Proposal to Improve Transparency, Openness, and Replicability at SPSP Journals

Abstract

Concerns about the integrity of scientific findings have, over the past half-decade, led to a broad range of proposals regarding ways to improve the quality, replicability, and reproducibility of scientific research. Although SPSP has, through its professional development sessions at the annual meeting, provided training about new methods and practices, the journals have implemented few if any policies to address these issues. I propose five specific steps that SPSP journals can take to address concerns about replicability: 1) Become signatories of the TOP Guidelines, 2) Adopt Level II for all TOP Guidelines, 3) Adopt Open Science Badges, 4) Adopt the "Pottery Barn Rule" for replications of research previously published in SPSP journals, and 5) partner with PsyArXiv to encourage preprints.

Proposal to Improve Transparency, Openness, and Replicability at SPSP Journals

Concerns about the integrity of scientific findings have, over the past half-decade, led to a broad range of proposals regarding ways to improve the quality, replicability, and reproducibility of scientific research. These proposals, many of which are codified in the Transparency and Openness Promotion (TOP) guidelines (Nosek et al., 2015), focus on making the research process (including materials, data, and analyses) more transparent to outside parties, both for purposes of verification and to aid future work that extends or replicates the original studies (for an overview of these guidelines, see Figure 1). In addition, these guidelines encourage research practices (such as preregistration and the use of registered reports) that can help reduce the impact of publication bias and can help prevent undisclosed flexibility in analyses that can lead to false positives and unreplicable results. Finally, these guidelines encourage replication studies, studies that can help ensure that science is indeed self-correcting.

Social psychology has arguably been at the center of debates about replicability in science. Although concerns about replicability certainly affect all areas of psychology (and indeed, all areas of science), many of the highest profile examples of failed replications come from within social psychology. And although it is currently not possible to determine in any definitive way what the absolute rates of replicability are for different disciplines, large scale attempts to replicate multiple research findings from within social psychology have generally had low rates of success.[1] It may therefore be seen as somewhat problematic that the Society for Personality and Social Psychology—the main organization for social psychological research—has not been a leader in adopting and promoting journal practices that might increase rigor and robustness.

Indeed, as shown in Figure 2, SPSP journals now lag behind other outlets in terms of

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[1]There is no single criterion for evaluating what counts as a successful replication, but results have not been promising regardless of which criterion was used.

	Not Implemented	Level I	Level II	Level III
Citation Standards	Journal encourages citation of data, code, and materials, or says nothing.	Journal describes citation of data in guidelines to authors with clear rules and examples.	Article provides appropriate citation for data and materials used consistent with journal's author guidelines.	Article is not published until providing appropriate citation for data and materials following journal's author guidelines.
Data Transparency	Journal encourages data sharing, or says nothing.	Article states whether data are available, and, if so, where to access them.	Data must be posted to a trusted repository. Exceptions must be identified at article submission.	Data must be posted to a trusted repository, and reported analyses will be reproduced independently prior to publication.
Analytic Methods (Code) Transparency	Journal encourages code sharing, or says nothing.	Article states whether code is available, and, if so, where to access it.	Code must be posted to a trusted repository. Exceptions must be identified at article submission.	Code must be posted to a trusted repository, and reported analyses will be reproduced independently prior to publication.
Research Materials Transparency	Journal encourages materials sharing, or says nothing.	Article states whether materials are available, and, if so, where to access them.	Materials must be posted to a trusted repository. Exceptions must be identified at article submission.	Materials must be posted to a trusted repository, and reported analyses will be reproduced independently prior to publication.
Design and Analysis Transparency	Journal encourages design and analysis transparency, or says nothing.	Journal articulates design transparency standards.	Journal requires adherence to design transparency standards for review and publication.	Journal requires and enforces adherence to design transparency standards for review and publication.
Study Preregistration	Journal says nothing.	Article states whether preregistration of study exists, and, if so, where to access it.	Article states whether preregistration of study exists, and, if so, allows journal access during peer review for verification.	Journal requires preregistration of studies and provides link and badge in article to meeting requirements.
Analysis Plan Preregistration	Journal says nothing.	Article states whether preregistration of study exists, and, if so, where to access it.	Article states whether preregistration with analysis plan exists, and, if so, allows journal access during peer review for verification.	Journal requires preregistration of studies with analysis plans and provides link and badge in article to meeting requirements.
Replication	Journal discourages submission of replication studies, or says nothing.	Journal encourages submission of replication studies.	Journal encourages submission of replication studies and conducts results blind review.	Journal uses Registered Reports as a submission option for replication studies with peer review prior to observing the study outcomes.

