis

Childhood Trauma and Memory



SSCP Distinguished Scientist Award Address



William E. Pelham
Florida International University
Are We Overmedicating America's Children? Psychosocial, Pharmacological, Combined, and Sequenced Interventions for ADHD

James McKeen Cattell Fellows

Special Event

**Relationship Science 2012:
Advancing the Foundation Built by
Ellen Berscheid and Elaine Hatfield**



Chair: Harry Reis
University of Rochester

Eli J. Finkel, *Northwestern University*

Arthur Aron, *Stony Brook University*

Margaret Clark, *Yale University*

SPECIAL EVENTS

Clinical Science Forum

Organizational Efforts to Disseminate and Implement Empirically Supported Interventions in Health Care Systems



Chair: Lea R. Dougherty

University of Maryland, College Park

Kellie Crowe, *Wilford Hall Ambulatory Surgical Center, Lackland Air Force Base*

Antonette Zeiss, *Department of Veterans Affairs*

Ellen Healy, *VA Boston Healthcare System*

Shirley M. Glynn, *VA Office of Mental Health Services*

Bradley E. Karlin, *Office of Mental Health Services (116), VA Central Office*

Redefining Clinical Science Training: Progress Report on the Delaware Project



Chair: Varda Shoham

University of Arizona and the National Institute of Mental Health

Lisa Onken, *National Institute on Drug Abuse*

Howard Berenbaum, *University of Illinois at Urbana-Champaign*

Robert W. Levenson, *University of California, Berkeley*

Bruce F. Chorpita, *University of California, Los Angeles*

Timothy J. Strauman, *Duke University*

Kimberly Hoagwood, *Columbia University*

#APS2012



SSCP Presidential Address



Teach Your Students Well: Mentoring Doctoral Students to Be Clinical Scientists in the 21st Century

Richard G. Heimberg

Temple University



Chair: Elaine F. Walker

Emory University

Online Dating: A Critical Analysis From the Perspective of Psychological Science

Eli J. Finkel
Northwestern University

Psychopathic Personality: Bridging the Gap Between Scientific Evidence and Public Policy

Scott O. Lilienfeld
Emory University



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Room Rates

APS has negotiated special convention rates at the Sheraton Chicago Hotel & Towers. The room rates at the hotel for guests attending the convention are:

- Single Occupancy: \$179.00+tax**
- Double Occupancy: \$179.00+tax**
- Triple Occupancy: \$199.00+tax**
- Quadruple Occupancy: \$219.00+tax**

Reservations

Reservations can be made online through the APS Convention website www.psychologicalscience.org/convention/hotel or by calling +1 312.464.1000 and requesting the Association for Psychological Science special rate.

Hotel Information

Check in at the Sheraton Chicago Hotel & Towers is 3:00 PM, check out is 12:00 PM. On-site parking is available at the Sheraton Chicago Hotel & Towers. Valet parking is \$49 per night and includes in and out privileges. Self parking is available for \$37 per night. Rates are subject to change without notice.

A deposit equal to one night's stay is required to hold each individual's reservation. Personal check, money order or a valid American Express, Visa, Master Card, Diners Card or Carte Blanche card number and expiration date or a guarantee to the master account are acceptable.

Cancellations will be accepted at no charge up to 48 hours prior to arrival, local hotel time. Deposits will be refunded if cancelled up to 48 hours prior to the day of arrival, local hotel time.

Amenities

The Sheraton Chicago Hotel & Towers is conveniently located in the heart of downtown Chicago. Overlooking the Chicago River, the hotel puts you within walking distance of the Navy Pier, Magnificent Mile, Millennium Park, Art Institute, the Loop District, shopping, dining and entertainment.

Hotel amenities at the Sheraton Chicago Hotel & Towers include wireless high-speed Internet access, five restaurants and lounges and a fully equipped health club with cardiovascular and weight-training machines. Additional amenities include saunas, an indoor pool and massage therapies.

ADA Accessibility/Accommodations

APS is committed to ensuring that our convention is fully accessible to all persons. If you have a specific accessibility or dietary requirement, please contact Kelsey Thomas at +1 202.293.9300 and every attempt will be made to accommodate your request.

CROSS-CUTTING THEME PROGRAMS

Biological Beings in Social Context



Joan Y. Chiao
Northwestern University



Elissa Epel

University of California, San Francisco



Christine Dunkel Schetter
University of California, Los Angeles



Annette Karmiloff-Smith
Birkbeck, University of London, United Kingdom



Richard Lerner, Discussant
Tufts University

Nature “versus” nurture? Not anymore! In today’s psychological science, they’re on the same team. Research reveals the interdependencies among biological systems and social contexts. Environmental and interpersonal factors influence the expression of genes, the development of the brain, and the growth of the individual from the beginnings of life. In this theme program, speakers present cutting-edge advances in the study of biological beings in social context.

Disaster, Response, and Recovery



George A. Bonanno
Columbia University



Silvia H. Koller

Rio Grande do Sul Federal University, Brazil



Edna B. Foa
University of Pennsylvania



Dirk Helbing

Swiss Federal Institute of Technology, Zurich



Lisa M. Shin
Tufts University

Disasters – natural (floods, earthquakes, landslides) or human-induced (war, terrorism, crowding disasters) – present psychological science with multiple challenges: identifying the psychological and biological effects of trauma; helping the traumatized victims; and formulating interventions that might prevent disasters from occurring. In this theme program, international leaders in the study of disaster, response, and recovery show how these challenges can be, and have been, met.

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www.psychologicalscience.org/convention

CROSS-CUTTING THEME PROGRAMS

Music, Mind, and Brain



Daniel J. Levitin
McGill University, Canada



Aniruddh D. Patel
The Neurosciences Institute



Carol L. Krumhansl
Cornell University



Victor Wooten, Discussant
*Five-Time Grammy Award Winner and Bassist for
Béla Fleck & The Flecktones*

It's just sound — structured, organized sound. Yet it has surrounded us, moved us, and echoed in our memories throughout the history of our species. In this theme program, three of the world's leading psychologists and neuroscientists in the study of music, and one of the world's leading musicians, discuss the psychological systems and "orchestra of brain regions" through which music enriches our lives.

Including a special concert with



Dale Boyle
*Award-winning Folk,
Country, and Blues
Singer-songwriter*



Kevin Feyen
*Worth Publishers and
Former Guitarist with
the Black Eyed Peas*



Robert W. Levenson
*University of California,
Berkeley, and APS Past
President*

and featuring



Daniel J. Levitin
McGill University, Canada



Bianca Levy
McGill University, Canada



Victor Wooten
*Five-Time Grammy Award Winner
and Bassist for Béla Fleck & The
Flecktones*

WORKSHOPS

Integrative Data Analysis: Applications Across Different Data Types

Integrative data analysis (IDA) is a general term for a set of analytic techniques derived from combining or linking independent data sets together and analyzing them as a complete set. This is different from meta-analysis in the sense that one analyzes the actual data in IDA, not the statistical summaries of those data. IDA is a cost-effective way to do science and has the potential to move areas of science forward rapidly by building a cumulative knowledge base. It is an extremely topical issue given the unprecedented access to data that is now afforded to all researchers through cyberinfrastructure (i.e., internet-based research environments), and a push from the Federal government to make data more accessible.

This four-hour workshop will provide a general overview of the pertinent issues involved with IDA, demonstrate three applied guided examples utilizing different types of data, and discuss Federal funding opportunities to support IDA methodology. Statistical code and related output will be provided to workshop participants so that they can follow along with each example.

Workshop Objectives:

- 1) Learn about the conceptual and analytic issues involved with integrative data analysis
- 2) Observe applied guided examples of the types of integrative data analyses that can be done
- 3) Apply techniques learned to a prescribed dataset during a workshop

Integrating Qualitative and Quantitative Methods: Mixed Methods Designs for Psychological Research*



Rebecca Campbell

Michigan State University

Mixed methods research designs are often celebrated as having the best of both worlds--quantitative numerical findings as well as qualitative contextual detail. However, planning, implementing, analyzing, and presenting mixed methods projects can be challenging. This workshop will

break down this complex process into a series of decision trees researchers can use to create mixed methods studies. This workshop will provide an overview of the key epistemological and methodological debates in the mixed methods literatures. Then, we will focus on specific mixed methods designs and their utility across different types of psychological research. Participants will work on developing a feasible mixed methods design for a research topic in their own substantive areas.

Doing Bayesian Data Analysis*



John K. Kruschke

Indiana University, Bloomington

The workshop explains why it's embarrassing to report p values in research, then introduces concepts of Bayesian data analysis, modern computer methods, and the benefits of Bayesian analysis. Applications to multiple regression

and ANOVA are covered, with complete computer programs.

Introduction to R Statistical System*



William Revelle

Northwestern University

R is an integrated suite of software facilities for data manipulation, calculation, and graphical display that is particularly useful for psychological scientists. This workshop will assume no prior knowledge of R and will emphasize standard functions for analysis and display of experimental and correlational data for classroom and research.



Chair: Richard P. Moser

National Cancer Institute



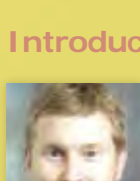
Patrick J. Curran

University of North Carolina at Chapel Hill



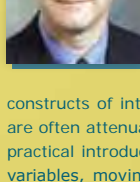
Michael Larsen

The George Washington University



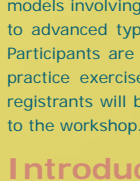
Daniel Bauer

University of North Carolina at Chapel Hill



Sierra Bainter

University of North Carolina at Chapel Hill



Gregory R. Hancock

University of Maryland

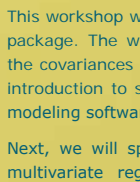
Structural equation modeling represents the union of regression, path analysis, and factor analysis, facilitating the investigation of hypothesized relations among both measured and latent variables. The particular advantage of methods involving latent variables is that theories may be investigated as they pertain directly to the underlying constructs of interest, rather than to the measured variables whose observed relations are often attenuated by error of measurement. The current workshop will provide a brief practical introduction to this exciting area, starting with path analysis among measured variables, moving into confirmatory factor models, and then finally detailing structural models involving hypothesized causal connections among latent variables. Issues related to advanced types of models, as well as software options, will be mentioned as well. Participants are encouraged to bring PC-compatible laptop computers to be able to do practice exercises using the SIMPLIS language within the LISREL software package; registrants will be e-mailed information about software and materials to download prior to the workshop.

Introduction to Structural Modeling Using OpenMx



Steven Boker

University of Virginia



Michael Neale

Virginia Commonwealth University

This workshop will introduce the use of the OpenMx Structural Equation Modeling (SEM) package. The workshop will begin with a very brief introduction to the calculation of the covariances of linear combinations and the notions of path analysis. Next will be an introduction to specifying structural models in OpenMx. In contrast to traditional SEM modeling software, OpenMx uses a functional approach to model specification.

Next, we will specify and fit a wide variety of models that will include multiple and multivariate regression, confirmatory factor models, latent growth curves, latent differential equations, moderation models, and multigroup models.

The workshop will be hands-on. It will be assumed that participants that participants are at least somewhat familiar with R and know the basics of SEM. Please bring a laptop with the latest versions of R, "psych", and "OpenMx" packages installed. OpenMx can be installed for free from the OpenMx website at <http://openmx.psyc.virginia.edu>.

WORKSHOPS

Introduction to Multilevel Modeling*



Elizabeth Page-Gould

University of Toronto, Scarborough, Canada

Multilevel modeling is an analysis known by many names: Hierarchical Linear Modeling (HLM), nested growth curves, and random effects models, just to name the most common monikers. Truly, multilevel models represent a class of techniques used to analyze datasets where cases are not independent (e.g., romantic couples, primates within colonies, longitudinal designs). This workshop will give you a practical introduction to the theory, implementation, interpretation, and reporting of multilevel models. Page-Gould will demonstrate some important extensions that are commonly employed by psychologists: simple effects testing, mediation, and calculation of effect size in multilevel models. You will also receive syntax files for conducting multilevel modeling in two common statistical packages: SPSS and R (you only need to be familiar with one of these packages). You will emerge from the workshop with the ability to apply multilevel modeling to your research questions in a rigorous manner.

Estimation for Better Research: Effect Sizes, Confidence Intervals, and Meta-analysis*



Geoff Cumming

La Trobe University, Australia

The APA *Publication Manual* states "wherever possible, base discussion and interpretation of results on point and interval estimates." This workshop will explain why an estimation approach is better than null hypothesis significance testing, and describe how to calculate and interpret effect sizes and confidence intervals for a range of measures and designs. It will also introduce meta-analysis, and the use of precision for research planning. The emphasis will be on understanding, and practical strategies. Much use will be made of the interactive simulations of ESCI (Exploratory Software for Confidence Intervals). There is more information about ESCI, and the book that includes the material in the workshop, at: www.thenewstatistics.com

Studying Emotions in the Laboratory



Iris Mauss

University of California, Berkeley

This workshop will provide a brief and practical introduction to studying emotion in the laboratory. Studying emotion in the lab requires two things. First, one needs to be able to evoke emotions in laboratory settings. We will cover various approaches to doing so, including pictures, film clips, and naturalistic interactions, with a focus on advantages and disadvantages of each one. Second, one needs to be able to measure participants' emotional responses. We will cover three common approaches to measuring emotion: experience, facial behavior, and autonomic physiology. Discussion will focus on advantages and disadvantages of each one as well as their relationship to one another. Participants should emerge from the workshop with the ability to design rigorous laboratory studies involving emotion.

Randomization Tests for Single-Case Experiments Using R*



Patrick Onghena

Katholieke Universiteit Leuven, Belgium

In this workshop, participants will be introduced to the SCRT-R (Single Case Randomization Tests, the R version) package. Some theoretical background regarding randomization tests will be provided, together with exercises and hands-on experience using the package. Participants will be shown how to perform a visual analysis (making a graphical representation of the single-case data; plotting a measure of central tendency; displaying information about variability in the data; and visualizing trends), how to calculate randomization test p-values, how to include effect size measures in their analyses (Standardized Mean Difference, Percentage of Nonoverlapping Data, and Percentage of Data points Exceeding the Median), and how to perform a meta-analysis of replicated single-case experiments. The focus of this workshop will be on behavioral applications and on understanding the results of statistical analyses rather than on the mathematical or algorithmic background of the techniques presented.

