## **Note From the President**

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**Bayesian Statistics** 

Drew A. Curtis, Ph.D. - President Angelo State University Greetings. It is with sadness that I

**Integrating Science and Practice: A Legacy** 

write to you all in remembering the late Dr.

Scott Lilienfeld, who died from pancreatic cancer on September 30th, 2020. Dr. Lilienfeld was a distinguished scholar who promoted the science of psychology, was an authority on pseudoscience in psychology and championed the integration of science and practice. Lilienfeld was the Samuel Candler Dobbs Professor of Psychology at Emory University, authored over 350 publications, served as editor of Clinical Psychological Science and on the editorial board of several other journals, served as president of the Society for a Science of Clinical Psychology and the Scientific Study of Psychopathy. Dr. Lilienfeld also authored and co-

authored several books, including the widely read 50 Great Myths of Popular Psychology: Shattering Widespread Misconceptions About Human

Behavior, The Great Ideas of Clinical Science: 17 Principles that Every Mental Health Professional Should Understand, and Brainwashed—the Seductive Appeal of Mindless Neuroscience, among others. Lilienfeld's expertise in psychopathy was highly regarded and he was featured in the documentary What Makes a Psychopath? Due to his immense contributions in the field, he received several awards, including the Ernest R. Hilgard Lifetime Achievement Award and the James McKeen Cattell Award for Distinguished Career Contributions to Applied Psychological Science from APS. In addition to Dr. Lilienfeld's lifetime of accolades and achievements, he was a friend of SWPA. In 2015, Lilienfeld was SWPA Invited Speaker, presenting on Distinguishing Science from Pseudoscience in Psychology: Implications for Everyday Life. My first introduction to Dr. Lilienfeld was

when I read his book Seeing Both Sides: Classic Controversies in Abnormal Psychology. His book was highly formative in my thinking about the complexities of psychopathology. Further into my education, I became more familiar with the work of Dr. Lilienfeld and found that I shared his passion for integrating science and practice. He was a professional who encouraged and inspired me. I clearly recall my first time meeting and talking with a psychology hero of mine, Scott, while at an APA conference. I fondly recall Scott as being very approachable, humble, friendly, and just a well-rounded human being. He seemed to be truly care about taking time to hear others' interests. We talked for some time about the integration of science and practice, psychomythology, pedagogical approaches to teaching abnormal psychology, and surgical bacteriology practices by Dr. Henry Cotton (which is worth looking up). Psychology as a whole has advanced significantly

as a graduate student in psychopathology

Dr. Scott Lilienfeld

impact on the field of psychology and in the lives of people he interacted with will be lasting. His impact on me will certainly not be forgotten, as he has influenced my development as a psychologist, integrating my clinical/ counseling training with social psychological research interests in deception. Dr. Scott Lilienfeld's influence on me has led to the development of our 2021 conference, themed Lies: Integrating Science and Practice. We are currently planning a hybrid conference, an in-person component at the Hyatt on the Riverwalk in San Antonio, TX and a virtual component. I am excited to see the excellent research and practice contributions to the field of psychology and I'm so humbled that we have the opportunity to carry on Dr. Scott Lilienfeld's legacy of excellence in psychological inquiry. Best,

through the work and influence of Dr. Scott Lilienfeld. His influence and

'Keep Talking': The Importance of Tolerance for Ambiguity John A. Terrizzi, Ph.D. - Associate Professor **Texas Woman's University** I think I should speak now (why won't you talk to me?) I can't seem to speak now (you never talk to me) My words won't come out right (what are you thinking?) I feel like I'm drowning (what are you feeling?)

- From Keep Talking by Pink Floyd

wire. Our facial expressions of emotion can occasionally become jumbled and confused. Sometimes we

meaning, I may misspeak and inaccurately articulate my message. Likewise, as a perceiver, I may misconstrue what someone else is trying to say. In our scientific writing, we attempt to achieve a lingual precision that ensures that our audience understands what we are trying to say. We try to sanitize our language so that there is no room for subjective misinterpretation. This paradigm, however, doesn't often translate into the realm everyday human communication. As conveyors of meaning, we might not yet even know how to articulate what we are feeling or thinking. We experiment with our communication. We bounce ideas off of each other in an attempt to discover what we are feeling or thinking. This sloppy and often uncensored communicative experimentation can be the engine of creativity and progress. We share ideas with one another, sometimes sloppily. Those ideas merge and mutate and new ideas

are born. This process, however, can only occur in environments in which people feel safe freely expressing

igated a Presidential election that was highly contentious (and still is). At the same time, we are struggling with a global pandemic that has aroused further instability. In times of uncertainty, we have little tolerance for ambiguity. We rely more heavily on our unconscious biases. We throw people into categories and label