Figure 1. TOP Guidelines and Levels. Source: https://cos.io/top/

adopting practices that promote transparency, openness, and replicability. This figure shows data collected by the Center for Open Science regarding policies for transparency and openness at various journals where social and personality psychologists typically publish their work. Scores are based on whether journals have signed on to the TOP guidelines, which level of the guidelines they endorse, and whether they have adopted any other practices (including open-science badges) to promote replicable research.

One concern about these policies is that by upsetting the status quo, new problems will be introduced into the publication process. Fortunately, many other journals have already incorporated these procedures and guidelines with what appear to be limited unintended consequences. Importantly, it is not just lower-tier or niche journals that have adopted these policies. Even some of the most esteemed outlets in the field, including all three sections of
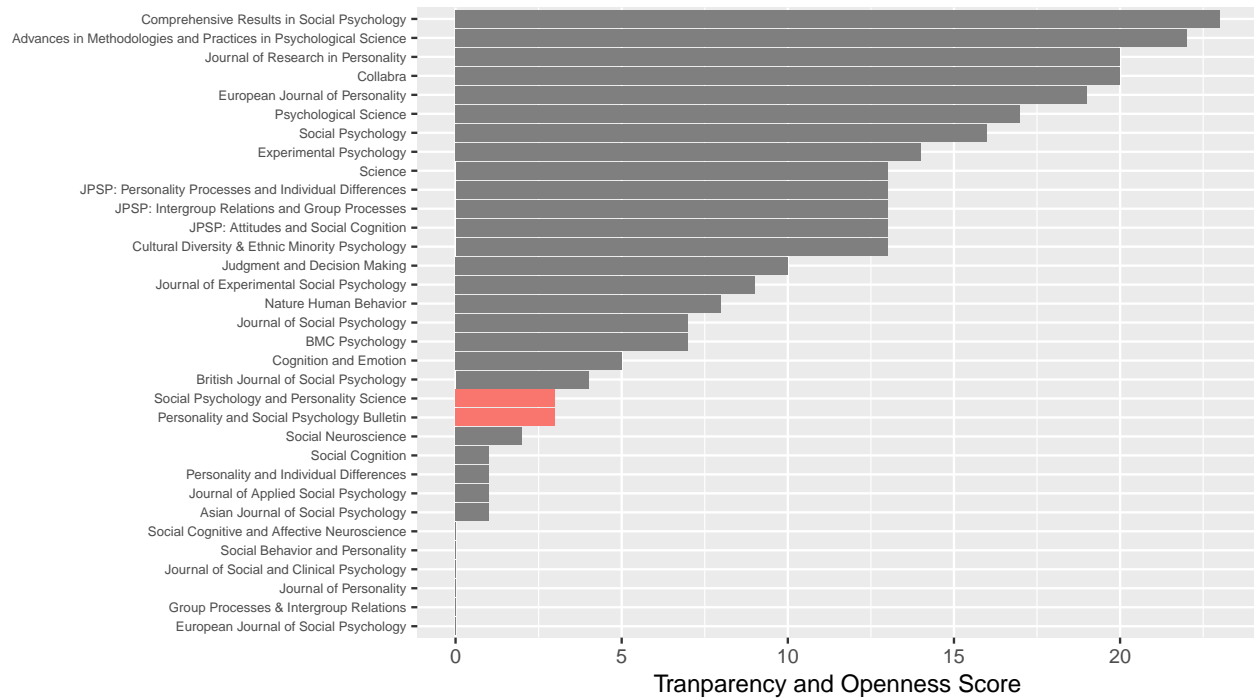
Figure 2. Journal Policies Toward Openness and Transparency. SPSP Journals highlighted in red. Source: Center for Open Science (https://osf.i/9ydm3/). Data as of April 29, 2019.

the *Journal of Personality and Social Psychology* and *Science* have adopted many of the TOP guidelines and score considerably higher than SPSP journals. *Psychological Science* has been especially progressive in their approach, with what appear to be no negative consequences. SPSP missed the opportunity to lead on these issues; now we must catch up.

Accordingly, I propose that SPSP adopt new publication policies to promote transparency, openness, and replicability. This proposal includes a number of subproposals, which I describe and justify in more detail below. It is important to acknowledge that policies at *Social Psychological and Personality Science (SPPS)* are set by a consortium committee with representatives from other organizations. Therefore, in regard to *SPPS*, the proposal is to take these issues to that consortium and to argue for their adoption. In addition, because *Personality and Social Psychology Review (PSPR)* has a different format than *Personality and Social Psychology Bulletin (PSPB)* and *SPPS*, not all of these suggested policies will apply at that journal (though some may).