Federal Funding for Basic Psychological Science



Chair: Rebecca A. Ferrer

National Cancer Institute

This workshop will bring together program directors and investigators to discuss federal funding opportunities for basic psychological science. Here, we define basic psychological science as research that seeks to understand psychological mechanisms, but does not directly seek to influence or predict specific decision

or behavioral outcomes.

We will focus on articulating the potential basic psychological science funding at NSF and NIH, with an eye towards the type of science that fits various research priorities, as opposed to specific funding mechanisms or grant-writing strategies (although these will also be covered briefly). Each program director will briefly discuss psychological science-related priorities of her institution. Investigators will then discuss their experiences in pursuing and obtaining this type of funding for their own basic psychological science research program.

The objectives of the workshop for attendees are to: 1) match their current research programs with strategic priorities of various federal funding institutions; 2) think broadly about leveraging different funding opportunities creatively to further psychological science in conjunction with an institution's mission; and 3) learn about current funding opportunities for specific areas of basic psychological science.



Lisbeth Nielsen

National Institute on Aging

Melissa W. Riddle

National Institute of Dental and Craniofacial Research



Lisa Feldman Barrett

Northeastern University

Emily Falk

University of Michigan



Rosalind King

National Institute of Child Health and Human Development

Kellina M. Craig-Henderson

National Science Foundation



Treating Couples Struggling With Infidelity: An Integrative Approach



Douglas K. Snyder

Texas A&M University

This workshop will describe an integrative approach to working with couples struggling to recover from infidelity. Participants will acquire skills for assessing couples recovering from an affair, contain the emotional turmoil following discovery of an affair, formulate a model articulating factors contributing to an affair, and assist couples in reaching an informed decision about how to move forward.

*Co-sponsored by the Association for Psychological Science (APS) and the Society of Multivariate Experimental Psychology (SMEP).

INVITED ADDRESSES



**Sex, Murder, and the
Meaning of Life**

Douglas T. Kenrick
Arizona State University



**Breaking Down Empathy
Into Component Processes:
Integrating Evolution,
Neurobiology, and
Psychology**

Jean Decety
University of Chicago



**Science and Practice in
2012 And Beyond**

David H. Barlow
Boston University



**Culture as Treatment
for American Indian
Mental Health Problems:
Pursuing Evidence Through
Community Collaborations**

Joseph P. Gone
University of Michigan



**The Interpretation of
Dreams, and of Jokes**

Matthew H. Erdelyi
*Brooklyn College, The City
University of New York*



**Language, Culture, and
Being Human**

Daniel Everett
Bentley University



Race to Nowhere

Vicki H. Abeles
Producer and Co-Director



**How Applied Behavior Analysis
Is Making a Difference:
A Look at Effective Early
Intervention Treatment for
Children With Autism**

Sheila Jodlowski
Manhattanville College



**What Develops in Social
Development?**

Eric E. Nelson
National Institute of Mental Health



**The New Statistics: Why,
How and Where Next**

Geoff Cumming
La Trobe University, Australia



Oliver P. John

University of California, Berkeley



**Why Agreeable People
Are Agreeable: Cognitive,
Regulation, and Metaphoric
Perspectives**

Michael Robinson
North Dakota State University



**Safely Testing the Alarm:
Positive Event Disclosures
and Traditional Social
Support**

Shelly Gable
*University of California,
Santa Barbara*



**The Righteous Mind: How
Moral Psychology Can
Explain Part of the Political
Mess We're In**

Jonathan Haidt
University of Virginia



**Understanding the
Decline Effect Requires
Systematically Documenting
Unpublished Findings**

Jonathan W. Schooler
*University of California, Santa
Barbara*

INVITED TALKS



**Academic Performance
Under Stress**

Sian Beilock
University of Chicago



**Facing Our Selves: What
People Do and Don't Know
About Their Personality**

Simine Vazire
Washington University in St. Louis



**Resources for Emotion
Regulation**

Heather L. Urry
Tufts University



BOBO'S A BIG HIT

Come see Albert Bandura's famous Bobo Doll on display at the APS Convention this May 24-27 courtesy of The Center for the History of Psychology at The University of Akron.

Have your photo taken with the Bobo doll at the APS photo booth.

INVITED SYMPOSIA

Evolutionary Psychology: Controversies, and Current Directions



Chair: Richard S. Lewis

Pomona College

Jaime Cloud, *University of Texas at Austin* and

David Buss, *University of Texas at Austin*

The Use and Misuse of Evolutionary Psychology

Debra Lieberman, *University of Miami*

It's All Relative: Human Kin Detection and Inbreeding Avoidance

Ed Hagen, *Washington State University, Vancouver*

Nicotine—Candy or Cure? Testing an Evolutionary Alternative to the Reward Model of Psychoactive Substance Use

Martie Haselton, *University of California, Los Angeles*

Fertile Minds: Effects of the Ovulatory Cycle on Women's and Men's Social Behavior

Discussant: **David Buss**, *University of Texas at Austin*

Current Directions in ADHD Research



Chair: Arnaud Rey

CNRS- Université de Provence, France

Chair: Howard Berenbaum

University of Illinois at Urbana-Champaign

Richard Milich, *University of Kentucky*

Inference-making Difficulties Among Children with ADHD

Tiago V. Maia, *Columbia University*

Norepinephrine and ADHD

Cynthia Huang-Pollock, *Pennsylvania State University*

Integrating Common Cognitive Phenomena in ADHD

Rick Mayes, *University of Richmond*

Medicating Kids: ADHD and the Controversy Over Stimulants

Looking at the Impact of Culture in Collectives



Chair: C. Shawn Burke

University of Central Florida

Deborah DiazGranados, *Virginia Commonwealth University*

Examining the Impact of Leader Social Distance on a Multicultural Team

Maritza Salazar, *Claremont University*

Facilitating Creativity in Inter-Cultural Teams: The Role of Dual Identification

Paul Hanges, *University of Maryland*

Diverse Perspectives on Diversity in Mentoring



Chair: Suzanne T. Bell

DePaul University

Lisa Finkelstein, *Northern Illinois University*

Roya Ayman, *Illinois Institute of Technology*

Belle Rose Ragins, *University of Wisconsin – Milwaukee*

Gene-environment Interactions of Psychological Traits



Chair: Howard Berenbaum

University of Illinois at Urbana-Champaign

Elizabeth P. Hayden, *Western University, Canada*

Genetic and Contextual Interplay in Emerging Child Depression Risk

Danielle M. Dick, *Virginia Institute for Psychiatric and Behavioral Genetics*

The Promise and Peril of GxE Studies

S. Alexandra Burt, *Michigan State University*

Are GxE Really Ubiquitous? Thinking Though Our Implicit Assumptions

Application of Diverse Methodologies to Studying Distributed Teams



Chair: C. Shawn Burke

University of Central Florida

Leslie DeChurch, *Georgia Institute of Technology*

Innovating Within and Across Teams, Through Time and Space: A Multiteam-network Perspective

Aparna Joshi, *University of Illinois*

Leading Across Distance and Time: Leadership in Globally Distributed Teams

Emotional Influences on Decision Making



Chair: Benjamin R. Newell

University of New South Wales, Australia

Peter Ayton, *City University London, United Kingdom*

Dread Risk: Terrorism & Bicycle Accidents

Paul Slovic, *University of Oregon*

The More Who Die, the Less We Care: Psychic Numbing and Genocide

John Payne, *Duke University*

Complex Risky Choice and Emotions

New Directions in the Psychology of Meaning



Chair: Travis Proulx

Tilburg University, The Netherlands

Roy F. Baumeister, *Florida State University*

Aaron Kay, *Duke University*

Ian McGregor, *York University, Canada*

INVITED SYMPOSIA

Making Intensive Longitudinal Data Speak



Chair: Francis Tuerlinckx

Katholieke Universiteit Leuven, Belgium

Chair: Peter Kuppens

Katholieke Universiteit Leuven, Belgium

Peter Kuppens and Francis Tuerlinckx, Katholieke Universiteit Leuven, Belgium

DynAffect: Exploring the Equations of Our Daily Affective Life

Jean-Philippe Laurenceau, University of Delaware
Using Intensive Longitudinal Data for Within-person Mediation Analysis

Pamela Sadler, Wilfrid Laurier University, Canada
Being on the Same Wavelength: Evaluating

Moment-to-Moment Patterns of Interpersonal Complementarity

Emilio Ferrer, University of California, Davis

Dynamical Systems Analysis of Intensive Daily Data From Dyadic Interactions

Beyond Threat and Defense in the Science of Meaning



Chair: Laura A. King

University of Missouri, Columbia

Mark Landau, University of Kansas

More Than Words: Metaphorical Thought in Social Life

Sascha Topolinski, Universität Würzburg, Germany
Measuring and Inducing Gut Feelings in

Intuitive Judgments

Laura Kray, University of California, Berkeley

From What Might Have Been to What Must Have Been: Counterfactual Thinking Creates Meaning

Strategies for Developing a Successful Research Proposal: Perspectives Across Funding Agencies



Chair: C. Shawn Burke

University of Central Florida

Jay Goodwin, Army Research Institute

Susan Winter, National Science Foundation

Sarah Kobrin, National Institutes of Health

Advances and Applications in Single Case Design



Chair: Ellen Hamaker

Utrecht University, The Netherlands

Chair: Howard N. Garb

Wilford Hall Surgical Ambulatory Center

Patrick Onghena, Katholieke Universiteit Leuven, Belgium

The Curious Case of Single-case Research: Causal Inference from Randomized Single-case Experiments

Matthew K. Nock, Harvard University
Doing More With Less: (Re)focusing Psychology on the Study of Change Within Individuals



Thomas R. Kratochwill, University of Wisconsin-Madison
Distinguishing Design and Evidence: The What Works Clearinghouse Single-Case Research Standards

Michael Nash, University of Tennessee, Knoxville
The Single-case Outcome Study

Discussant: David H. Barlow, Boston University

Political Ideology "From the Bottom Up": Origins, Manifestations, Consequences



Chair: John T. Jost

New York University

Geraint Rees, University College, London, United Kingdom
Political Attitudes and Brain Structure

Christian Kandler, Universität Bielefeld, Germany
Genetic and Environmental Sources of Left-Right Political Orientation: The Roles of Personality, Assortative Mating, and Generation-Specific Context Effects

Christopher M. Federico, University of Minnesota
Ideological Asymmetries in the Political Expression of Needs for Certainty and Order

Riley E. Dunlap, Oklahoma State University
Political Ideology and Global Warming: The Dismissal of Climate Change by Conservative Americans

2012 PROGRAM COMMITTEE

Daniel Cervone (Chair), University of Illinois at Chicago (General)

Ozlem Ayduk, University of California, Berkeley (Personality/Emotion)

Abigail Baird, Vassar College (Developmental)

Howard Berenbaum, University of Illinois at Urbana-Champaign (Clinical)

C. Shawn Burke, University of Central Florida (Industrial/Organizational)

Howard N. Garb, San Antonio Military Medical Center, Lackland AFB (Clinical)

Ellen Hamaker, Universiteit Utrecht, The Netherlands (Methodology)

Jeffrey Holmes, Ithaca College (Teaching Institute)

Michael Inzlicht, University of Toronto, Scarborough, Canada (Social)

Richard S. Lewis, Pomona College (Biological/Neuroscience)

Arnaud Rey, CNRS - Université de Provence, France (Cognitive)

Tracy E. Zinn, James Madison University (Teaching Institute)

STUDENT EVENTS

Naked Truth Series

Part I – Getting into Graduate School

This panel provides a step-by-step guide for students interested in pursuing a graduate degree. Graduate students from various fields of psychological science will share their experiences and offer advice the process of graduate school admissions. The wide-ranging discussion will include advice for preparing for graduate school, what to expect during the application process, and tips for surviving graduate school interviews.

Chair: Kris Gunawan, University of Nevada, Las Vegas

Part II – Surviving Graduate School

Do you have questions about the next steps in your psychology education? This students-only event consists of three separate one-hour panels that focus on getting into graduate school, surviving graduate school, and what to do after graduate school, respectively. Each panel features students (or recent graduates) who share their experiences and answer questions from the audience.

Chair: Sean Hughes, National University of Ireland Maynooth

Part III – Navigating the Academic Job Market in Tough Economic Times

Are you a graduate student or recent graduate about to look for that first post-graduation position? Do you have questions about navigating the job market in a difficult economy? This panel will bring together a group of psychological scientists including faculty members and post-docs to share their experiences and answer your questions about finding a job in research, teaching, clinical science or non-traditional placements.

Chair: Peter M. Vernig, Suffolk University

Champions of Psychology

The APS Student Caucus is honored to present the annual Champions of Psychology event, which provides the unique opportunity for student affiliates to talk in an informal setting with some of the most respected and well-known scientists in psychology. Space is limited, and available only on a first-come, first-seated basis, so come early to get a good seat.

Chair: Peter M. Vernig, Suffolk University

How to Get Published

Are you a beginner in the world of scientific publishing? Editors from top journals in the field of psychological science will give valuable advice about what happens once your paper has been submitted, the publication process (e.g., common pitfalls of first-time submitters, what editors look for in manuscripts, why editors and reviewers only accept certain statistical procedures, etc.) and answer questions from the audience. This event is geared toward students and beginning researchers who want to find out what happens once they hit "submit."

Chair: Nicholas R. Eaton, University of Minnesota

RISE Research Award Symposium

The RISE Research Award is given annually to recognize outstanding student research on socially and economically under-represented populations. The winners, selected by a panel of their peers, will present their research in symposium format. The goal of this event is to increase awareness of the need for diverse perspectives in psychological science.

Chair: Andrew S. Sage, University of Missouri, Columbia

Student Research Award Symposium

The Student Research Award is given annually to recognize outstanding research conducted by APS Student Affiliates. The program will feature addresses from the four winners of the 2011 competition, who were selected through peer-review process.

Chair: Sean Hughes, National University of Ireland Maynooth

PSI CHI SYMPOSIA

Developing Leadership Skills through Mentoring Relationships

This interactive session will consider mentoring as a means of leadership development. Several potential mentoring relationships will be reviewed including Psi Chi mentoring opportunities. Common challenges to and recommendations for effective mentoring will be presented. Examples will concentrate on education and research, but also will relate well to business/organizational contexts.

