OPENING THE DOOR FOR BETTER SCIENCE IN PSYCHOLOGY AND LAW: THE BENEFITS OF OPEN SCIENCE PRACTICES

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HC: HOW DID YOU GET INTO OPEN SCIENCE, AND WHAT DOES “OPEN SCIENCE” MEAN TO YOU?

• JB: Grad students in Australia are primarily trained in research practices by their thesis supervisors. Started seeing importance of open science in own research and realized other grad students weren’t getting the same exposure. As Grad Studies Coordinator, I’ve been pushing for institutional reform and training in open science.

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• AP: Used to say the beauty of science is you set the rules ahead of time before finding out the answers. “Replication crisis” made me question how often we actually did this in practice. OS practices are critical whether in research or clinical practice (e.g., program evaluation).

• “Open Science” = any practice that gives others access to your “lab”: access to what you did (pre-registering methodology), are currently doing (increasing collaboration), or are doing in future (future collaboration).
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• **MH:** Did traditional political science work on judicial behavior. Connects back to Freedom of Information Act – opens up all government processes. We want to be transparent when federal money is being used.

• **Open Science** from fed gov’t and NSF’s perspective = Public Access. Making scientific inputs, outputs, and processes freely available to all (in & out of research community) with few restrictions. We try to make sure findings are not private and that others can see & use your data.
AUDIENCE: RESPONSE TO RESISTANCE BASED ON CONCERNS OF OTHERS USING MY DATA FIRST

• **JB:** Unlikely those future pubs in the data collector’s head actually happen.

• **AP:** Recent work on getting “scooped” suggests it’s pretty rare*

• **MH:** Getting scooped happens but rare. More stakes for grad students & young scholars. Must consider if your research is funded by taxpayers. If not, you can do whatever you want with your data. If so, you need to get your data out there for reproducibility and replication.

• **AP:** Consider that some authors of study materials share in exchange for co-authorship. Perhaps those resistant would be less so if parameters were clear that use of the data merited co-authorship.

• **HC:** Speaks to importance of setting rules for study & authorship in advance.

• *Postscript:* AP attributed findings to an article when in fact he was recalling a (non-scientific) twitter poll (attached HERE). In personal communication, Lillien Ellis shared that in her work (in progress), 19% of surveyed academics reported an idea stolen vs. 29% of business professionals.
AUDIENCE: WHAT IF RESULTS FROM REGISTERED REPORT DON’T GO AS PLANNED?

• **JB:** *Registered Report* = reviewers review the idea, methods to be used, and data analysis plan… it’s results blind (to all involved!). Reviews focus on whether it’s a good idea to study and a good way to study that idea.

• *Stage I Review* = pre-data collection; editor decides whether to publish the results if the authors collect the data the way they propose, regardless of outcome (statistical significance doesn’t matter)

• *Stage II Review* = post-data collection; make sure collected data as per agreed protocol & that you aren’t overstating results in the discussion

• Null results in traditional pub outlets = 5-10%; Null results from *registered reports* > 50%

• Results not “going as planned” become less relevant; did you do what merited a publishable study is what counts instead.
AUDIENCE: WHAT IF RESULTS FROM REGISTERED REPORT DON’T GO AS PLANNED?

• **BM:** Announces *LHB* will accept registered reports in near future. Editors want to produce papers that are high impact, and one challenge for journals is null results don’t get cited as much. We’re faced with balancing getting information out about what is going on in the field with being a source of impactful work.

• **AP:** Registered reports can be scary in same way as grant writing (effort up front for a study that may never happen). Love that it flips the incentives and rewards from fascinating results to strong methodology. What gets rewarded is strong science.

• **JB:** Have done a couple of Stage 1 Reports and love it. Reviews were focused on improving studies rather than criticizing what you did at some point in the past.
**AUDIENCE:** HOW HAVE YOU TAUGHT OS IN THE CLASSROOM?

- **AP:** (Deferred to JP, who teaches Research Methods & Statistics at the same institution): To this point, it has been largely discussion-based. I fold it into discussions of reproducibility and replication for both my undergraduates and graduate students. In our revamped curriculum rolling out in the Fall, it will be a more set component of the course.

- **JB:** Started by training post docs, supervisors, etc. Now the teaching has evolved into an open science task force across our institution.

*Postscript:* Some example OS teaching resources [HERE1](#), [HERE2](#), [HERE3](#), [HERE4](#), [HERES](#)
AUDIENCE: HOW HAVE COLLEAGUES RESPONDED TO OS?

- **AP**: Faculty has been very open to it and enthusiastic. On one hand, current program is not publish-or-perish. On other hand, fewer openings to publish means it needs to be impactful and well done.

- **JB**: Right now we’re all learning together. In 10 years people will have adopted the practices that work for them, and likely won’t be as generous with their time and resources.

- **MH**: Science is cumulative and progresses. Some will adapt, and some will get left behind. It’s scary if it feels different from what you’ve been doing, but if we’re going to train next group of scholars, they need the most modern, recent training models.