Sign the Transparency and Openness Promotion (TOP) Guidelines

The first (and easiest) step towards adopting transparent and open policies is to have SPSP and each journal sign the TOP Guidelines. There are currently over 5,000 signatories, including over 1,100 journals. Neither SPSP nor its individual journals are signatories of these guidelines. Endorsing these guidelines signals to the field that the journals are committed to transparency, openness, and replicability.

Adopt at Least Level II for All TOP Categories

Although signing the TOP guidelines does not commit signatories to any particular level, improvements in transparency and openness will only come by adopting new policies that align with the higher levels of the TOP guidelines. I propose that SPSP journals adopt Level II for each guideline. This level would promote more open practices, while allowing for flexibility in their implementation, which is necessary to accommodate the broad range of research that these journals publish.

Citation Standards. The Citation Standards guidelines focuses on citation of data and materials used in the paper. Level II of the Citation Standards guideline simply states: "Article provides appropriate citation for data and materials used consistent with journal's author guidelines." Although papers published in SPSP journals often rely on original data collected for the study that is being described, analysis of existing data is becoming more commonplace. In addition, most papers published in these journals rely on previously published measures or materials. Adequate citation standards ensure that these data and materials are discoverable to others. In addition, these citation standards allocate credit to those who produce and publish data and material that are used by others by tracking citations to those sources. Adopting Level II has few, if any negative consequences because it simply involves updating standards for citations.

Data Transparency. Data Transparency guidelines refer to policies regarding open posting of data used in the paper. The recommended Data Transparency policy would represent a change from current standards at SPSP journals. Level II states: "Data must be posted to a trusted repository. Exceptions must be identified at article submission." In other words, the default policy would require sharing of all data used in publications. Note that this level also allows for any exceptions due to ethical or legal realities that the editor deems acceptable; authors would simply need to disclose those reasons at submission (and, I propose, in the published manuscript). Therefore, proprietary data or data that could not be fully anonymized would not need to be posted (though there are repositories that provide "protected access" to sensitive data that would otherwise be lost). This shift in the default could increase the availability of data, which could allow for correction of errors, investigation of alternative models, and even the testing of novel hypotheses without the use of additional resources; all of which benefit scientific progress. At least some of these benefits can also lead to increased citations of the papers that provide these resources.

Analytic Methods (Code) Transparency. The third guideline, that for Analytic Methods (Code) Transparency refers to the availability of the code used for analyses. Level II states: "Code must be posted to a trusted repository. Exceptions must be identified at article submission." Like data transparency, implenting stringent guidelines for code transparency ensures that readers and reviewers fully understand analytic choices, and it improves the chances that coding errors are identified and corrected in the scientific literature. Furthermore, code transparency can add to the value of a paper by providing sample code that others can borrow (again, with implications for article usage and citation counts).

Research Materials Transparency. Similar to the previous two guidelines, the Research Materials Transparency guideline focuses on ensuring that readers have enough information about materials used in the study to understand and duplicate the reported research. Level II of this guideline is: "Materials must be posted to a trusted repository.

Exceptions must be identified at article submission." Again, exceptions for proprietary questionnaires and other difficult-to-share materials are allowed at the discretion of the editor. Although this is not stated explicitly in the Level II guideline, I also propose that such exceptions be explained in any published report.

Study Preregistration. The next two guidelines focus on preregistration. Study Preregistration refers to whether the study and its methods were preregistered and how this status is documented in the report. Level II of this guideline is: "Article states whether preregistration of study exists, and, if so, allows journal access during peer review for verification." Work that is preregistered can then be verified during the course of peer review. As with the other Level II guidelines, the Study Preregistration guideline allows for flexibility; preregistration is not *required* for publication (indeed, authors do not even need to explain why they did not pregister). Yet at the same time, by requiring authors to state whether they did or did not preregister, adopting this policy signals to authors that preregistration should at least be considered as a standard step in the research process. Although this is not stated in the Level II guideline, it would also be appropriate for studies that have been preregistered, to require preregistration documents to become public at the time the article is published.