In the United States, we are immersed in a culture that is highly polarized. We have only recently nav-

brace the ambiguity and "keep talking." A Gateway for Students to Socially Connect While Physically Distancing

> Lisa H. Rosen - Southwestern Region Psi Chi Vice President **Texas Women's University**

As a developmental psychologist who studies peer relationships

during adolescence and emerging adulthood, a great deal of my research is theoretically grounded in the need to belong. In particular, I have drawn on the work of Baumeister and Leary who posit "...the need to belong shapes emotion and cognition... Deficits in belongingness apparently lead to a variety of ill effects, consistent with the view that belongingness is a need (as opposed to merely a want)" (1995, p. 520). Alt-

through groups, such as psychology clubs.

views.

hough research on the effects of social isolation stemming from social distancing is currently under way, past research suggests that the disruption to ongoing social interactions due to pandemic is likely to have adverse effects on many college students. Given the importance of connecting, many psychologists prefer

I would like to highlight how Psi Chi, the International Honor Society in Psychology, could promote connection and offer a sense of belonging to psychology majors during this unprecedented period. If you do not already have a Psi Chi chapter on your campus, more information on how to begin a chapter is available here on the Psi Chi website.

the pandemic. I am amazed by the creative ways chapters in the Southwest Region have been connecting remotely this semester and wanted to provide a few examples. Dr. Shawn Charlton shared that the University of Central Arkansas chapter has used the tool <a href="https://bookclubz.com/">https://bookclubz.com/</a> to organize discussions around Dr. Beverly Tatum's book, Why Are All the Black Kids Sitting Together in the Cafeteria. Dr. Seungyeon Lee shared that her chapter at the University of Arkansas at Monticello has continued with their annual service drive project with plans to distribute safely to the community. Our chapter (pictured) at Texas Woman's University has hosted a number of professional development events remotely, including practice for graduate school inter-

For many students in our region, Psi Chi has helped provide a sense of community and support during

Despite efforts to keep members connected, it is undeniable that this semester will be challenging for

HelpHelpedMe Officer. This role was inspired by Dr. R. Eric Landrum's 2017-18 Psi Chi presidential Initiative and is intended to help students access mental health resources while reducing the stigma that comes with seeking help for mental illness. Given the challenges of COVID-19, we hope that more Psi Chi chapters will

our students. To help students during these times, Psi Chi has launched a new officer position, the

were focused on student athletes, their work has implications for how faculty and students can connect

References Baumeister, R. F., & Leary, M. R. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. Psychological Bulletin, 117, 497-529. Graupensperger, S., Benson, A. J., Kilmer, J. R., & Evans, M. B. (2020). Social (Un)distancing: Teammate interactions, athletic identity, and mental health of student-athletes during the COVID-19 pandemic. Journal of Adolescent Health, 67, 662-670. **Getting Started with Bayesian Statistics** 

**Tarleton State University** 

alone, the Bayes factor tells us the *relative* likelihood of the data under both  $H_0$  and  $H_1$ . As the Bayes factor simultaneously compares two hypotheses, we must have some way to specify which hypothesis is being supported. We do this by specifying the "direction" of the Bayes factor with a subscript. For example, BF<sub>10</sub> represents the Bayes factor for the alternative  $H_1$  over the null  $H_0$ . On the other hand, BF<sub>01</sub> represents the Bayes factor for the null  $H_0$  over the alternative  $H_1$ .

faulkenberry@tarleton.edu. SUBMISSION DEADLINE EXTENDED Deadline: November 27, 2020 Join us at the Hyatt Regency San Antonio Riverwalk

