

Buried in bullshit

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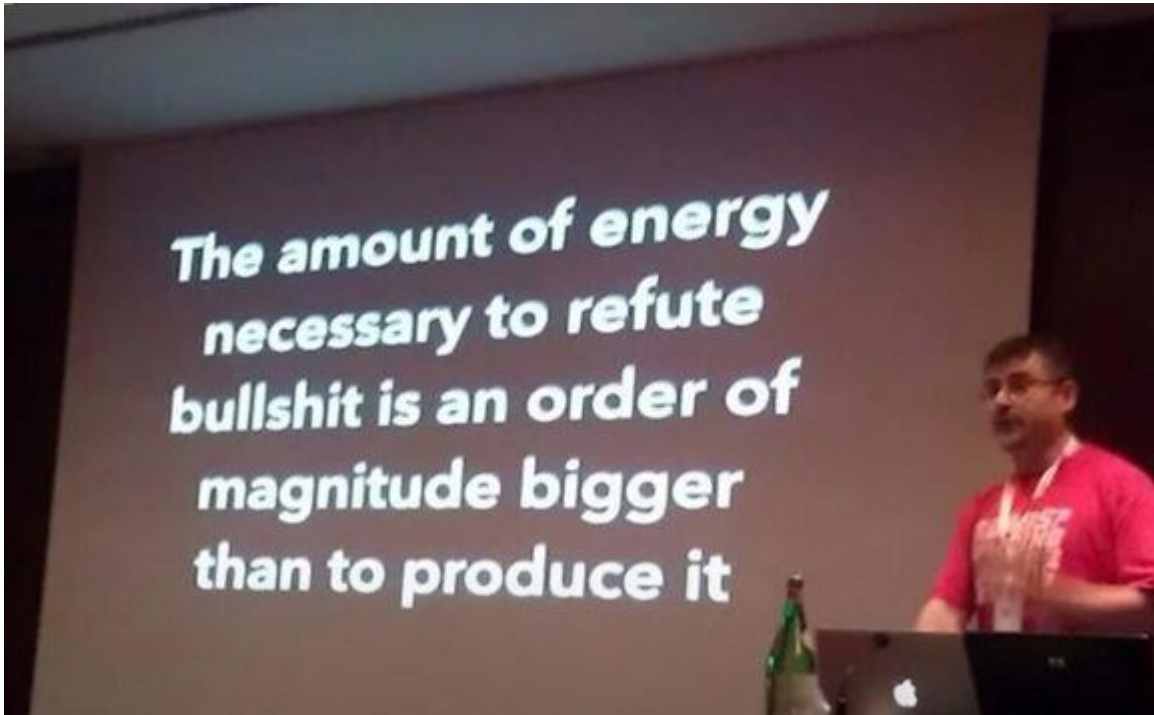
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Bullshit psychology?



Earp (2014)

Liars, bullshitters, and scholars

According to Frankfurt (2005), liars and bullshitters both falsely represent themselves as prioritising truth. They differ because liars actively try to hide the truth whilst bullshitters care less about the truth than they do about other things that are potentially in conflict with it.

Let's use the term "scholars" for people who sincerely prioritise truth.

Note that this cast list is compiled by intentions and endeavours, not by outcomes. All three characters may communicate truth or falsehood irrespective of whether they do so unintentionally, incidentally, or purposefully.

Note also that there may not be strong relationships between character and competence. People can fall anywhere between ineptitude and finesse at lying, bullshitting, and scholarship.

Bullshit and lies in the pool of psychological knowledge

Although perhaps no more so than in other disciplines, there is nevertheless a worrying amount of outright fraud in psychology. Each of the following people, for example, has fairly recently had high-status peer-reviewed papers retracted because of confirmed or suspected fraud: Marc Hauser, Jens Förster, Dirk Smeesters, Karen Ruggiero, Lawrence Sanna, Michael LaCour and, a long way in front with 58 retractions, Diederik Stapel. It seems reasonable to expect that there will be further revelations and retractions before too long.

That's a depressing list but out-and-out lies in psychology may be the least of our worries. Several pieces of evidence demonstrate compellingly that contemporary psychology is liberally sprayed with bullshit.

1. *Improbable patterns of statistical significance.* Almost all published studies report statistically significant effects even though very many of them have sample sizes that are too small to reliably detect the effects they report (Cohen, 1962, Bakker et al., 2012). Similarly, multi-study papers often report literally infeasible frequencies of statistically significant effects (Schimmack, 2012).

2. *Inadequate methodological and statistical processes.* Many of the analyses and procedures psychologists use do not justify the conclusions drawn from them. A striking and common example is failing to correct for multiple tests. If there is a fixed chance of obtaining a statistically significant result (e.g., $p \leq .05$) when there is no genuine phenomenon, the chance of obtaining misleading statistical significance increases with the number of tests performed. Psychologists routinely fail to correct for multiple comparisons (e.g., Cramer et al., 2014). Apparent results, such as associations between astrological star signs and particular medical conditions, often disappear once appropriate corrections are made (Austin *et al.*, 2006).

3. *Failed replications.* Few successful attempts have been made to rigorously replicate findings psychology. Recent attempts to do so have suggested that even

studies almost identical to original ones rarely produce reassuring confirmation of their reported results (e.g., Open Science Collaboration, 2015).