Chair: Susan E. Becker, Colorado Mesa University

Michael D. Hall, James Madison University

Martha S. Zlokovich, Psi Chi International Honor Society in Psychology

Lost Chances and Increasing Opportunities for Faculty and Students in Psi Chi, the International Honor Society in Psychology

This discussion will raise and address several common misconceptions about Psi Chi. Panelists will review new Psi Chi programs and ongoing initiatives concerning international expansion, leadership, and diversity. The society's growing opportunities for awards and publications will be highlighted as will its utility as an information resource.

Chair: Michael D. Hall, James Madison University

Martha Zlokovich, Psi Chi International Honor Society in Psychology

Susan E. Becker, Colorado Mesa University

Daniel Corts, Augustana College

Timothy Koeltzow, Bradley University

19TH ANNUAL APS-STP TEACHING INSTITUTE

Opening Plenary



Increasing Student Success: What Can Instructors Do?

Meera Komarraju

Southern Illinois University

How do students' personality traits, learning strategies, self-efficacy, social integration, and perceived interactions with faculty relate to their motivation and performance? Is it possible for instructors to structure their curriculum and the classroom experience to increase students' performance? Drawing on my research findings, I offer some answers to these questions.

Closing Plenary



Utility Value Research: Useful Tips for Undergraduate Teaching

Janet Hyde

University of Wisconsin, Madison

"Utility value" refers to the usefulness of a task to the individual, either now or in the future. Both laboratory experiments and classroom research show that, when students perceive material as useful, they become more interested and achieve more (Hulleman & Harackiewicz). This talk will describe this research on utility value and explore its application for teaching undergraduate courses including introductory psychology and statistics.

Concurrent Sessions

Teaching Within an Honor System: Impact on Pedagogy and Practical Advice



Beth M. Schwartz

Randolph College



Holly Tatum

Randolph College

Texting = Epic Fail: Empirical Evidence that Text Messaging During Class Disrupts Comprehension of Lecture Material



Amanda C. Gingerich

Butler University



Tara T. Lineweaver

Butler University

Transformation and Service-Learning in Psychology



Steven Meyers

Roosevelt University

Students Appreciate Unannounced Quizzes After Exposure to Them in Class



Margaret C. Stevenson

University of Evansville

Retrieve Before You Leave: End-of-Lecture Retrieval Practice Increases Statistics Exam Performance



Keith B. Lyle

University of Louisville

Loving Your Students Without Being a Pushover



Janie H. Wilson

Georgia Southern University

Women, Romance, and STEM: Predicting Interest in Science, Technology, Engineering, and Math



Lora E. Park

University at Buffalo, The State University of New York

#APS2012



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Distinguished Lecturer



Personality Theories for Science . . . and Literature

Robert R. McCrae

Baltimore, MD

Research on the Five-Factor Model shows classic personality theories are outdated; new theories should be taught. Psychoanalysis remains influential in the humanities, but Five-Factor Theory provides a more scientific basis for interpreting characters in fiction. Some discussion of literature can keep "Personality Theories" relevant to a wide range of students.

Workshop



Sharpen Your Saw: Technology for Educators

Sue Frantz

Highline Community College

The fast pace of technological change has left many of us feeling behind. Our day-to-day work leaves us feeling too busy to seek out tech tools that may help us be more efficient. What are the newest technologies that you can use right now?

Society for the Teaching of Psychology Programs



Teaching Intergroup Relations in the 21st Century: Pleasures, Pains, and Prerogatives

Gordon Hodson

Brock University, Canada



Putting the Person Back Together: The Social Psychology of Cultural Animals

Roy F. Baumeister

Florida State University



Developing Useable Knowledge for Teaching and Learning: An Ecological Approach

David Daniel

James Madison University

INVITED SPEAKERS

Vicki H. Abeles
 Arthur Aron
 Roya Ayman
 Peter Ayton
 Sierra Bainter
 Megan Bang
 David H. Barlow
 Daniel Bauer
 Roy F. Baumeister
 Margaret Beale Spencer
 Susan E. Becker
 Sian Beilock
 Suzanne T. Bell
 Howard Berenbaum
 Ellen Berscheid
 Robert A. Bjork
 Steven Boker
 George A. Bonanno
 Dale Boyle
 C. Shawn Burke
 S. Alexandra Burt
 David Buss
 Rebecca Campbell
 Joan Y. Chiao
 Bruce F. Chorpita
 Margaret Clark
 Jaime Cloud
 Daniel Corts
 Kellina M. Craig-Henderson
 Kellie Crowe
 Geoff Cumming
 Patrick J. Curran
 David Daniel
 Geraldine Dawson
 Jean Decety
 Leslie DeChurch
 Deborah DiazGranados
 Danielle M. Dick
 Lea R. Dougherty
 Christine Dunkel Schetter
 Riley E. Dunlap

Afsoon Eftekhari
 Elissa Epel
 Matthew H. Erdelyi
 Lawrence Erlbaum
 Daniel Everett
 Emily Falk
 Christopher M. Federico
 Lisa Feldman Barrett
 Rebecca A. Ferrer
 Emilio Ferrer
 Kevin Feyen
 Eli J. Finkel
 Lisa Finkelstein
 Edna B. Foa
 Sue Frantz
 Shelly Gable
 Howard N. Garb
 Amanda C. Gingerich
 Shirley M. Glynn
 Joseph P. Gone
 Gail Goodman
 Jay Goodwin
 Ed Hagen
 Jonathan Haidt
 Michael D. Hall
 Ellen Hamaker
 Gregory R. Hancock
 Paul Hanges
 Martie Haselton
 Elaine Hatfield
 Elizabeth P. Hayden
 Ellen Healy
 Richard G. Heimberg
 Dirk Helbing
 Kimberly Hoagwood
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 Cynthia Huang-Pollock
 Janet Hyde
 James S. Jackson
 Sheila Jodlowski
 Oliver P. John
 Aparna Joshi
 John T. Jost
 Christian Kandler

Bradley E. Karlin
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 Aaron Kay
 Douglas Kenrick
 Rosalind King
 Laura A. King
 Sarah Kobrin
 Timothy Koeltzow
 Silvia H. Koller
 Meera Komarraju
 Thomas R. Kratochwill
 Laura Kray
 Carol L. Krumhansl
 John K. Kruschke
 Peter Kuppens
 Mark Landau
 Michael Larsen
 Jean-Philippe Laurenceau
 Richard Lerner
 Robert W. Levenson
 Daniel J. Levitin
 Bianca Levy
 Richard S. Lewis
 Debra Lieberman
 Scott O. Lilienfeld
 Tara T. Lineweaver
 Helen E. Longino
 Keith B. Lyle
 Tiago V. Maia
 Iris Mauss
 Rick Mayes
 Robert R. McCrae
 Ian McGregor
 Douglas L. Medin
 Steven Meyers
 Richard Milich
 Brenda Milner
 Richard P. Moser
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 Michael Neale
 Eric E. Nelson
 Benjamin R. Newell

Lisbeth Nielsen
 Matthew K. Nock
 Patrick Onghena
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 Lora E. Park
 Aniruddh D. Patel
 John Payne
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 Travis Proulx
 Geraint Rees
 Harry Reis
 William Revelle
 Arnaud Rey
 Melissa W. Riddle
 Michael Robinson
 Henry L. Roediger, III
 Belle Rose Ragins
 Pamela Sadler
 Maritza Salazar
 E. Glenn Schellenberg
 Jonathan W. Schooler
 Barry Schwartz
 Beth M. Schwartz
 Richard M. Shiffrin
 Lisa M. Shin
 Varda Shoham
 Richard A. Shweder
 Paul Slovic
 Douglas K. Snyder
 Margaret C. Stevenson
 Timothy J. Strauman
 Holly Tatum
 Carol Tavris
 Sascha Topolinski
 Francis Tuerlinckx
 Heather L. Urry
 Simine Vazire
 Elaine F. Walker
 Janie H. Wilson
 Susan Winter
 Victor Wooten
 Antonette Zeiss
 Martha S. Zlokovich



Navy Pier



The Chicago Theatre

CITY SITES



The Crown Fountain at Millennium Park



Chicago's Cloud Gate Sculpture (The Bean)



Wrigley Field



Willis Tower and the Chicago River

there can be greater confidence in the accuracy of the results. In situations where the findings are contradictory, there are new opportunities and new research questions to pursue.

Why should convention attendees come to your workshop? What can they expect to take away from your presentation?

Because the *Handbook of Mixed Methods Research* is over 800 pages long! This workshop is a more concise, interactive introduction to the key epistemological, design, and analytic

issues in the field. It's a great opportunity for researchers curious about mixed methods to learn more about how this approach could benefit their work. We will focus on mix-and-match design options that are applicable across a wide-range of areas within psychological science. Participants will have an opportunity to think through a design option within their own area of interest and receive feedback and suggestions from the workshop facilitator. All participants will also leave with a list of resources and "next steps" for planning and executing a mixed-methods project. •

2012 APS CONVENTION

Diverse Perspectives

WORKSHOPS

- **Integrating Qualitative and Quantitative Methods: Mixed Methods Designs for Psychological Research***
- **Introduction to R Statistical System***
- **Introduction to Structural Equation Modeling***
- **Estimation for Better Research: Effect Sizes, Confidence Intervals, and Meta-analysis***
- **Studying Emotions in the Laboratory**
- **Randomization Tests for Single-Case Experiments Using R***
- **Integrative Data Analysis: Applications Across Different Data Types**
- **Introduction to Multilevel Modeling***
- **Doing Bayesian Data Analysis***
- **Introduction to Structural Modeling Using OpenMx**
- **Federal Funding for Basic Psychological Science**
- **Treating Couples Struggling With Infidelity: An Integrative Approach**

*Co-sponsored by the Association for Psychological Science (APS) and the Society of Multivariate Experimental Psychology (SMEP).

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PSYCHOLOGICAL SCIENCE
24th Annual Convention

May 24-27, 2012
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Workshop Preview

Evoking Emotion in the Lab

At the 24th APS Annual Convention, Iris Mauss will host a workshop called Studying Emotions in the Laboratory. Mauss is an assistant professor of psychology at the University of California, Berkeley. Her own emotion research focuses on emotion regulation and how emotion regulation affects wellbeing. She has given the Observer a preview of what she will cover in her workshop.



Iris Mauss

What methods for studying emotion are you going to discuss in your workshop?

For inducing emotion, we will discuss advantages and disadvantages of various approaches, including pictures, film clips, and naturalistic interactions. For measuring emotion, we will cover advantages and disadvantages of three common measures: experience, facial behavior, and autonomic physiology. From within this wide range of methods, the workshop will focus on those of particular interest to workshop attendees.

How can researchers measure emotional responses empirically? Can you give an example of the standards you use for your own research?

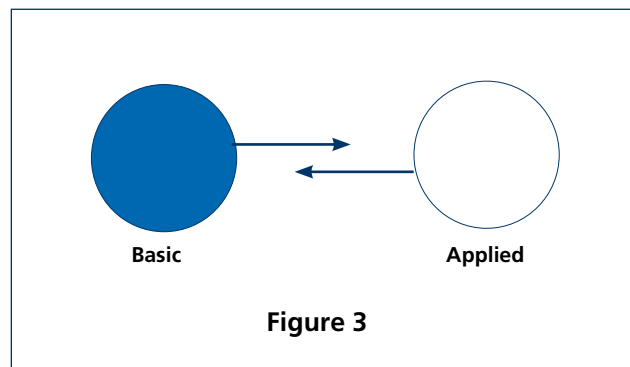
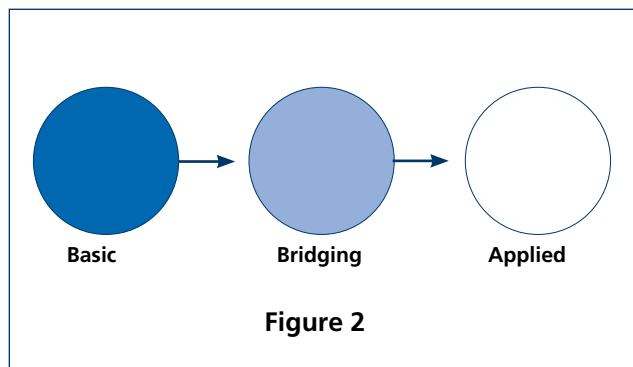
This is a very complex, big, and tricky question that relates to the larger question of what an emotion is. Briefly, researchers often take a multi-method approach to measure the intensity of participants' emotions. In the workshop, we will focus on three common approaches to doing so: experience sampling (e.g., asking participants how much anger they felt), coding facial behavior (e.g., coding from videotapes the intensity of facial expressions of anger), and measuring autonomic physiology (e.g., measuring participants' blood pressure).

What are some challenges researchers encounter while studying emotion in the lab?

There are two major questions that researchers who want to study emotions in the laboratory are faced with. First, how can scientists ethically make participants emotional (evoke emotions such as sadness, happiness, or anger) in the laboratory? And second, how can scientists measure whether an emotion has occurred and how intense the emotion was? Basically, the whole workshop will deal with how to overcome these challenges, and we will talk about various ways to address these challenges as well as the advantages and disadvantages of each approach.

Why should convention attendees come to your workshop? What can they expect to take away from your presentation?

I think conference attendees who would benefit from this workshop are those who seek a brief and practical introduction to studying emotions in the laboratory. Attendees should emerge from the workshop with the ability to begin to design rigorous laboratory studies involving emotion. •



It is testimony to my selective (in)attention abilities that I was also well aware of counter-examples to Figure 2 that go the other way. Consider, for example, signal detection theory, which is arguably one of our field's more significant accomplishments. It grew out of World War II efforts to interpret radar images and deal with communication over "noisy" channels. Psychological scientists were involved fairly early on, and the Tanner, Green, and Swets (1954) paper is a classic. The central issue of separating sensitivity to information from response bias continues to undergo theoretical development. Signal detection theory also enjoys ever-expanding application. In short, if we are talking about causal histories, we need to include the path shown that goes from applied to basic research (Figure 3). My education colleagues would find this too obvious to mention. But it is a reminder to my psychology pals that when they ignore the application side of things, they also may be ignoring a rich source of theoretical ideas and challenges. So how about we agree to drop the pejorative connotations of the term applied research?