Modern software packages such as JASP (which is freely downloadable at <a href="https://www.jasp-stats.org">https://www.jasp-stats.org</a>) make it simple for anyone to compute Bayes factors. Most of the common statistical tests you're already familiar with have Bayesian versions in JASP. The key to getting started is knowing how to interpret the Bayes factor. So, let's suppose we did a Bayesian independent samples *t*-test, and our data produced a Bayes factor of BF<sub>10</sub> = 20. This means that the observed data are 20 times more likely under the alternative hypothesis  $H_1$ than the null hypothesis  $H_0$ . Notice that instead of simply using a small p-value to reject the null as ill-suited to explain our observed data, we are reporting a relative degree of fit for both hypotheses. This Bayes factor tells us directly that the alternative hypothesis fits our data 20 times better than the null hypothesis. I think such statements are much easier to interpret, and in my experience, students have an easy time getting this too. Also, and perhaps most importantly, it is entirely possible that our data could instead be evidential for the null – for example, if we got  $BF_{01} = 20$ , that would mean that the data were 20 times more likely under the null than the alternative. Traditional null hypothesis testing simply cannot do this. Once you started computing and interpreting Bayes factors for your own data, one natural question is "How big does the Bayes factor need to be?" After all, we are taught guidelines for how small a *p*-value must be in order to separate signal from noise. What sizes should we expect for Bayes factors? Remember, the Bayes factor is a ratio, so the "smallest" value we should get is  $BF_{10} = 1$ , which would mean that the data were equally likely under both the alternative and the null. In this case, we don't have any compelling evidence in favor of either model. A common recommendation is to consider a Bayes factor greater than 3 as representing

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related to the newsletter: jrandell4@uco.edu.

positive evidence in favor of one hypothesis over the other. This is because having at least 3-to-1 odds in favor of a specific hypothesis equates to a posterior probability of at least 75% in favor of that hypothesis. My recommendation is to not worry about specific thresholds beyond this – simply report the value of the Bayes factor and tell the reader exactly what it means. At this point, I invite you to start doing some Bayesian analyses of your own! Here, I've only scratched the surface of Bayesian hypothesis testing, but I've hopefully piqued your interest. There are plenty of resources to help you learn more, including this special issue of Psychonomic Bulletin & Review and my own recently published tutorial paper. Further, I usually offer workshops on Bayesian statistics at SWPA every year, so I will look forward to meeting you in one of those workshops. Feel free to send your Bayesian questions my way any time, or even invite me to give a workshop at your own university! You can email me at

we all grew up with. My goal in this column is to convince everyone that this statement is indeed true. So where to start? Let's start with the familiar. Most readers will have some experience with hypothesis testing, and particularly the notion of a p-value, which we are taught to use as a magical dowsing rod for ascertaining whether something is "significant." Let's explore this a bit deeper. When we want to back up some quantitative statement – say, that the difference between two group means is significant – we formally proceed by defining two hypotheses: a null hypothesis  $H_{-0}$  which states that there is no difference between the means, and an alternative hypothesis  $H_1$  which states that there is some difference. Then we collect some data, because we want to test how well these hypotheses hold up as models of our observed data. One way to do this is to assume the null is true, then calculate the probability of observing our data under  $H_0$ . This probability is the p-value, and traditional practice dictates that we determine whether this probability is small (i.e., less than 5%). If so, we say that our data is rare under  $H_0$ , and so we reject  $H_0$  in favor of the alternative  $H_1$ . In short, we look for a difference in the group means by assuming that there is no difference, then showing that our (actually observed) data is implausible under such a hypothesis, rendering the null hypothesis itself implausible. Two issues arise immediately. First, our evidence for  $H_{-1}$  (the model we actually care about in this situation) is indirect. We've shown that the null is not a good fit for our observed data – that's what the p-value shows – but nowhere have we actually assessed how well the *alternative* fits our data. Second, suppose we fail to reject  $H_0$  (presumably because p > 0.05). As anyone who has taught undergraduate statistics knows by heart (because he or she has explained this countless times), simply failing to reject the null does not permit one to conclude *support* for the null. In these ways, the traditional null hypothesis testing procedure is lacking. Bayesian hypothesis testing, on the other hand, takes care of these problems easily. At its simplest, Bayesian hypothesis testing replaces the p-value with the Bayes factor. To understand what a Bayes factor is, let's compare it to the *p*-value. Whereas the *p*-value tells us the likelihood of the data under the null hypothesis

Hey there, we are sorry to have missed you at the annual SWPA convention of 2020. KCU was looking forward to hearing about your research, telling you a little bit about our program, and helping answer questions about our program or graduate school in general. I would like to invite you to browse through our webpage, which is loaded with a ton of great information about our program and what makes it unique. We offer a Clinical

about our discipline.