- **JB**: Our duty to train is primarily to the next generation, not the entrenched generation (duty to learn).
**AUDIENCE:** TARGET FOR ACCEPTING REGISTERED REPORTS IN LAW AND HUMAN BEHAVIOR

- **BM:** Several issues to iron out with editorial team and then with APA, etc. How many do we accept? What’s the timeline for data collection? What’s the mechanism for getting the same reviewers for Stage I & II reports?

- The first registered reports submitted will admittedly be a little pilot testing. Regardless, in some ways the registered reported will be much better. You can fix issues before investing all the time and resources into a completed study that can’t be changed.
AUDIENCE: WHAT IF AT INSTITUTION W/ LIMITED RESOURCES → MISS DEADLINE AFTER REG. REPORT ACCEPTED?

• AP: One related aspect of OS of relevance: Psychological Science Accelerator that tries to increase international collaboration on projects. Could potentially find people to combine resources.

• MH: NSF has several initiatives to help those with fewer resources work with people at institutions with more.

• JB: Chris Chambers leading the charge for registered reports and has tied together journal and grant agencies for some of those registered reports. Way of ensuring that good research is being funded. Postscript: Example of Registered Report Funding.

• Audience Member recommends sequential analysis if limited access to larger samples.
AUDIENCE: ARE STIMULUS MATERIALS FROM GRANTS PART OF OPEN SCIENCE?

- **MH**: It’s a grey area (what counts as a “research product”). I think yes, but we (NSF) provide different ways to get it out there. Two examples: Inter-university Consortium for Political and Social Research (ICPSR) and Qualitative Data Repository (QDR).

- At very least the data must be released. (As program officer at NSF) I go back and make sure you are following your data management plan before I sign off on your end-of-year and final reports.
AUDIENCE: HOW DO YOU NAVIGATE ACCESSING OTHERS’ DATA?

• **BM:** For articles with open data badges, you don’t have to find the authors and ask for the data; it’s directly linked and accessible. Some reviewers at LHB of late have requested to view data for their reviews. We don’t have a policy at LHB about that yet, but that might be the future given more authors are including links to OSF materials, etc. in manuscript submissions.

• **MH:** It can be a tricky road for early career researchers to navigate given potential power differentials. That’s why NSF wants data available in public archives. No questions; just access.

• **JB:** It’s ok to ask, but we need to acknowledge that not sharing is not the same as hiding something. Resistance is not always that the authors don’t want to share. Sometimes the project is from years ago, it isn’t in a state to share, and they don’t have time to get it ready. If you prepare data for sharing as part of your current research workflow, it makes data access a lot easier.
AUDIENCE: WHAT LEVEL OF INFORMATION AND DATA SHOULD BE SHARED?

• **MH:** NSF wants both the raw data and the coded data with codebook.

• **JB:** One of my challenges in OS has been making data available from beginning to end. The goal is to write a script that covers enough to show all of my work. If you can get the same results as I did, then I did a good job.

• **AP:** Make my students pre-register their dissertations; everything they need should already be in their proposal. Recent eye-opening experience: student and I independently analyzed her data according to pre-registration to compare our results. We had several discrepancies that highlighted where our script had holes (like how we would recode key variables). Transparency is not enough; thoroughness is part of the equation.

• **BM:** AP’s example highlights how we can use OS as a teaching tool; both running analyses and see if we get the same results. We can learn what we’re doing right and what we still need to figure out.
AUDIENCE: HOW ARE OS PRACTICES FACTORED INTO REVIEWS? ANY CONCERNS ABOUT BIAS?

- **BM:** We (LHB) don’t give specific points, but it likely influences perceptions in a positive way. It increases faith in the science. A tricky issue: it very well might bias the reviewer, but I’m not sure we can blind that in the review process and while also providing the benefits from OS.

- Perhaps there’s an OS study idea – vary strong and flawed articles that are “open” and “closed” and see if it impacts people’s reviews.
HC: HOW DO YOU SEE OPEN SCIENCE CHANGING THE FUTURE RESEARCH LANDSCAPE?

- **JB:** More trust in our research. OS will become the expectation rather than the exception. As this happens, the shift will be resistance toward non-open science practices. Try to implement just one practice to start with; preregister, preprint, open data… see how it works for you.

- **AP:** One concern I’ve had: since OS slows down research on the front end, do people early in career get penalized if they have fewer products on the market? I hope OS shifts the rewards & incentives of science—more incentives tied to the process than the results.

- Another hope: OS promotes wider collaboration that increases non-WEIRD (Western, Educated, Industrialized, Rich, Democratic) representativeness in science (researchers and data).

- **MH:** Some in the research community are going to be ahead of others, but they are all going to catch up. Anticipate OS becomes more routine and that articles become less of a hurdle to getting research out. The data will find their way out to others.

- **BM:** OS will start at the very beginning, even included in informed consent (a current issue we’ve been having). From getting organized to start a project, defining variables, making decisions about what you are going to include in your study… OS will hit all parts of the process.
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