So then, dangerous dichotomies, such as basic versus applied research, lend themselves to stereotyping. They also create borders that may get in the way. For example, if you're inclined to do psychological research that has high fidelity to real world circumstances, you might be accused of doing applied research, because applied research, by definition, has to be high fidelity. But fear of fidelity is a very peculiar malady, and our field must strive to overcome it.

These categories can also be used politically in a sort of Three-Card Monte game¹ to hide values. Applied research transparently reflects a set of value judgments. There is a difference between using persuasion theory to encourage teenagers to stay in school versus encouraging them to start smoking. It is nice to be able to fall back on the argument that basic research

is value neutral and that there is a pure science in the form of an uncontaminated quest for knowledge.

Nice, but in my opinion, dead wrong. If basic research were value neutral, would we even need ethical review panels? The use of nonhuman animals in research often reflects the judgment that human welfare is more important than animal welfare (we do things to animals we would never do to people). Especially important, again in my opinion, is the role of positive values in basic research. These values are reflected in the questions we choose to ask (or not ask), how we choose to ask them, who we choose to study (or not study), and who conducts the research. Although I labeled these as positive values, they become potential negatives when we fail to ask relevant questions, ask them in ways that favor one group over another, and prize ownership of science over openness. Frequently, the values in play are cultural values, values that may be different in other cultures and contexts.

For some time now the National Science Foundation has required grant proposals to have a "broader impacts" section. To be specific, currently under discussion at NSF (see www.nsf.gov/nsb/publications/2011/06_mrtf.jsp) is the idea that projects should address important national goals, including among others: increased economic competitiveness of the United States, development of a globally competitive STEM workforce, increased participation of women, persons with disabilities, and underrepresented minorities in STEM, increased partnerships between academia and industry, and increased national security.²

Many (but maybe not all) of these may be values that you endorse, and they may influence how you do your basic research. It's hard to avoid the conclusion that basic research cannot shunt off the messiness of values to applied research. If we can't continue to pretend that basic research is pure (for that matter, even purity may be a value), it might be a good idea to pay more careful attention to the values that are reflected in what we do and how we do it.

In summary, I'm still a bit confused about basic versus applied research, but the idea that research provides the opportunity to express values I care about strikes me as a good thing. Bottom line: Applied is not "merely" applied, but is full of fascinating research puzzles. Basic is not "pure," but rather is saturated with values, ideally values that make us proud to be psychological scientists, but in any event values that merit attention. ♦

¹In this card game, the dealer shows the player a card then places it face down next to two other cards. The dealer mixes the cards around then asks the player to pick one. If the player picks the original card, he or she wins, but the dealer can employ a number of tricks (such as swapping cards) to keep the player from choosing the right card.

²The response to this proposal has been sharp, bimodal criticism with some scholars arguing that the standards "water down" previously highlighted goals like fostering diversity and others objecting to these values because they would get in the way of pure, basic research. In response to this feedback, the task force charged with developing these standards is currently rethinking and revising them. Stay tuned.



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EDITORIAL from Page 16

tion, the manuscript will be sent out for review. If two editors independently indicate reservations about the contribution, the manuscript will be returned to the author without further review or consideration.

When a manuscript is sent out for review, consulting editors and reviewers are asked to evaluate the importance of the contribution and to focus on the larger picture and context of the study. For all manuscripts that are reviewed, the rationale for the editorial decision will be provided, as expected as part of the peer-review process. If the manuscript is recommended to be accepted for publication, reviewers will make comments about how to present the manuscript in its optimal light. If the manuscript is rejected, reviewers are not asked to provide an extensively detailed methodological critique and evaluation of the study. Thus, the primary focus of the review process and criterion for publication are whether the submission is a substantive contribution that advances clinical psychological science. Every effort will be made to streamline the delay between submission and editorial decision, for all manuscripts submitted to the journal.

Closing Comments

CPS joins a set of enormously successful journals: *Psychological Science*, *Perspectives on Psychological Science*, *Current Directions in Psychological Science*, and *Psychological Science in the Public Interest*. These journals present the best of psychological science and have been recognized as such. As Editor, it is a privilege to join a family with standards for rigor and relevance that are widely appreciated and recognized. In keeping with the standards set by our sibling journals, we are eager to represent, illustrate, and reflect clinical psychological science at its finest. I look forward to a diverse set of articles, contributors, and disciplines that will help understand and ameliorate clinical disorders and sources of impairment.

Suggestions for topics, series, and articles that can advance clinical psychological science are welcome at any time. We cannot preview papers or abstracts prior to submission, but conversations about potential research projects in particular are welcome. I can be reached at akazdin@psychologicalscience.org. •

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The Price of Perfectionism

By Gordon Flett

Perfectionism research began to grow exponentially in 1991 with the creation of two measures bearing the same name – the Multidimensional Perfectionism Scale. Twenty years later, empirical work on perfectionism continues to yield important findings. For instance, at the APS Convention last May, there were 12 presentations on diverse topics such as the developmental antecedents of perfectionism, the link between perfectionism and body dissatisfaction, the role of perfectionism in social phobia, and the tendency for perfectionistic new mothers to suffer from excessive worry.

Recent studies continue to suggest that the costs of perfectionism outweigh the benefits. APS Members may be particularly interested in a study of perfectionism conducted by Simon Sherry and colleagues at Dalhousie University in Nova Scotia (Sherry, Hewitt, Sherry, Flett, & Graham, 2010). Examining levels of perfectionism, conscientiousness, and academic productivity in psychology professors, they found that conscientiousness was associated positively with total publications, but perfectionism was associated *negatively* with the number of publications. What about publication impact? Did perfectionists produce better papers? Unfortunately, this was not the case. Perfectionists tended to have papers with less impact. These data show that there really is a fine line between striving for excellence and striving excessively for perfection.

Some of the largest costs associated with perfectionism may be in terms of poor health. A longitudinal study following a sample of Canadians over 6.5 years showed that trait perfectionism predicted earlier mortality (Fry & Debats, 2009). This finding held even after controlling for other health risk factors such as pessimism and low conscientiousness. A subsequent 2011 study of diabetes patients by the same investigators yielded a more anomalous pattern of results. Still, a link between perfectionism and serious illness is not surprising given that unrelenting perfectionism can be a recipe for chronic stress. Unfortunately for perfectionists, recent data in our lab (Baricza, Gupta, Hewitt, & Endler, 2011) suggest that once perfectionists experience a chronic health problem, they have coping difficulties. Our study of patients with Crohn's disease or ulcerative colitis found that perfectionism was linked with maladaptive emotion-oriented coping and greater illness impact. Similar results emerged from a study we conducted with 100 cardiac-rehabilitation patients (Shanmugasagaram et al., 2007). Another new study conducted with cardiac patients in Montreal has linked self-critical perfectionism with psychosocial

adjustment problems and other vulnerability factors (Dunkley et al., in press).

Meanwhile, other researchers continue to explore when perfectionism is adaptive versus maladaptive. A compelling series of studies reported by Powers, Koestner, Zuroff, Milyaskaya, and Gorin (2011) demonstrated that a key factor is the consistent association between perfectionism and dispositional self-criticism.

Given the apparent costs of perfectionism, much is to be gained from preventive efforts that highlight the difference between striving for excellence versus striving to be perfect. As data emerge on the consequences of perfectionism in young people, it is clear that prevention efforts should start in schools, but perfectionists of all ages can benefit as well. ♦



APS Fellow Gordon Flett

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Gordon Flett holds a Canada Research Chair in Personality and Health. He is also a professor of psychology in the Faculty of Health at York University and a member of the LaMarsh Centre for Child and Youth Research. In addition to his research on perfectionism and health, Flett is also exploring how aspects of perfectionism are transmitted from parents to their children. He can be contacted at gflett@yorku.ca.

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RISING STARS

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In case there was any doubt, the future of psychological science is in good hands. In a continuing series, the *Observer* presents more Rising Stars, exemplars of today's psychological scientists. Although they may not be advanced in years, they are making great advancements in science. The following are excerpts of the Rising Stars profiles. The full profiles are available online at www.psychologicalscience.org/observer/rising-stars.



Brian D'Onofrio

Indiana University, USA
www.iub.edu/~devpsych/

What does your research focus on?

My research focuses on identifying the mechanisms through which environmental factors, such as pregnancy-related, parental, and neighborhood risks, are associated with child and adolescent psychopathology. I am currently utilizing three approaches to specify these developmental processes: (1) quasi-experimental designs, including the comparison of differentially exposed siblings, twins, and offspring of twins; (2) longitudinal analyses; and (3) randomized-control intervention studies.

What publication are you most proud of or feel has been most important to your career?

My colleagues and I wanted to rigorously test the widely accepted inference that maternal smoking during pregnancy causes offspring behavior problems by using multiple research methods in one paper, including the comparison of differentially exposed siblings, offspring of siblings, and offspring of twins. The findings were the first in a string of quasi-experimental studies by our research group

and others that suggest maternal smoking does not have a direct, causal influence on offspring antisocial behavior and related problems (in contrast to pregnancy-related outcomes, such as preterm birth).

D'Onofrio, B. M., Van Hulle, C. A., Waldman, I. D., Rodgers, J. L., Harden, K. P., Rathouz, & P. J., Lahey, B. B. (2008). Smoking during pregnancy and offspring externalizing problems: An exploration of genetic and environmental confounds. *Development and Psychopathology*, 20, 139-164.

Read Brian's full profile online at www.psychologicalscience.org/observer/rising-stars/?n=donofrio

Nigel Gopie

Rotman Research Institute, Baycrest, Canada
www.nigelgopie.com



What does your research focus on?

How does memory facilitate our communication? Memory underlies our ability to retrieve the name of a colleague or to remember what we said to a friend a week ago so we do not repeat a joke or information. My research focuses on how memory facilitates these socially important tasks.

What publication are you most proud of or feel has been most important to your career?

I am most proud of my first publication regarding *destination memory*, memory for what we tell to whom, which is complementary to source memory. This research was published in *Psychological Science* and was a labor of much love, resonated with academic colleagues and international media, and continues to be a source of inspiration for one of my research programs.

Read Nigel's full profile online at www.psychologicalscience.org/observer/rising-stars/?n=gopie



Daniel Oppenheimer

Princeton University, USA

<http://web.princeton.edu/sites/opplab/>



What does your research focus on?

I dance around a lot of different research areas, but most of them are somehow connected to metacognition, judgment and decision making. How does what we think we know, (and how we think we think) influence the way we make decisions?

What publication are you most proud of or feel has been most important to your career?

My very first publication was accepted without revision. Since then I've never had any paper so well received by the reviewers. But starting my career with such positive feedback really bolstered my confidence (had my first publication been one with five cycles of revise and resubmit — which I've also had — I would probably have been much less motivated).

Read Daniel's full profile online at www.psychologicalscience.org/observer/rising-stars/?n=oppenheimer



Shannon Wiltsey Stirman

Boston University School of Medicine, USA

www.bumc.bu.edu/psychiatry/faculty-staff/

What does your research focus on?

My research focuses on the implementation of evidence-based practices in mental health. I'm particularly interested in two areas: training and sustainability. My collaborators and I are trying to determine the best methods of training clinicians to deliver new treatments. We also need to know more about what makes implementation efforts successful over the long term. I would like to identify the factors that are most central to sustaining evidence-based practices. As first steps, I've conducted a systematic review of the literature on sustainability from other fields, and I'm conducting a study that follows clinicians who received training in cognitive therapy over two years to learn what influences their use of the treatment over time.

What publication are you most proud of or feel has been most important to your career?

Stirman, S. W., Crits-Christoph, P., & DeRubeis, R. (2004). Achieving successful dissemination of empirically supported adult psychotherapies: A synthesis of dissemination theory. *Clinical Psychology: Science and Practice*, 11, 343-359.

This was my first paper on dissemination and implementation. Although my thinking has evolved somewhat, this paper really helped me to think through the direction I wanted to take my research.

Read Shannon's full profile online at www.psychologicalscience.org/observer/rising-stars/?n=stirman





Simine Vazire

Washington University in St. Louis, USA
www.simine.com

What does your research focus on?

My research examines people's knowledge about their own personalities. Do people know how they behave? Do they know how others see them? I examine the discrepancies between how people see themselves and how others see them, and try to determine who is more accurate. I also examine whether people are aware of these discrepancies, and if so, how do they justify them? Finally, I'm curious about the processes that lead to these discrepancies — why do others sometimes know us better than we know ourselves?

What publication are you most proud of or feel has been most important to your career?

I recently published a paper that presents the Self-Other Knowledge Asymmetry (SOKA) model. In it I try to account for the gaps between what people know about themselves and what others

know about them. It's a first stab at this thorny issue — I hope it serves as the foundation for future work.

Read Simine's full profile online at www.psychologicalscience.org/observer/rising-stars/?n=vazire

Hanna Zagefka

Royal Holloway University of London, UK
http://pure.rhul.ac.uk/portal/en/persons/hanna-zagefka_a5318f13-3b28-4a1b-add5-6e1de1eb52a8.html



What does your research focus on?

My research focuses on intergroup relations, particularly acculturation and other phenomena affecting ethnic minorities. More recently, I have started to investigate predictors of charitable donations, a line of work I am currently very excited about. I approach this topic from an intergroup perspective — how do group memberships increase or reduce prosociality towards those in need?

What publication are you most proud of or feel has been most important to your career?

This might be a recency effect, but I'm going to plunge for my most recent paper on donations to disaster victims, in press at the *European Journal of Social Psychology*. The media and third-sector interest in this work has exceeded my wildest expectations. This confirms to me that this line of work can make a real practical difference and edges me on to continue along this path.

Read Hanna's full profile online at www.psychologicalscience.org/observer/rising-stars/?n=zagefka



Champions of Psychological Science: David Funder

APS Fellow David Funder is a distinguished professor of psychology at University of California, Riverside. Funder is best known for his research in the field of personality psychology. He has authored a textbook and numerous articles on personality and is a past editor of the Journal of Research in Personality. Currently, he is working on a long-term investigation into human personality called the Riverside Accuracy Project. Funder took some time to speak with the APS Student Caucus (APSSC) about his career path and to share his wisdom with graduate students.

APSSC: How did you develop your current research interests, and how have they influenced you as a person and a professional?

I started out as an undergraduate major in Political Science at Berkeley, but at some point an assistant dean said to me, “It says here you are a Political Science major. Don’t you think you should take some courses in Political Science?” It was a good question. Nearly every course I had taken was in psychology. Thus, I followed the exact sequence described by the self-perception theory of Daryl Bem, my future graduate advisor. First you do something. Then you match your attitude to what you’ve done.