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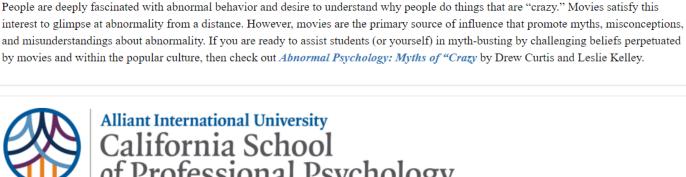
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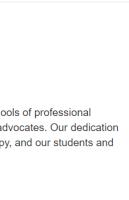
The APA-accredited Clinical Psychology Program at Midwestern University, Glendale Campus emphasizes a broad and general training in psychology designed to be completed in four years of full-time study. Utilizing a practitionerscholar model, our program will help you develop an extensive understanding of the theoretical principles in the

interprofessional approach, our training provides opportunities for professional interaction and collaboration with other healthcare professionals through various formal and informal activities such as research forums and

clinical practice of psychology and the ability to use that knowledge in a clinical setting. As part of an



Southwestern Psychologist Editor Dr. J. Adam Randell



I'm feeling weak now (why won't you talk to me?) But I can't show my weakness (you never talk to me) I sometimes wonder (what are you thinking?) Where do we go from here (what are you feeling?) We don't live in a graphic novel or a comic book. We don't walk around with thought bubbles hovering over our heads that clearly and articulately narrate our thoughts and feelings. Human social interaction is full of ambiguity. Words are nuanced. They take on different meanings depending on the contexts in which they are used and tone of voice in which they are spoken (e.g., sarcasm). It isn't just our spoken language that gets confused. Our nonverbal communication (e.g., body language and facial expressions) can also go hay-

the joke?

their ideas.

laugh so hard that we cry. When there are more than two people, the social dynamic can become even more nuanced. Have you ever returned a wave hello only to realize that the recipient was waving not at you, but to the person behind you? Have you ever thought that someone was laughing at you only to discover that you were not the butt of To make things even more complicated, meaning can become confused by both the one who is intending to convey a message and the one who is the intended recipient of the message. That is, as a conveyor of

Drew

people by the ideologies that we perceive them to have. This has severe consequences for human social interactions. If people don't say things in just the right way, they risk being censured, canceled or being unfairly and accidently thrown into an undesirable category to which they don't belong. As we stumble through the slop of human communication, we will undoubtedly have our feelings hurt and accidently hurt the feelings of others. Let's not let our fear of communication atrophy our progress. Em-

the term "physical distancing". In a recent article, Graupensperger and colleagues (2020) point to the importance of social connection by using the phrase, "Social (Un)distancing". In this article, they note the benefits of group membership on adjustment and highlight that relying on group members can serve a protective function during challenging times, such as the COVID-19 crisis. Although Graupensperger and colleagues

work to include a HelpHelpedMe Office. For more examples of how Psi Chi can foster connections among students, please visit the <u>Psi Chi</u> website and the website for the Southwest Region. Thomas J. Faulkenberry - Associate Professor & Assistant Head

Ten years have passed since Daryl Bem began circulating a preprint of

his now <u>infamous paper</u> in which he claimed evidence for precognition – a phe-

nomenon whereby future events can implicitly affect a person's present behaviors, even without a person's conscious awareness. This unbelievable result which Bem operationalized as his subjects' ability to correctly predict the position of pictures on a computer screen at rates significantly greater than chance was ultimately responsible for a host of methodological revolutions in our field. Since that time, considerable energy has gone into arguing for the merits of "open science", preregistration of studies, and a closer look at the statistical training of students and researchers, including calls for abandoning the use of p -values for hypothesis testing. By now, one of the more familiar alternatives to traditional null hypothesis testing is *Bayesian hypothesis testing*. Despite increasing familiarity, Bayesian methods are still relatively under-utilized in psychology and are virtually absent from most courses in psychological statistics. I think this is quite unfortunate, as the core tenets of Bayesian inference are actually easier to understand than the traditional null-hypothesis-testing alchemy that

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