Analysis Plan Preregistration. Whereas the Study Preregistration guideline focuses on whether the study itself was preregistered, the Analysis Plan Preregistration guideline covers whether the details of the analyses were preregistered. Level II for this guideline is: "Article states whether preregistration with analysis plan exists, and, if so, allows journal access during peer review for verification." Again, preregistration is not required; authors must simply disclose whether a preregistration document exists, and if so, to provide it during review so that the reviewing and editorial process can verify compliance with the pregistered plan or check for transparent changes to the study.

Replication.   Finally, the Replication guideline focuses on journal policies regarding the acceptance of and review process for replication studies. Level II states: "Journal encourages submission of replication studies and conducts results blind review." There are two parts to this guideline. First, by adopting Level II, journals explicitly encourage the submission of replication studies. Second, the guideline implements "results blind" review for this submission type. The idea behind the use of results blind review is that knowledge of the outcome may bias reviewers' evaluation of the quality of the replication attempt in undesirable ways. In addition, because replication studies, by definition, follow the procedures of previously published studies, any arguments (valid or not) about the need to know the results to evaluate the methods do not apply for this category of research.

Adopt Badges for Open Practices

Although signing on to the TOP Guidelines and implementing Level II of these guidelines will do much to improve the transparency of research published in SPSP journals, there are additional steps that other journals have taken to encourage these practices even more. The Open Science Badge program (https://cos.io/our-services/open-science-badges/) is designed to accomplish two goals: 1) To provide incentives for researchers to adopt open science practices and 2) To signal to readers that these practices were used in the research being described. Currently, 60 journals offer Open Science Badges, and there is at least some evidence that these badges make a difference. For instance, Figure 3 shows changes in data sharing at the journal *Psychological Science* (compared to other journals) after Open Science Badges were adopted (Kidwell et al., 2016). This is encouraging evidence that badges promote the adoption of open science practices.

Adopting Open Science Badges does come with some cost. First, publishers need to develop procedures to implement this policy. SPSP's current publisher (Sage) also publishes other journals that already use Open Science Badges. Therefore, this should not be difficult
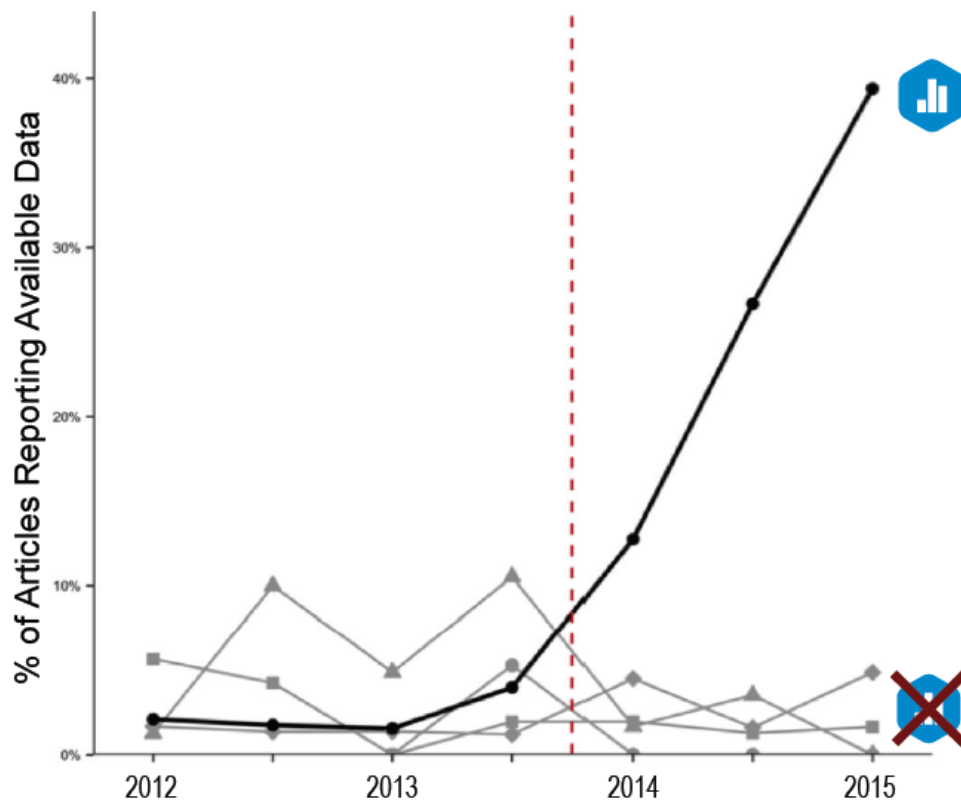
Figure 3. Badge Adoption and Data Sharing. From Kidwell et al., 2016, modified by cos.io