The first thing I did was enroll in a research seminar. The one I got into was taught by Jack Block. The theme was the “person-situation debate,” and the textbook was Mischel’s *Personality and Assessment*. I permanently imprinted on Jack Block as a person as well as his uniquely humanistic and simultaneously utterly rigorous perspective on psychology.

I was admitted to Stanford for graduate school, mostly because Daryl Bem saw that I was a Block student and he was interested in Block’s Q-sort technique. I did all the parts of the research project Daryl didn’t want to do. In that way, I became Daryl’s “right hand,” which was the best possible way to absorb the way he came up with ideas and thought through problems.

All this time I self-identified as a social psychologist. In my project with Bem, I gathered both self-reports and peer reports of personality and became fascinated by the similarities and differences between the way a person saw himself or herself and how they were viewed by others. I also wondered how accurate these “person perceptions” were, and naturally I thought the topic belonged to social psychology.

I discovered I was wrong. Social psychologists of the time, to the degree they considered personality judgments at all, treated them as pitiable sources of error. I also discovered I was unemployable as a social psychologist. However, to my surprise, personality psychologists — from a field where I did not think I belonged — tended to find my topic more interesting. So I ended up finding an intellectual home as well as employment in personality psychology.

What suggestions do you have for choosing an area of study?

The best single piece of advice I ever heard for choosing a research topic was in a talk I heard years ago by Eliot Aronson. His advice

was to fantasize that the latest issue of the main journal in your field has just landed on your desk. Imagine scanning the table of contents and seeing an article that by its title alone causes you to cancel what you meant to do that afternoon just so you can read it. What’s the title of that article? There is your next research topic. To actually read that article, you must write it.

You’ve become a leader in the field of personality. What role do you think personality research plays in our broader understanding of psychological science?

I take the imperialistic view that personality psychology subsumes all the other subfields. Cognitive, biological, developmental, and social psychology contribute pieces to the puzzle, and personality puts them together. A corollary of this observation is that many people who don’t self-identify as personality psychologists really are, whether they know it or not.

Let’s talk about graduate school a bit. How did you select a graduate program?

I sent out about a dozen applications. After I was accepted to Stanford, I drove across the bay and saw the campus for the first time. It looked pleasant enough, and then I found out it was the top-rated program in the world. So it seemed like a safe choice. It certainly worked out well for me. I don’t know that there is a lesson for others in this experience except that it helps to be lucky.

What were the most rewarding aspects of graduate school?

I had a wonderful time in graduate school. The intellectual energy of people like Daryl Bem, Walter Mischel, Lee Ross, Leonard Horowitz, Mark Lepper, and others made Stanford a vibrant, exciting, and challenging place. But there was stress too. Our professors let it be known that we were there to do the cutting-



APS Fellow David Funder

edge research that would define the future of the field. We weren't supposed to do ordinary stuff, and proposals to do anything less than exceptional were greeted by yawns. It was exciting, but scary. I remember one of my fellow graduate students saying, "It's bloody out here on the cutting edge!"

How can students work towards becoming first-rate researchers while still in graduate school?

I'm a great believer in apprenticeship. Make yourself indispensable to somebody who knows how. You will learn more from doing his or her "grunt work" than from any number of lectures, articles, or books.

What are some of the common mistakes you see graduate students and young professionals making?

The most common mistake is to follow the crowd. Just because a topic is "hot" does not mean it will stay hot or, more importantly, is the right topic for you. Follow a path where your interests and talents lead you, not where the crowd is going. The work will be more fun and will offer more room for creativity. Admittedly, this is a high-risk/high-gain strategy, but so is becoming a research psychologist in the first place.

What advice would you give to graduate students who want to have careers in academia?

Academia is a funny field because it is at once the easiest and most difficult place to make a living. It's easy because you can

set your own hours and work on whatever grabs your fancy. On the other hand, academia is brutal. I don't have to tell you the ratio of applicants to jobs. And once you get a tenure-track job, the pressure only worsens. Nobody will care how hard you worked. It won't matter if you stayed in your lab until midnight every day if you didn't get anything done. The tenure committee will look at your vita. What did you accomplish? No excuses.

What do you see in the future for psychological science and personality research?

I'm optimistic about both. While some research on brain imaging and related topics has been oversold, in the end, identifying psychological science more closely with other life sciences can only be good.

Personality psychology spent a lot of time in the doldrums, and too many people still think it's about the disagreements between Freud and Jung. A larger number of psychologists, almost equally wrong, think it's all about the Big Five. But personality psychology draws on and contributes to every area of psychology. This is becoming more apparent to the rest of the field and to the world at large as personality psychologists do innovative work on (literally) everything from neurophysiology to cross-cultural comparison.

Finally, psychology has two strengths that guarantee its future. First, it's useful. Second, it's interesting. ●

Editor's Note: This interview has been edited for space. To read the full transcript online, go to www.psychologicalscience.org/r/observer/funder.

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B.F. Skinner: Scientist, Celebrity, Social Visionary

By Alexandra Rutherford

Digging into the history of psychological science, the Observer has retrieved classic interviews with prominent psychological scientists for an ongoing series Psychology (Yesterday and) Today. Each interview is introduced by a contemporary psychological scientist, and the full text of the interview is available on the Observer website. We invite you to reflect on the words of these legendary scientists, and decide whether their voices still resonate with the science of today.

Burrhus Frederic Skinner once famously stated, “If I am right about human behavior, I have written the autobiography of a nonperson.” This attention-grabbing remark, made in 1983 after he had completed the *third* volume of his autobiography, captures why Skinner has been such a polarizing figure: We tend to be interested in *people*. Moreover, we tend to *experience* ourselves as people, not as loci of genes, environmental stimuli, and complex reinforcement histories. The two *Psychology Today* interviews with Skinner, the first by Mary Harrington Hall in 1967 and the second by Elizabeth Hall in 1972, actually reveal much about Skinner as a person and as a deeply impassioned scientist-turned-social-visionary. For as careful and rigorous a scientist as Skinner was, it was his social vision that made him, at least for a brief moment, a celebrity.

Published just five years apart, these two interviews capture an important slice of Skinner’s career trajectory. When he was first interviewed in 1967, it was already eight years after Noam Chomsky’s review of Skinner’s *Verbal Behavior* had supposedly dealt a death-blow to behaviorism, and Skinner remarked casually that he might have another five good years left (he was actually productive right up to his death in 1990). In the late 1960s, behavior modification was spreading like wildfire in classrooms, hospitals, and prisons. Skinner made a reference in both interviews to a program he was particularly excited about, a program at the National Training School for Boys (which was a juvenile correctional facility in the mid-1960s) that employed a token economy to help inmates reach educational goals. By the time Skinner was interviewed in 1972, he had published *Beyond Freedom and Dignity* (BFD) and was widely characterized as a fascist. As one young reader put it, “I think I would have burnt your book, but that had fascist overtones and besides, I wanted to show it to a few people first. You make me sick. How’s that for subjectivity?”

The two interviews also bookend an extremely turbulent period in American history, a fact that no doubt influenced Skinner in writing BFD. When 1967’s summer of love brought widespread attention to the counterculture movement, he made his assessment of the “hippie culture” clear in the 1967



B.F. Skinner

interview. He said, “Young people have discovered techniques of control, and they have also discovered ways of escaping from the techniques used on them. Again, they defend themselves with a philosophy of freedom. They demand the right to do as they please. Often this takes the form of doing whatever is immediately gratifying — taking drugs, having sex, playing an easy instrument like the guitar, or doing nothing.” Writing a bit later in response to a college student’s inquiry, he noted, “I believe the hippie philosophy emphasizes doing little or nothing for society. It seems to me that the hippie culture does not take its ultimate consequences into account, and could not survive except as a parasite.” Despite his general disdain for the counterculture as a whole, Skinner did endorse two intentional communities inspired, at least in part, by the utopianism of this cultural moment: Twin Oaks in Louisa, Virginia, and Los Horcones in Hermosillo, Mexico. Both were inspired by his novel *Walden Two*, but they were clearly not hippie communes.

By the time of the 1972 interview, BFD had reached the top of the *New York Times* bestseller list. The second interview was conducted “in the aftermath” of this new-found notoriety. It reflects Skinner’s fervent desire to see behavioral technology taken up to solve social problems. As Skinner put it, “I think we’re making a mess of things, and all our problems have to

Alexandra Rutherford is an associate professor of psychology at York University in Toronto. Her research focuses on the history of psychology and social life in the 20th century. She is the author of *Beyond the Box: B.F. Skinner’s Technology of Behavior from Laboratory to Life, 1950s-1970s*. She can be contacted at alexr@yorku.ca.

do with behavior.” This belief in using behavioral technology to design suitable cultures led Skinner to write *BFD*. The trick, according to him, was to convince people that we *need* to design cultures using effective methods, given our behaviors are already being manipulated anyway. Of particular concern to him, in the interview and in his book, was the threat of nuclear war. The Cold War was a consistent backdrop to Skinner’s scientific career and no doubt influenced much of his thinking about the need for behavioral technology.

Skinner’s particular technological bent, however, was evident very early in his upbringing. As a young boy, he grew tired of being scolded for leaving his pajamas on the bedroom floor, so he invented a gadget that would remind him to pick them up before leaving his room. Designing gadgets to make life easier was a consistent theme both at home and at work. His first professional “gadget” was a pigeon-guided missile system designed for use in WWII, although it never got past the prototype stage. His next invention, which he discussed in the 1967 interview, was the baby tender, also called the aircrib and — infamously — the baby box. Skinner and his wife Yvonne used the tender with their second daughter, Deborah. Although Skinner is a bit nonchalant about the significance of the device in his interview, remarking that it solves “only a very simple physical problem” of child-rearing, he nonetheless spent considerable effort in the 1940s and 1950s trying to interest someone in mass-producing it.

A gadget in which Skinner did take a serious professional interest was the teaching machine, or, more properly, programmed instruction. In the 1967 interview, he stated authoritatively and optimistically, “I have no doubt at all that programmed instruction based on operant principles will take over education.” Skinner’s optimism was not unwarranted at the time. In the early 1960s, programmed instruction was touted widely as one of the most promising, indeed revolutionary, of the educational technologies being developed in the then-ascendant educational technology movement. In 1961, a writer for *Science Digest* wrote, “A few months ago, thousands of school children from coast to coast were quietly subjected to what may turn out to be the greatest educational revolution in history. They began the first large-scale experiment in learning, not from human teachers, but from teaching machines.” By 1972, however, the enthusiasm for the machines had diminished. Reflecting his increasing pessimism about the state of education (and the world) that had catalyzed *BFD*, Skinner said, “I’m concerned with improving education. Programmed instruction could make a great difference. Industry, which appreciates a good thing, uses it extensively. Yet it is only beginning to be used on a reasonable scale in grade schools and high schools.” Indeed, the “takeover” of education that Skinner envisioned never came to pass.

The 1972 interview was part of the public relations maelstrom that followed the release of *BFD*. As Elizabeth Hall notes in her post-script, Skinner appeared on several nationally broadcast

television programs and became a recognizable public figure. By his own count, Skinner reported that he made over 40 radio and television appearances at this time, and he wound up on the cover of *Time* magazine in September of 1971. In 1972, references to *BFD* even appeared in advertisements for Dewars White Label blended scotch whiskey!

Whiskey sales aside, with 40 years of hindsight, what is Skinner’s place in history? Mary Harrington Hall, in the preface to her 1967 interview, suggests that “when history makes its judgment, he may well be known as the major contributor to psychology in this century.” It is safe to say that Hall’s rather cautious prediction has been borne out. In contemporary surveys of disciplinary eminence, Skinner’s name always rises to the top of the list. Over a career that spanned more than 60 years, he published over 20 books. His science of behavior became the foundation for the contemporary discipline of behavior analysis, whose professional organization, the Association for Behavior Analysis International, currently has over 5,000 members in the United States and 13,000 members in affiliated chapters around the world. Numerous behavior analytic journals carry on the Skinnerian tradition. You can even become a certified Skinnerian — a board-certified behavior analyst.

For all of these reasons, Skinner is a notable figure in the history of psychological science. But it is clear that Skinner’s historical significance transcends simple disciplinary eminence. I would propose that for all of his contributions to psychology, Skinner should perhaps more appropriately be placed in the long line of utopian thinkers who have tried to imagine what a better world would look like. In Skinner’s case, he also offered some tools to build it. Too bad he just couldn’t convince enough of us to take them up. ●

Editor’s Note: To read the full interview with B.F. Skinner as well as other interviews from legendary psychological scientists, please visit our *Psychology (Yesterday and) Today* series page at psychologicalscience.org/psychology-today

Suggested Readings

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Feedback From the Whole World

By Benjamin Karney

I have been teaching graduate seminars in social psychology for 15 years, and in every one the final project was the same: write a 15-page paper on whatever you are working on right now. At the end of the course, I would read it. Eventually, the student's advisor saw it. And then, unless the paper got published, that was the end of it. The term paper for all of those years was either a private matter between the student and myself, or a step on a road to publication that the student would have travelled with or without my course.

The APS Wikipedia Initiative offered me a new option, and one that seemed quite consistent with the social psychology that I try to teach. The modern field of social psychology was founded by scholars like Kurt Lewin, for whom all research was a preliminary step toward actions, toward efforts to improve or illuminate the world. What better way to bring these founding principles to life than to translate the act of studying social psychology into an opportunity for action as well? This was an opportunity too good to pass up, and this year for the first time, the incoming doctoral students in social psychology at UCLA were required to revise an existing Wikipedia article on a topic from social psychology or to create a new article on a topic of their choosing for their first quarter project.

By the third week, when they were required to choose their topic, it was already clear that the stakes of this assignment were somehow higher than they would have been if the students were just writing another paper for class. Students worried about whether the topics they were choosing to write about were too broad, or too narrow, or not important enough, or too intimidating. Students felt a responsibility to their imagined online audience: what do readers need to know, and what level of detail is needed? These were, of course, questions they might also have asked about their own research topics, but the knowledge that their Wikipedia articles would appear in front of an audience in just a few weeks made these questions especially salient.

