Champions of Psychological Science: Brian Nosek

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This is the full, unedited version of an interview in the May/June edition of the *Observer*.

APS Fellow Brian Nosek received a PhD in from Yale University in 2002 and is an associate professor in the Department of Psychology at the University of Virginia. In 2007, he received early career awards from the International Social Cognition Network (ISCON) and the Society for the Psychological Study of Social Issues (SPSSI). He cofounded Project Implicit (projectimplicit.net), an Internet-based multiuniversity collaboration of research and education about implicit cognition — thoughts and feelings that exist outside of awareness or control. Nosek investigates the gap between values and practices — such as when behavior is influenced by factors other than one's intentions and goals. This work has been applied to research on diverse topics, including implicit bias, diversity and inclusion, automaticity, social judgment and decision-making, attitudes, beliefs, ideology, morality, identity, memory, and barriers to innovation. Nosek also cofounded and directs the Center for Open Science *(COS) that operates the* Open Science Framework*. The COS aims to increase openness, integrity, and reproducibility of scientific research. Read Nosek's March* Observer article on the Open Science Framework*, and see him speak the 2014 APS Annual Convention, May 22–25 in San Francisco.*

Nosek was interviewed by APS Student Caucus (APSSC) member Calvin Lai, a fourth-year doctoral student in social psychology at the University of Virginia who works in Nosek's lab.

APSSC: What led you to choose psychology as a career?

BN: When I entered psychology, I was a computer engineering undergrad. Toward the end of my third year I started taking psychology classes for a break from the "really hard classes." At that point, I realized… I was actually spending all of my time thinking about and working on my psychology courses. I found it much more interesting to do science on humans than to do research on circuits. When it

became apparent that you could really make a career of doing science on humans, I was hooked. During my fourth year, I switched my major to psychology but finished my degree in computer science as well [after 5 and a half years].

APSSC: Do you retain any of that computer science knowledge? Is any of it relevant?

BN: It's highly relevant in the sense that it's charted a path for me. I don't use all of the specifics, but what I got out of computer engineering was a practical mindset. From my experience in computer science, I approach my research with a problem solver mindset. Also, I learned that just because something does not exist does not mean that it cannot exist. Being comfortable with technology and understanding what technology might be able to do [in the future] has helped me approach research questions asking "how should we test this?" rather than "what do I have available to test this?".

APSSC: How did you develop your current research interests?

BN: My research interests are diverse. The core theme is the gap between values and practices: what I'm trying to be as a person and what I think I should be as a person, versus what I am and what I do. I am now interested in two main applications of this interest: social behavior – how assumptions and biases shape behavior away from conscious intentions and values, and how assumptions and biases shape scientific practices away from scientific values.

My present research activities are the culmination of the experiences in my life. My mother and father, both in different ways, have values that are central to their ways of being. My dad is a manager; ethics and integrity were the basis of his management style. My mother worked at a church and led religious education. In her work, she was concerned about how she could be "good" in her behavior given all the constraints on her.

My technical and research training enabled me to participate in the creation of new tools and methods for research. And, my experience with implicit cognition gave me perspective about how humans have limited access and control over their own minds.

APSSC: What's something you learned as a faculty member that you wish you had known as a graduate student?

BN: I'd like to answer the opposite question — what am I glad I didn't understand as a graduate student that I know now. Early on, I did not appreciate the degree of resistance to innovation in science. There's plenty of talk about innovation, particularly methodological innovation. There are many things psychological scientists know we could do better: We know science would benefit from bigger samples and more transparency about the research process. Despite knowing that, there is a strong tendency to accept the system as it exists. If I had understood, as a grad student, how widely the status quo was accepted, I might have gotten very discouraged about the opportunity to improve the business of knowledge accumulation.

One example: In my graduate methods class, we talked about how small samples result in low power to detect statistically significant effects. One semester, I was allocated a total of 15 participants hours. I said to myself, "I can't do robust research with 15 participants." We had to find other ways to get the

participants we needed. So, we went to the beach and got 300 people a day by giving out soda and lottery tickets in exchange for participating in our studies. We also started a website because we thought there were a lot of people out there who were not being studied. It was 1998 and the Internet seemed like a good way to reach out to participants.

We did not know whether it would work, but it seemed worth trying. I was stunned by how quick grant reviewers and "seasoned" people in the field were to say, "That will never work" as if to say that it isn't worth trying.

Innovation requires taking risk. I have been called "Pollyanna" in grant reviews many times for proposing new tools or methods to make our research better. These critiques were not pointing out problems with the approach – "here's the evidence [it won't work]"— they were superficial statements of "it's too hard." My mentors taught me that not trying guarantees failure. Taking risks is essential to have any hope of solving big problems. I hope that I never lose sight of that.

APSSC: How much has skepticism about research on the Internet declined?

BN: It's vanished. Every single article we submitted until 2006 [was questioned] with reviewers saying some variation of "How can we trust any data collected via the Internet?" Then MTurk came along. Once everyone was using the Internet for research themselves, that kind of criticism stopped. People do change, but it sometimes requires direct experience to do so.

APSSC: What advice would you give to grad students who want to have careers in academia?

BN: To boil down what we were just talking about, I think we need to understand the scientific culture in order to be pragmatic to survive in the field. . But we don't need to *accept* the culture. That's one of the things I'm happiest [about] with the career I've had so far. As a lab, we've achieved a balance between attending to the practical demands of being a successful scientist and simultaneously doing things to improve our science, even if they are not yet rewarded. We have ideals; we aim for them. We'll never achieve our ideals, but they guide our decision making. In other words, aim for practical idealism. Have a mission, and be attentive to the realities of the present culture for making incremental steps toward achieving it.

APSSC: How do you address preferences for the status quo in psychological science?