for them to do. Second, editors and staff need to evaluate whether each particular article meets the conditions for a badge and this process takes some time. Indeed, some initial investigations into the extent to which papers that have been awarded badges actually warrant those badges suggests that the process of evaluating "badge-worthy" claims has not yet been perfected. For instance, some papers that have been awarded badges for preregistration have very impoverished preregistration documents that do not constrain analytic procedures in any meaningful way. However, progress is being made on how to evaluate whether a paper warrants a badge, and discussion with editors and staff at journals who have adopted these policies can help develop effective procedures for managing workload. In addition, badges themselves are transparent and can be verified (or challenged) by readers who check whether a paper actually does share data or materials or makes claims about

preregistration that warrant a badge.

Embrace the "Pottery Barn Rule" for Replications

The next part of this proposal is for SPSP journals to embrace the "Pottery Barn Rule," wherein journals commit to publishing high quality direct replications of studies published in their pages. More formally, Sanjay Srivastava (https://thehardestscience.com/2012/09/27/a-pottery-barn-rule-for-scientific-journals/) proposed that

> Once a journal has published a study, it becomes responsible for publishing direct replications of that study. Publication is subject to editorial review of technical merit but is not dependent on outcome.

Papers submitted under this policy would necessarily be brief (no theoretical development would be needed, as this material would be covered in the original manuscript), and the review process could be accelerated, as the only criterion for acceptance would be technical merit and fidelity to the original study. Adopting the Pottery Barn Rule would incentivize replication research, which is a necessary component of the scientific process. It would also increase accountability for journals, as it would be easier to track replication rates across journals. Some journals have already adopted such a policy (as described here: https://thehardestscience.com/2018/10/15/ accountable-replications-at-royal-society-open-science-a-model-for-scientific-publishing/).

Some concerns have been raised that journals will become filled with replication studies as researchers strive to acquire "easy" publications from simple replication studies. However, this seems not to have happened at journals that encourage replication research (likely because these studies still take resources, and researchers still choose to allocate those resources to studies that may lead to higher profile publications). In addition, if the number

of replication studies eventually does increase, these papers can be published in separate sections or even on-line-only supplements.

Partner with PsyArXiv to Encourage Preprints of Submissions

The final part of this proposal is to encourage and promote preprints for papers submitted to SPSP journals. Specifically, I propose that SPSP follow the lead of the American Psychological Association (https://www.apa.org/news/press/releases/2017/08/open-science) and partner with PsyArXiv as a preferred preprint server for SPSP papers. This would allow for increased partnership opportunities that could benefit PsyArXiv, while also increasing the ease with which SPSP members can publish preprint versions of their work. The push for open-access publishing has increased in recent years. Some argue that open-access publishing is a fairer model of cost distribution, but at the very least, it makes research more accessible to those with few resources. Because SPSP journals are not open access, some concerns exists about the long-term publishing model for SPSP journals. Indeed, the "Plan S" proposal would make open-access publication mandatory for some funded work, which could affect submissions to SPSP journals (see https://www.coalition-s.org/ for details). It would be beneficial for SPSP to consider ways to accomplish the goals of open-access publishing within their current subscription model, and preprints help in this regard (though this would not satisfy criteria for Plan-S publishing). In addition, by encouraging a preprint-focused culture, working papers may receive considerable additional feedback and from readers before the final version is published. This model is used frequently in other social sciences such as economics.

The proposal is for SPSP to work with Sage to incorporate a mechanism to submit preprints to PsyArXiv at the time of submission. Authors would not be required to submit preprints, but the option would be available. Official endorsement by organizations like

SPSP may make the practice of posting freely accessible preprint versions of published papers more normative, which can increase access to this work.

Summary

The data from Figure 2 show that SPSP journals lag behind other outlets in terms of policies that address concerns about the openness and replicability of scientific research. The specific proposals put forward in this document attempt to address these concerns. Importantly, the proposed policies are not untested; all have been adopted by other journals, and many have been adopted by the highest impact journals in our field. In addition, the policies are all flexible, allowing for deviations from defaults as long as they are transparent and deemed acceptable by the editorial teams. Thus, the likely downside to making these changes is small, and the upside—for scientific progress and for SPSP's reputation—is likely large.

Proposals for Vote:

- Become signatories of TOP Guidelines
- Adopt Level II for all TOP Guidelines
- Adopt Open Science Badges
- Adopt "Pottery Barn Rule" for replication studies
- Partner with PsyArXiv to encourage preprints

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