Students were required to make an initial draft of their article live on Wikipedia a couple of weeks before the end of the course so that the Wikipedia community would have a chance to respond to the articles while the course was still ongoing. At this point, students learned a valuable lesson about intellectual turf. Some of the original authors of the articles that they had revised were none too pleased to see their work altered,

and these individuals responded directly to my students. Students who had been contacted came to me confused. In their view, they had clearly improved the articles by broadening the content, updating the references, and generally presenting a more complete explanation of each topic. What could the original authors be complaining about? Students who contributed new work were likewise



Benjamin Karney

alarmed to see Wikipedians altering the finely crafted words they had posted. Most of the changes, it must be said, were quite minor. The students had done a wonderful job of following Wikipedia's posted guidelines, and most of the changes to their work were in the realm of adding hyperlinks and correcting typos. Still, it irked some of them, not only to have their work corrected, but to have it corrected in public.

Then they discovered the view count tab. What citation rates are to researchers, view counts are to Wikipedians — with the crucial difference that views accumulate much, much faster than citations. A student wrote to me proudly that, after appearing on Wikipedia's "Did You Know..." feature, her article had been viewed over 4,000 times in two days. (In the 17 years since it was published, my own most-cited piece of research has been cited... well, a whole lot less frequently than that.)

In their course evaluations, students' comments on the assignment were uniformly glowing. Final papers are a chore, but revising an article that might be the world's first source of information on that topic? That was a calling, and students felt proud of what they had done. Graduate school had not promised them any ability to make an immediate impact. On the contrary, they had been told to expect delayed gratification, if any. Yet this project delivered the visceral thrill of an effect (responses from strangers, increasing view counts) that directly followed from their effort. Moreover, several of them, now that they understood how to maneuver within Wikipedia, took the initiative to elaborate upon, add references to, or review other

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articles on the site, even though they weren't required to put in the extra time.

From my perspective as an instructor, the project was a success on several levels. The Wikipedia articles were frankly more fun to read and to grade than the average student paper because students were writing for a broad lay audience. For many of their topics, I resided squarely within that audience. Second, and this one came as a surprise to me, the project turned out to compress

many important aspects of the scholarly publication process – writing for an audience, dealing with critical comments from reviewers – into just a few weeks. Experience with this process was, I think, as valuable as writing the articles themselves. Finally, the number one source of general information in the world is now more accurate and useful than it was a few weeks ago. The social psychologists have, measurably, changed the world. Lewin would be proud. ●

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Sticky Teaching

How to Turn Your Students Into Kids in the Psychological-Science Candy Store

By Abigail A. Baird

As teachers we rely on the fact that human beings are fundamentally curious creatures. Additionally, people tend to have a natural curiosity about themselves and those around them, which gives psychology teachers an excellent advantage in the classroom. Despite this advantage, many of us see our students again in higher-level classes and wonder why the lessons we know we taught them did not stay with them. We wonder, why didn't my teaching *stick*? We all know that it's far easier to recall the contents of a Discovery Channel program than a two-hour topical lecture, but few of us understand why this is the case. Malcolm Gladwell and Dan and Chip Heath have looked to the business and advertising worlds and discovered six concepts that are surprisingly relevant to making ideas "stick" in peoples' minds: Simplicity, Unexpectedness, Concreteness, Credibility, Emotion, and Stories. These ideas can be applied to teaching, and in this essay, I will show you how you can apply them in the classroom.

Simplicity

Simplicity doesn't mean "watered down." That is a common mistake. Simplicity means accessibility. It means communicating the material in a universal language. One of my favorite examples of making a traditionally complex idea simple (i.e., accessible) is synaptic transmission. Students often believe that the brain is way too complicated for anybody to understand. This is simply not true. One of the ways I teach neurotransmission is to ask if any of the women in the room are still conversant in eighth-grade girl language (don't worry, there are always at least two or three in the room). Then I ask, "If you're in school, and one of your 'besties' comes rushing down the hall saying, 'Oh my God! Oh my God!!', what is the appropriate response?" I promise you that more often than not a student will answer along the lines of "Oh my God, WHAT WHAT?" This response matches the excitement of the "bestie" flawlessly, and it's usually followed by a pause before the excited girl will spread the news she was carrying to the rest of her peer group. That's how neurons work. A neuron gets really excited, "Oh my God! Oh my God!!"; and then a receptor responds, "Oh my God! What? Really?"; and then it's off to go find the next person (or cell) to share information with. That's how neurons work. That's it. The charge comes down

the school hallway (or axon), there's an exchange between two parties (neurotransmitters are released from vesicles crossing the synaptic cleft and received by the dendrites of a neighboring cell), and the information begins to spread. An eighth grader who has just heard incredible gossip feels compelled to tell at least four people, and neural networks get excited in a similar way. They're eighth-grade girls. That's all neurons are. I bet you're not going forget that now. That's simplistic, but not watered down.

You can easily extend this analogy to neurotransmitters. Imagine the same eighth-grade girl comes running down the hall in an American school, but she delivers the same message in Bulgarian. What happens next? The girl on the receiving end will probably respond with something like, "Uh, what...I don't understand." If you don't speak the same language, you can't have a transmission. That's what neurotransmitters are. Serotonin's different from Norepinephrine or Dopamine. These chemicals are just languages that neurons speak. Notice — this material is not watered down, but it's simple. What is neuroplasticity in this analogy? Ever seen how groups of teens change their behavior depending on to whom they are "talking to." You can carry an analogy very far if it helps make a more complex idea approachable and accessible.

Contextualizing material for your students is another form of simplicity. One easy approach is to ask them questions such as, "So, how many of you guys have had an experience with 'X'?" It's important to interweave difficult concepts with material or experiences that students are familiar with. In sum, start with something you know you've already gone over and they're aware of, or provide a relevant and apprehensible context for the information, and then build their understanding from there.

Unexpectedness

Unexpectedness is the element of surprise. This concept is how all the fantastic programming on the Discovery Channel holds our attention for hours. You can do this in your classroom too. Find the most unexpected piece of a concept and present it first, just like a cliffhanger. Once you have your students' attention, the rest of the explanation will be gobbled down like their favorite sweet treat.

For example — I would say to a class, "Did you know that you can increase your performance on math tests by almost 30 percent simply by activating your identity as an Asian, and avoiding your identity as a female?" Then I would segue into the concept by saying:

Now that I have your attention, Ambady and colleagues (2001) conducted a study about the effect that different

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stereotypes have on performance. There is a stereotype that females are bad at math and a stereotype that Asians are good at math. So, what happens if you're an Asian female? The researchers had women come to their lab on two separate occasions to take a battery of tests, including a math test. During one visit their female identity was activated, and during the other visit their Asian identity was activated. The same person demonstrated a 27 percent difference in their performance based on whether they were primed by their Asian or female identity.

By sharing unexpected findings, you can keep your students enthralled while you explore the nature, development, and effects of stereotypes. Every area in psychology is rife with interesting findings. There are two relatively easy ways to find new and unexpected examples for your teaching: One way is to be on the lookout for popular press accounts of unexpected scientific results, and another way is to do a search of recent literature in the area you're about to teach. The point is, start with an unexpected cliffhanger and use their interest in that story to deliver the concepts.

Concreteness

Teaching in a concrete manner can take several forms. Probably the most obvious of these forms can be thought of as "choosing your battles." This concept works by letting your students know at the beginning of class, "This is the lesson of the day. If you walk out of here learning only one thing today, this is what I want you to understand." Make sure to sprinkle this one lesson throughout your lecture, and make sure to come back to it at the end of class.

It's also important to be concrete about what smaller things within your lecture are critical for your students to learn. Really emphasize what is most critical for your students to know. Something as simple as pausing and saying, "This is especially important," or "You guys – make a note right now, this is something I really want to make sure you understand. So, if you don't understand it, come see me or spend some more time on it because it's important." If you can, try to look at as many faces as possible while you're making these statements, because in every classroom, there are at least one or two students who are confusion barometers. These students have no control over their facial expressions, so when you ask the room if everyone understands a particular concept, they stare at you with a mix of confusion and terror. Use those students as a cue to make sure everyone is clear on the material. Undoubtedly, more than half of the students in the room (who were too cool or too good at self-monitoring to signal to you that they were lost) will appreciate going over material one more time. It's also important to try to use a different example or different context when you're re-emphasizing the point, because for some students it may be the context or the example that was hard for them to follow. Plus, for students who understood the point, a new example will keep them from tuning out.

Credibility

We have a certain amount of inherent credibility as professors that professionals in the business and advertising world do not. The most

important aspect of credibility, as a teacher, is to be open and honest about not knowing something. When you don't know the answer to a student's question and offer a fluffy distractor, students will notice. You will also likely lose your credibility with them permanently. For example, say you respond to a question with something like, "You know, that's not really relevant. And that's not going to be on the test, so you don't have to worry about that." You're being dismissive. Brushing off a curious student is never a good idea. It's absolutely fine to say, "That's a really good question. I have absolutely no idea. But, I do know where to find the information." Given that you went to school for a minimum of 40 years (or thereabout) to earn your degree, you know exactly where to go to get that information and how to make it accessible to your students. So when you don't know something off the top of your head, let your class know that you're going to make a note of it, and either email the answer to them, or bring it to the next class meeting. Responding to a tough question with something like, "You know, that's great! I hadn't thought about that," works because your students will feel like they're smart and that you're willing to engage them in serious academic discourse. It's also important to remember that (with few exceptions) the student is not challenging your authority or intellect. No one can know everything. A lot of us have the privilege to teach students who are exceptionally bright and curious, and if we measured raw intellect they might in fact be "smarter" than us; however, they don't know the field of psychology the way we do. We can navigate it for them. Intelligent students and a confident, informed professor to navigate make for smooth and exciting sailing.

Emotion

We know that the right level of emotion and arousal are critical for learning. The subject matter of psychology can be pretty emotionally arousing on its own, but you can also influence emotion a great deal through your teaching. One way to increase the emotionality of information is to make it personal. For example, if you were discussing peer pressure and asked your class to close their eyes and remember middle school, to remember the cafeteria or a specific classroom and describe the image to themselves, I guarantee you would conjure some strong emotion. Creating tangible examples that your students can *feel* for themselves creates a more memorable experience. Another example comes from understanding auditory hallucinations. You can ask your students if they can imagine one of their parents admonishing them. Ask them if in their minds they "hear" their parent's voice, and almost all will tell you they can. Then ask them to further imagine hearing a "typical" big angry man saying the same words, and most will say they can also do this. Finally, ask them to think about what it would feel like if they didn't realize that they were generating these "internal voices" themselves. Imagine hearing something so real, and not realizing that you yourself were creating it. It's a rather scary proposition, one that packs a powerful emotional punch and brings a new understanding to "hearing voices." You can create learning situations that are very relevant to your students in class by trying to tie the points in the lecture you want them to remember to things that your students have (or can imagine they have) experienced. When you're planning your

lecture, ask yourself, Why should they care about this? How does the material apply to them?

Emotion also needs to come from you. You need to be passionate about what you're teaching. And if you're getting bored with your course, reinvent it. Find something you love, because that's so much better than forcing yourself through a topic you're not emotional about. Even if it takes you slightly off topic, find something that really excites you because it will excite your students too.

Stories

Stories are critically important to sticky teaching. They often serve as examples that present the material from another perspective or contextualize the concept being taught. It's never a good idea to cover difficult material for more than twenty minutes without some sort of mental break. Students need a break. And by a break, I mean a brief time during which they can rest their minds a bit or catch up on their notes. Students appreciate, sometimes, when you say something like, "Okay. This isn't going to be on the test but I have to tell you guys a really good example of what we were just talking about." When you share stories, the students who need to catch up on their notes will tune you out and catch up on their notes, while other students just need a two-minute break to let their mind consolidate some of the information you have just given them.

When I teach Introduction to Psychology and we get to the section on memory, I get the chance to tell one of my favorite stories to illustrate how suggestibility works. This story illustrates how co-occurring events can be combined and embellished over the years to form a logical, and causal, explanation of a past experience in a child's mind. This story is about my youngest brother and the Goodyear Blimp. A few years ago, I was sitting in a tavern with my brother having a nice night of catching up and reminiscing. Out of the blue my brother says, "Hey, remember the time I got knocked over by the Goodyear Blimp?" I stare at him with utter confusion, and say, "Um, no I don't remember that." My brother then starts describing the day and what had been going on, and I suddenly remember exactly what he was talking about.

What really happened was that we were playing in the backyard, and the Goodyear Blimp passed overhead. It appeared to be descending to some location near our house (an optical illusion that children are prone to). We decided that we had to see where it would land. We tore through our yard and out onto the sidewalk. We were running down the sidewalk when I heard, "Boomp!" I turned to see Chris pulling himself up with skinned hands, skinned knees, a skinned chin, and tears streaming down his face. He fell because he was running while staring up at the blimp. I brought him home and explained to our Mom why we were out on the sidewalk and not in the backyard where we were supposed to be. Following our brief, but intense, admonishment, Chris got all patched up and that was the end of it.

Fast forward to a Boston pub twenty years later when I heard, "Remember when I got knocked over by the Goodyear

Blimp?" Because Chris had been looking at the blimp when he fell, the two events got stuck together. That's how suggestibility can work. An added bonus of using stories in the classroom is that you're often able to incorporate more than one aspect of stickiness at the same time. For example, in the story above, there is also a great degree of emotion and unexpectedness. Stories are, by their nature, concrete and usually credible. In thinking about how the concepts of stickiness apply to your teaching, you may find that it's easy to teach in ways that use multiple sticky factors within the same lesson. And when it comes to being sticky, more is better.