BN: We are doing this intuitively in many domains. One strategy is being complementary to existing practices whenever you can. Don't threaten the old view; complement it, offer alternatives. Part of system justification is that our identities are tied to the system; People are defending the system because it is part of them. One way to break that barrier is to affirm the scientists' identities as scientists separate from the practices and culture of doing science.

APSSC: You're married to another prominent psychological scientist, Bethany Teachman, who you met in graduate school. For relationships formed in graduate school, it can be difficult for both partners to get jobs in the same university or area. This type of issue is often called the "two-body problem." How did you and Bethany prepare for this in graduate school?

BN: Well, the way I handled it was to be sure that I married her. I knew I would have success if I was riding her carpet, and it worked out. There is a long story about how we managed it; every couple has their story. Most universities have gotten pretty good at dealing with this; there are fewer cases of active resistance to dealing with two bodies.

To prepare, we both worked hard and tried to have the most competitive applications we could muster. We did not restrict ourselves [to applying] to universities that we thought would be open to taking on two bodies. We each went after universities where we individually wanted to be.

We went through the hiring process twice, once when we were both grad students. One Spring, I applied to four jobs and got one, and they interviewed Bethany the following Fall but decided not to hire her. We applied more broadly that Fall and I got zero interviews. Bethany got six interviews and five offers. Then the University of Virginia offered Bethany a job and was able to do something for me. I feel lots of gratitude for that. There were many highs and lows in that process. We tried to recognize that we control are the lives we have lived up to that point. We just had to let the process play out.

APSSC: You've collaborated with a lot of people from all across psychology and the social sciences. Do you have tips for starting and having successful collaborations?

BN: My stance with collaboration is that with almost any project, you're better off doing it together than alone. There is naturally a sense of possessiveness about designs and research, but openness to collaboration has helped me be more productive and successful. Many times this came just out of sending someone measures, data, or a couple of ideas. Opening up our own research process and data means that you can draw on the expertise of others who have skills we don't have. The best advice I can give myself is to see sharing as an opportunity.

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

BN: I've learned, over time, to stop taking peer criticism too seriously. Not the substance criticism — take that seriously; *that* you do want to wrestle with. The stuff to just ignore is ad hominem attacks and dismissals without evidence. For example, it is hard not to take personally reviews or public pronouncements that I am a bad researcher or bad person. It's hard, because it is personal! The best outcomes have occurred when I've been able to put that aside and still get some ideas from the substantive critique (if any) that could make my work better.

The other common problem is the fear of being stupid. We can't spend our time worrying about being stupid — because mostly we are stupid. We are working hard problems and we are at the boundaries of knowledge. We're looking at things we don't understand yet. Albert Einstein said "that's why we call it research." None of us knows everything, so we're all going to do stupid things often. Finding out that you were wrong does not mean that you are a bad scientist. It is an opportunity to learn something. Supposedly, that is why we are doing science in the first place.

APSSC: In some programs, advisors recommend that students read as much as they can, while others advise students to avoid reading too much. The idea is that reading too much can limit creativity because you're constrained by what you've read. Where do you fall in this spectrum?

BN: I don't have a confident answer. I think it's good to know something of the literature, because a lot of people have been thinking about the problems that you're thinking about for a while. If they've solved the problems you are thinking about, then why should you spend time solving them all over again? But, because we don't yet have a strong, cumulative base of knowledge, reading the literature can get frustrating because there is a good deal of conceptual redundancy just using different words. That isn't a good rationale for not reading, because we might just continue contributing to the problem. I don't have a lot to say about this because it is a frustration that I haven't yet solved. Maybe that will be the next thing.

APSSC: What do you consider to be the biggest challenges in the field [of psychological science] generally?

BN: The challenges I think we're facing are not particular theoretical challenges but rather our culture and our scientific practices. The challenge is not what to do but how to do it well. In particular, how do we get to a culture in science where reproducibility is perceived and valued as part of the process — but at the same time, how do we retain innovation?

Some negative reactions to making science more transparent is the worry that it will stifle innovation. That's a reasonable worry to have, because we could create a terrible system. For example, we could say that every study published has to include a replication. This would stifle innovation in areas where data collection is resource intensive. We would end up doing very small-scale, safe research.

We need psychologists to figure out how to do science better, using human motivations. We need to figure out how to leverage the understanding of these motivations in order to bring scientific practices closer to scientific values.

APSSC: What do you see as the future of psychology?

BN: There are many doomsday comments that this is a bad time for psychology. I think it's exactly the opposite. The problems in the scientific culture are psychological problems. We have the tools, knowledge, and resources to show how the knowledge base from psychology can improve scientific practices across all disciplines.

APSSC: Do you think putting so much public focus on our problems could tarnish the public opinion of social psychology?

BN: I think the opposite. Negative opinions about psychology as a science already exist. We have the opportunity to show how science works by directly investigating and addressing the problems. That is, we can turn our research expertise on to our own behavior. Who can figure out how to improve scientific practices? The people with expertise in incentives, motivation, and the links between intentions and behavior — that's us!

There are reasonable debates to have about how to improve, and those should be had. Alongside, we should be evaluating the effect of new practices on the quality and efficiency of research. I also think that we stand to gain tremendously by having these discussions and evaluation of new practices in public. Transparency is a core value of scientific practice; that includes the review and evaluation of

how we are doing the science.

APSSC: If the public perception of psychology as a “non-science” is an issue, what can we do to change that?

BN: What won’t work is responding “Oh yes we are!” The answer is to not worry about it — just do what we do and share it. If we’re open and engaging with people about how we investigate human behavior, sharing our methods and evidence will be the best tool of persuasion. And, if others can identify ways for us to do it better, we should be grateful for the help.