Closing Thoughts

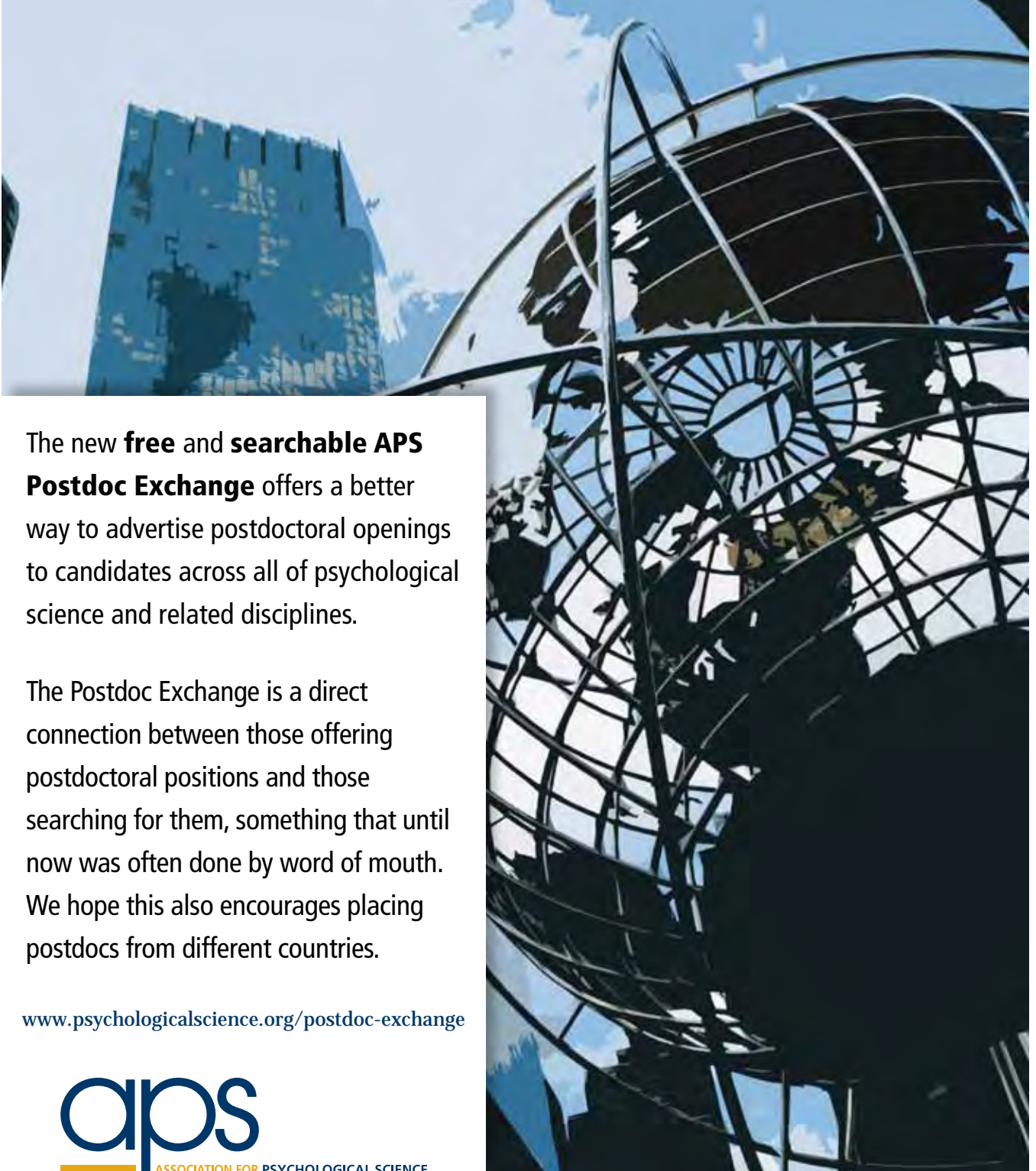
The factors described above have had a significant influence on my approach to teaching psychology. I have come to realize that due to the rapid expansion of psychological science, it's increasingly important to teach process along with content. Process refers to how we can access, evaluate, and assimilate psychological scholarship. In this new information age, scientific literacy is increasingly important not only as an academic pursuit, but as a critical life skill.

Perhaps one of the things I try to avoid most in my teaching is what Robert de Beaugrande recently termed "bulimic education," in which the learner is force fed a set of facts to be memorized for a narrow purpose such as an examination, then purged to make room for the next set of facts. Thanks to the age of information, facts are fairly accessible, particularly to our increasingly savvy students. This is not to say that the fundamentals of any area should be overlooked, but fundamentals are different from facts. Students don't need us to teach them facts; They need us to help them learn to assimilate information into three-dimensional understanding. In an age in which (whether we like it or not) we are competing with all sorts of media for our students' attention, using the same strategies that many of our "competitors" in advertising and business use, can be invaluable. What is particularly wonderful about being mindful of stickiness (simplicity, unexpectedness, concreteness, credibility, emotion, and stories) is that these ideas are not counter-intuitive for most teachers. You're likely familiar with ideas described above, but after thinking about how they could be used collectively, you might find yourself inspired to make some small, and potentially invaluable, tweaks to your teaching.

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Transfer or Transition?

Considerations When Your Advisor is Leaving

By Lindsay D. Nelson, Daniel J. Goldman, and Nicholas R. Eaton

Selecting the best research advisor and securing the opportunity to work with that person are two of the biggest hurdles of graduate study. Once students find an advisor and secure funding, they tend to focus all their energy on research, imagining that there's nothing else but a few years of hard work between them and their degree. But many students, including the three authors (who all began the same graduate program simultaneously), have had to face another unexpected challenge — a moving advisor. In this situation, students are faced with a difficult choice: transfer or transition.

Transfer: Moving With Your Mentor

The biggest question that comes up when an advisor is moving is whether one should — or even can — transfer to the advisor's new institution. When considering a transfer, there are a number of things students should be aware of. First, students who move with an advisor will probably need to *formally* transfer to the new program, which typically involves reapplying to graduate school. Although acceptance to the new program may be guaranteed as part of an advisor's contract negotiations, students should communicate with their advisor about this possibility as early as possible to maximize the chance that their needs are being built into the arrangement.

Another consideration is whether or not the new program will allow previously completed coursework to fulfill its requirements. Curricula vary widely across programs and, unfortunately, the onus may be on the student to prove how past coursework meets the requirements of the new program. One solution to this problem is to compare syllabi from previous coursework with the new program's coursework requirements to demonstrate that there is a significant overlap. Another approach is to obtain American Psychological Association (APA) accreditation documentation for both programs, which can help students demonstrate exactly how each program's courses satisfy specific APA directives. Even if the new program accepts previous coursework, transfer students should be prepared to take additional courses or fulfill additional requirements for their new program's unique requirements.

A final concern for students considering a transfer is that the culture of the new department may be different from their

previous program. For example, programs have various explicit and implicit expectations related to completing theses and dissertations. One program may allow students to collect data before defending a thesis proposal, while another may not. Some departments have financial assistance for conference travel, while others expect students to find their own funding. Clarifying these details ahead of time, and asking the departing advisor to help facilitate the transition, allows students to learn the nuances of their new department and to navigate its politics effectively.

Logistics aside, moving with an advisor has additional consequences, from losing the camaraderie and support of fellow students to the possibility of losing collaborative relationships with faculty in their department. But even with these concerns in mind, a transfer provides an exceptional opportunity for students to leave graduate school with a broader understanding of how their field operates.

Transition: Finding a New Advisor

Students who have the opportunity to transfer are pretty lucky. Depending on the circumstances of an advisor's move, it's not always possible for students to follow, and students who stay at their original institution after the loss of an advisor have their own set of unique challenges to face. Issues that must be navigated include whether or not it will be feasible (or desirable) to continue working with the departed advisor remotely. Even when students and advisors work well together, long-distance advising can be problematic. Students who stay behind run the risk of becoming a secondary concern to both their original advisor and their graduate program. Departed advisors will likely have more immediate priorities at their new institutions, so it falls to the student to ensure that he or she remains a priority and to prepare a backup plan in the event that the original advisor's support is lost. Similarly, students who stay can quickly become "no one's" student within the department, and they may not get the support they need to complete program requirements, apply for funding, and so on. Departmental logistics can also become a problem. For instance, the program will likely still require an "official" local advisor to sign off on paperwork, and the original advisor may need to travel to attend the student's dissertation defense.

To avoid these potential pitfalls, many students who stay at an institution choose new advisors. This solution, however, has its own difficulties. Depending on the similarity of research interests, these students may be required to refocus their work on another substantive area. As a result, students often lose the resources and support they need to complete unfinished projects. Students may also have to delay graduation while they get up to speed with their new laboratory and advisor. For students

Lindsay D. Nelson, Daniel J. Goldman, and Nicholas R. Eaton enrolled in the Clinical Science and Psychopathology Research Program at the University of Minnesota in 2006, and subsequently their advisors moved to different institutions. Lindsay followed her advisor to Florida State University, Daniel stayed at the University of Minnesota, and Nicholas followed his advisor to Washington University in St. Louis and back to the University of Minnesota. Lindsay can be contacted at linnelson@gmail.com. Kris Gunawan served as Guest Editor for this submission.

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who are farther along in their programs, having limited time to develop a good working relationship could ultimately affect their careers when they ask their new advisors for letters of recommendation or to be a reference.

A Contingency Plan

For individuals who have yet to enroll in graduate school, the possibility of an advisor's move is somewhat easier to handle. Applicants can speak frankly with prospective advisors about any intentions to leave in the coming years. They can also look closely at other faculty in the program to determine whether alternative advisors would be available if their advisor left. For students who are already in graduate programs, one of the best ways to minimize the impact of an advisor moving is to develop collaborations within their department. These relationships will buffer against the likelihood that students might be left behind without a logical advising contingency plan.

Even with a contingency plan, working with a moving advisor can be challenging. But students should view the move as an opportunity to reassess their graduate school trajectory and broader career goals. The departure of an advisor is a rare occasion to start over and/or completely change directions. Ultimately, the decision students make to transfer or transition should boil down to one thing: determining what is best for them and their careers.

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Thinking Outside the Box — Literally

Christopher Shea explains experiments from a forthcoming *Psychological Science* study that compared the creativity of people sitting inside of a box to the creativity of people sitting outside of the box. Participants who answered questions and solved puzzles outside of the box were more creative.



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Why To-Do Lists Set You Up for Failure

Before making a to-do list, consider APS Fellow **Barry Schwartz's** advice: People don't respond well when they are overwhelmed by too many choices — and a to-do list creates a lot of choices. Reporter Dave Johnson suggests your Outlook calendar may be a better option.



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Survival's Ick Factor

More psychological scientists are studying disgust. James Gorman reports that disgust plays an important role in how we take care of ourselves and with whom we associate. It's also easier to ethically invoke disgust in study participants than it is to invoke other negative emotions, such as fear.



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Your Negative Status Updates Rub People the Wrong Way, Apparently

People with low self-esteem may see Facebook as a safe place for sharing their feelings with others. But forthcoming research in *Psychological Science* shows that posting many negative status updates may make Facebook users less likable.



TIME

February 2, 2012

Steven Pinker, Harvard University, *The Sydney Morning Herald*, January 27, 2012: In Dumb Luck We Can Trust.

Cynthia Pury, Clemson University, *National Post*, January 25, 2012: Courage & Cowardice.

Paul Rozin, University of Pennsylvania, *Le Monde*, January 25 2012: BEURK — Le dégoût est un sentiment utile;

Barry Schwartz, Swarthmore College, *CBS News*, January 30, 2012: Why To-Do Lists Set You Up for Failure.

aps Mark Seery, University at Buffalo, The State University of New York, *Woman's Day*, January, 20 2012: Where's My SuperHero Cape?

Shelley Taylor, University of California, Los Angeles, *USA Today*, January 24, 2012: Study Shows How Stress Triggers Immune System.

Alexander Todorov, Princeton University, *Forbes*, January 25, 2012: How Do Romney's and Gingrich's Looks Affect Their Chances?

aps Kathleen Vohs, University of Minnesota, *Express.be*, February 2, 2012: Waaraan kan u het moeilijkst weerstaan? Seks, alcohol, roken of e-mail lezen?; *The Huffington Post*, January 27, 2012: Making Time Stand Still. Awesome.

aps Eric Wesselmann, Purdue University, *The Atlantic*, February 2, 2012: Study of the Day: More Evidence That We're a Very Needy Species; *MSN*, January 31, 2012: Even Strangers Can Make You Feel Left Out.

aps Joanne Wood, University of Waterloo, *TIME*, February 3, 2012: Your Negative Status Updates Rub People the Wrong Way, Apparently.

aps Coverage of research from an APS journal



Podcast included in coverage



Video included in coverage



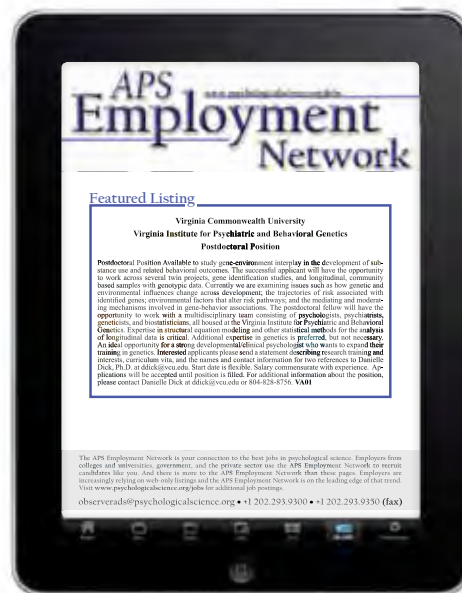
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Featured Listing

Penn State-Berks Applied Psychology Program Instructor

The Berks College of The Pennsylvania State University, Reading, PA, invites applicants for a full-time multi-year faculty position in our Applied Psychology Program effective Fall 2012. Preference will be given to candidates with Ph.D. or Psy.D. in clinical/counseling psychology or related field. We seek an energetic, talented, teacher-scholar with strong teaching skills and service who will teach a 4-4 load in our rigorous internship program, introductory psychology, and special topics as needed. Preference will be given to candidates who are Licensed or eligible for Licensure in PA. The successful candidate will teach undergraduate courses commensurate with his/her professional training including teaching courses in internship, assisting students in securing internships, networking within the community, and providing internship supervision, and advising. Candidates must have a doctoral degree completed by August 2012. Review of applications will commence March 31st and will continue until the position is filled. Applicants should submit application materials as ONE document consisting of a cover letter, curriculum vitae and teaching philosophy, evidence of teaching effectiveness, and letters of support from three references, along with contact information, to Claudia Plato at CIP1@psu.edu. For further information or questions, feel free to contact the search committee chair, Dr. Brenda Russell, at BLR15@psu.edu. We encourage applications from individuals of diverse backgrounds. Penn State is committed to affirmative action, equal opportunity and the diversity of its workforce.

PA01

The APS Employment Network is your connection to the best jobs in psychological science. Employers from colleges and universities, government, and the private sector use the APS Employment Network to recruit candidates like you. And there is more to the APS Employment Network than these pages. Employers are increasingly relying on web-only listings and the APS Employment Network is on the leading edge of that trend. Visit www.psychologicalscience.org/jobs for additional job postings.

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CONNECTICUT

Wesleyan University

Psychology
POSTDOCTORAL POSITIONS: Wesleyan University announces the availability of two two-year research fellowships in its psychology post-doctoral training program. One position is in cultural and social psychology, working with Patricia Rodriguez Mosquera (prodriguezmo@wesleyan.edu) and Clara Wilkins (CLwilkins@wesleyan.edu) on issues related to culture, race, and emotion. The ideal candidate would have strong skills in statistical analyses, writing, and experimental design. Expertise in measurement and analysis of psychophysiological responses is highly desirable but not essential. The second position is in psychopathology and cognition, mentored by Charles Sanislow (csanislow@wesleyan.edu) and Andrea Patalano (apatalano@wesleyan.edu). The ideal candidate would be interested in using behavioral and electrophysiological approaches to study individual differences in emotion regulation (including personality traits, anxiety, depression, and reaction to stress) and cognition, including judgment and decision making processes. For each position, we seek an outstanding scientist with a Ph.D. for research collaboration with faculty mentors in state-of-the-art lab facilities. Fellows will also teach one undergraduate course per year in an area of the fellow's interest and collaborate with and mentor exceptional undergraduates involved in research. Wesleyan is a selective liberal arts institution with strong research programs and faculty engaged in well-funded, cutting edge research. Apply on Wesleyan Online Career Opportunities site at <https://careers.wesleyan.edu>. Include curriculum vitae and statement of research interests. Arrange to have two confidential letters of reference emailed directly to the investigator email above. Applications will be considered on a rolling basis until positions are filled. Wesleyan University is an equal opportunity employer who welcomes applications from women and historically underrepresented minority groups. **CT01**

Postdoctoral Fellow

INDIANA

Wabash College

Psychology
Visiting Assistant Professor of Psychology
 The Wabash College Psychology Department invites applications for a 2-year Visiting Assistant Professor position (pending satisfactory first-year review) beginning July 1, 2012. PhD preferred; ABD considered. The successful candidate will have research and teaching interests in neuroscience, and will teach courses in behavioral neuroscience, sensation and perception, and introductory psychology. Of particular interest are candidates with the potential to offer cross-departmental courses attractive to advanced students of biology, e.g. neurophysiology. Teaching load is three courses per semester. Wabash College, located approximately 45 minutes from Indianapolis and West Lafayette, is a selective, independent institution dedicated to the undergraduate education of young men, with a history of excellence in liberal arts teaching dating to 1832. The Center of Inquiry in the Liberal Arts, housed at Wabash, is a nationally recognized leader in studying and promoting best practices in the liberal arts. The College and the department are deeply committed to programmatic scholarship with student collaborators. Send letter of application, vita, separate statements of teaching and research interests, three letters of reference, and graduate and undergraduate transcripts electronically to Pam Sacco, Administrative Assistant for Social Science Division, at saccop@wabash.edu. Inquiries about the position may be directed to Dr. Preston Bost, chair of the Psychology Department, at bostp@wabash.edu. Review of applications will begin March 21 and continue until the position is filled. Wabash College, a liberal arts college committed to undergraduate education of men, welcomes applications from persons of all backgrounds. EOE **IN01**

MINNESOTA

Gustavus Adolphus College

Psychology
Visiting Assistant Professor
 Gustavus Adolphus College invites applications for a one-year Visiting Assistant Professor position in the Department of Psychology to begin September 1, 2012. We seek candidates with a PhD in psychology with research specialization in any area. A commitment to undergraduate education and demonstrated teaching experience is desirable. Responsibilities will likely include courses in Statistics, General Psychology, and an upper level seminar in the candidate's area of research specialization. Send letter of application, curriculum vitae, statement of teaching philosophy and research interests, transcripts (photocopies acceptable), and three letters of recommendation to: Dr. Jennifer Ackil, Chair, Department of Psychology, Gustavus Adolphus College, 800 West College Avenue, Saint Peter, MN 56082-1498 Review of applications will begin March 19, 2012, and continue until the position is filled. Gustavus Adolphus College is a coeducational, private, Lutheran (ELCA), residential, national liberal arts college of 2500 students. It is the practice of the College to provide equal educational and employment opportunities for all. We specifically encourage applications from women, minorities, and persons with disabilities. EOE. **MN01**

PENNSYLVANIA

Penn State-Berks

Applied Psychology Program

Instructor of Applied Psychology

The Berks College of The Pennsylvania State University, Reading, PA, invites applicants for a full-time multi-year faculty position in our Applied Psychology Program effective Fall 2012. Preference will be given to candidates with Ph.D. or Psy.D. in clinical/counseling psychology or related field. We seek an energetic, talented, teacher-scholar with strong teaching skills and service who will teach a 4-4 load in our rigorous internship program, introductory psychology, and special topics as needed. Preference will be given to candidates who are Licensed or eligible for Licensure in PA. The successful candidate will teach undergraduate courses commensurate with his/her professional training including teaching courses in internship, assisting students in securing internships, networking within the community, and providing internship supervision, and advising. Candidates must have a doctoral degree completed by August 2012. Review of applications will commence March 31st and will continue until the position is filled. Applicants should submit application materials as ONE document consisting of a cover letter, curriculum vitae and teaching philosophy, evidence of teaching effectiveness, and letters of support from three references, along with contact information, to Claudia Plato at CIP1@psu.edu. For further information or questions, feel free to contact the search committee chair, Dr. Brenda Russell, at BLR15@psu.edu. We encourage applications from individuals of diverse backgrounds. Penn State is committed to affirmative action, equal opportunity and the diversity of its workforce. **PA01**

Saint Joseph's University

Psychology

Visiting Instructor/Visiting Assistant Professor of Psychology

Saint Joseph's University's Department of Psychology invites applications for a position as a Visiting Instructor or a Visiting Assistant Professor, to begin the Fall of 2012. This is a full-time, one year teaching position. Saint Joseph's University's Psychology Department hosts a robust undergraduate major and a successful five-year BS/MS program. The successful applicant will be expected to offer courses in Research Methods, History and Systems, and Developmental Psychology. The ability to teach Introductory Psychology and Personality will be an asset. The teaching load for this position is 4/4. The successful applicant will be expected to offer eight courses during the 2012-2013 academic year. Visit our website, <http://psychology.sju.edu>, for more information about the Department, its facilities, and our curriculum. The successful candidate will have expertise in the area of Developmental Psychology, undergraduate teaching experience, a Master degree in Psychology or a related discipline, and substantial progress toward a Ph. D. Preference will be given to candidates with a Ph. D. and a demonstrated commitment to undergraduate teaching excellence, although ABDs with strong credentials will also be considered. Applications are to be submitted electronically through Saint Joseph's Department of Human Resources, <https://jobs.sju.edu>. In addition, please submit three (3) reference letters that speak to excellence in teaching to Don Leitner, Chair, Department of Psychology, 5600 City Avenue, Philadelphia, PA 19131. To ensure consideration, applications must be received by 01 April 2012, although the search will continue until the position is filled. Saint Joseph's University is a private, Catholic, Jesuit institution and expects members of its community to be knowledgeable about its mission and to make a positive contribution to that mission. Saint Joseph's University is an equal opportunity/affirmative action employer that seeks to recruit, develop and retain a talented and diverse workforce. AA/EEO/M/W/D/V **PA02**

Chatham University

Psychology

Assistant Professor of Psychology

Chatham University, a thriving dynamic institution with three colleges and one school -- Chatham College for Women and the co-educational College for Graduate Studies, College for Continuing and Professional Studies, and School for Sustainability and the Environment -- is seeking candidates for a full-time, 9-month renewable term position in the undergraduate Psychology department effective fall 2012. Applicants must have a Ph.D. in Psychology, a record of excellent teaching experience, scholarly productivity and a concentration in Cognition/Motivation or Social/Personality. Administrative experience is desirable. Primary responsibilities include: teaching a wide variety of courses (but especially Introduction to Psychology, and Research Methods); advising; and supervising student research. We welcome applications from candidates with strong organizational and communication skills, the ability to work effectively in a team setting, unbounded energy, and a good sense of humor. Review of applications will continue until the position is filled. Chatham University offers a competitive salary, an excellent benefits package, including tuition remission for qualified personnel, and a generous retirement plan. All interested candidates should send a cover letter with salary requirements, resume, statement of teaching philosophy, statement of research interests, and names of three professional references to: CHATHAM UNIVERSITY, Attn: H.R. Dept., Pos. #1428, Woodland Road, Pittsburgh, PA 15232, E-mail: chathr@chatham.edu, Visit: www.chatham.edu. Chatham University is an Equal Opportunity Employer **PA03**

CANADA

University of Regina

Psychology

Assistant Professor of Developmental Psychology

Tenure-Track position in Developmental Psychology. The Department of Psychology at the University of Regina invites applications for a tenure-track position, at the rank of Assistant Professor, in developmental psychology. While the area of research specialization is open, we especially encourage applications from individuals who could conduct research on developmental or childhood disorders. Anticipated date of commencement is July 1, 2012 or September 1, 2012, depending on the availability of the successful candidate. Applicants should have a PhD in developmental psychology (or be in a position to complete all Ph.D. requirements no later than six months from the date of appointment). The successful candidate should show clear promise of excellence in both research and teaching. Duties of the successful candidate will include teaching at the undergraduate and graduate level, honours and graduate thesis supervision, and participation in departmental activities. The successful candidate is expected to develop an independent program of research in developmental psychology that would be eligible for Tri-Council and Canada Foundation for Innovation funding. The ability and/or willingness to teach courses through distance education via videoconferencing would also be an asset. This position is partly supported by the Faculties of Nursing and Education, and it is anticipated that the successful candidate will be able to develop research and teaching collaborations with these partners as well. The Department maintains good relations with a number of health care, research, and other educational facilities both within Regina and throughout the province. For more information on the Faculty of Arts, please refer to <http://www.arts.uregina.ca>. Review of applications will begin immediately and will continue until the position is filled. Applicants must electronically submit via <http://www.uregina.ca/hr/careers>. Candidates must also arrange for three (3) current letters of reference and certified degree transcripts to be sent directly by the referees to Dr Richard Kleer, Dean, Faculty of Arts, University of Regina, Regina, Saskatchewan, Canada, S4S 0A2. Academic enquiries may be addressed to: Dr Richard MacLennan, Head, Department of Psychology; phone: (306) 585-4157; email: richard.maclennan@uregina.ca. All qualified candidates are encouraged to apply; however, Canadians and permanent residents will be given priority. The University of Regina is committed to achieving a representative workforce. Qualified diversity group members are encouraged to self-identify on their applications. **SK01**

ANNOUNCEMENTS

Send items to apsobserver@psychologicalscience.org

MEETINGS

Society for Industrial & Organizational Psychology, Inc. Annual Conference

April 26 – 28, 2012
San Diego, CA
www.sio.org/confpart.aspx

Diagnosis and Treatment of Psychopathy

May 3, 2012
London, UK
www.medineo.org/products/24-diagnosis-and-treatment-of-psychopathy.aspx



16th International Conference on Cognitive and Neural Systems (ICCNS)

May 30 – June 1, 2012
Boston, MA
<http://cns.bu.edu/cns-meeting/conference.html>

International Behavioral Neuroscience Society 21st Annual Meeting

June 5 – 10, 2012
Kailua-Kona, HI
www.ibnshomepage.org/annualmtg12.htm

“The Cognitive Neuroscience of Personality Dynamics” APS Sponsored Symposium

July 10, 2012
European Association of Personality Psychology
16th European Conference on Personality (ECP16)
Trieste, Italy

International Association for Cross Cultural Psychology 21st International Congress

July 17–21, 2012
Stellenbosch, South Africa
www.iaccp2012southafrica.co.za/

30th International Congress of Psychology: Psychology Serving Humanity

July 22 – 27, 2012
Cape Town, South Africa
www.icp2012.com/index.php?bodyhtml=home.html

GRANTS

NIA Grants for Social Neuroscience and Neuroeconomics of Aging

The National Institute on Aging (NIA) has announced two funding opportunities for psychological scientists in order to generate interdisciplinary applications “examining social, emotional and economic behaviors of relevance to aging” using an approach that investigates both relevant behaviors and the underlying genetics or neurological processes associated with the behaviors. The application deadline is **February 5, 2013, and 2014.**

<http://grants.nih.gov/grants/guide/pa-files/PA-11-337.html>
<http://grants.nih.gov/grants/guide/pa-files/PA-11-336.html>

AWARDS

Clinical Scientist Training Initiative Program

The Society for a Science of Clinical Psychology is eager to see new ideas in the 2012 applications for the Clinical Scientist Training Initiative Program. Applications are due by March 31, 2012, and funds will be distributed during the summer of 2012.

<https://sites.google.com/site/sscpwebsite/awards>

TRAINING

Rand Summer Institute

RAND is pleased to announce the 19th annual RAND Summer Institute (RSI). RSI consists of two annual conferences that address critical issues facing our aging population. The Mind-Medical School for Social Scientists will be held on July 9–10, and the Demography, Economics, and Epidemiology of Aging conference on July 11–12, 2012. Both conferences will convene at the RAND Corporation headquarters in Santa Monica, California. The conferences are sponsored by the National Institute on Aging and the NIH Office of Behavioral and Social Sciences Research. The application deadline is March 9, 2012.

www.rand.org/labor/aging/rsi.html

PUBLICATIONS

Special Issue of *Early Education and Development*

The goal of the special issue *Social and Emotional Learning in Early Education* is to explore more deeply the role of social and emotional learning (SEL) in the development of 3- to 6-year-olds and programming efforts in classroom settings. Susan E. Rivers & Marc A. Brackett will be guest editors. The submission deadline is June 1, 2012.

www.tandfonline.com/doi/abs/10.1080/10409289.2011.628606

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www.psychologicalscience.org/convention

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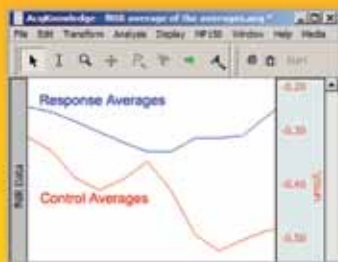
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