4. *Revisionism*. Classic findings and interpretations of them that have until now been more or less accepted as ‘common knowledge’ in psychology are increasingly being challenged and revised (Jarrett, 2008).

5. *Exposed selectivity*. Evidence is increasingly revealing just how many published studies have selectively included or omitted evidence to support claims that authors must know are far from accurately representing the truth, the whole truth, and nothing but the truth (Belluz, 2015; Franco *et al.*, 2016; Neuroskeptic, 2015). Inzlicht (2015) tells a story of two versions of a paper he acted as editor for; one submitted and the other accepted. The former mentioned 7 experiments each with significant effects that supported the authors’ claims. The latter disclosed an additional 11 existing studies, conducted more appropriate analyses, and reported only two significant effects.

6. *Researchers’ admissions*. A considerable proportion of psychologists are willing to admit having engaged in questionable research practices (Fiedler & Schwarz, 2015; John *et al.*, 2012).

We know, then, that there are many serious problems in psychology. It has been suggested that much or possibly most of what we hold to be true in psychology is probably wrong (Ioannidis, 2005). A non-exhaustive list of the main reasons why follows.

1. *Professional limitations*. Many researchers and reviewers appear not to have the methodological or statistical expertise necessary to effectively engage in science the way it is currently practiced in mainstream psychology (Colquhoun, 2014; Lindsay, 2015). Scientists and reviewers also increasingly admit that they simply cannot keep up with the sheer volume and complexity of things in which they are allegedly supposed to have expertise (Siebert *et al.*, 2015).

2. *Misplaced trust*. Trust in others’ testimony is essential in science (Fricker, 2002). But, as we have just seen, much testimony in psychological science is not trustworthy. For this reason, researchers and communicators report as truths phenomena and

theories that they would almost certainly not believe if they critiqued them more thoroughly. This of course compounds the problem of untrustworthy claims in science.

3. *p-hacking*. Researchers make numerous decisions about methods and analysis, each of which may affect the statistical significance of the results they find, e.g., concerning sample size, sample composition, studies included or omitted from programmes of research, independent variable(s), dependent variable(s), control variable(s), moderation variable(s), mediating variable(s), potential outliers, statistical technique(s). This gives researchers a lot of leeway to present their results in ways that satisfy criteria other than optimal representation of the truth, e.g., to secure publications, grants, reputations, and careers (Fiedler, 2011).

Simmons *et al.*, (2011) vividly illustrate this by reporting a study which “revealed the predicted effect [that] people were nearly a year-and-a-half younger after listening to listening to *When I’m 64*” than they were after listening to “a control group tune that did not mention age” (p. 1360).

Unconvinced readers can discover for themselves how easy it is to “Hack your way to scientific glory” by visiting an online tool and selecting different sets of variables from a genuine data base to find (or ‘fail’ to find) a significant relationship between the US economy and a particular party being in office (Aschwanden, 2015). It’s up to you whether you choose Democrat or Republican.

4. *Systemic biases in publishing*. Traditionally, researchers are much less likely to submit manuscripts reporting experiments that did not find an effect and journals are far less likely to accept them if they do (Cohen, 1962; Peplow, 2014). Most prestigious journals also have a strong preference for novel and dramatic findings over the replications and incremental discoveries that are typical in an established science. If researchers want to be published in high-ranking peer-reviewed journals, therefore, they are highly incentivised to present highly selective and therefore misleading accounts of their research (Giner-Sorolla, 2012).

5. *Poor quality-control*. Peters & Ceci (1982) changed author names and affiliations and resubmitted 12 manuscripts to 12 high-quality psychology journals which had published the original manuscripts 18 to 32 months previously. The deceit was spotted in three cases. Eight of the remaining 9 were rejected, in many cases because of what were identified as “serious methodological flaws.” As journals proliferate and incentives to publish increase, quantity is rapidly overwhelming quality (Hannay, 2014; Mitchell, 2015).

6. *Restricted openness*. Typically, researchers control what information reviewers get exposed to and journal editors then shape what information readers have access to. If readers want further information, they usually have to request it from the researchers and they, their institution, or the publishing journal may place limits on what is shared. One consequence of this is that other researchers are considerably hampered in their ability to attempt replication or extension of the original findings. At the time of writing, University College London appears to have refused a freedom of information request for release of data to allow independent re-analysis of a study that was published in an outlet that explicitly promises such a possibility (Coyne, 2015).

7. *Perverved reward structures*. Materialistically, the current mechanisms of science production place individual researchers in a social dilemma (Carter, 2015). Whatever others do and whatever the collective consequences, it is in the individual researcher’s best economic interest to downgrade the importance of truth in order to maximise publications, grants, promotion, media exposure, indicators of impact, and all the other glittering prizes valued in contemporary scientific and academic communities (Engel, 2015). This is especially the case when organisations and processes that might otherwise ameliorate such pressures instead exacerbate them because they too allow concerns for truth to be downgraded or swamped by other ambitions, e.g., journal sales, student recruitment, political influence, etc. (Garfield, 1986).

8. *Myth persistence*. Established and often cherished beliefs are difficult to change. Even when incorrect claims are exposed in ways that should be fatal, they continue to have an influence on subsequent scholarship (Lewandowsky *et al.*, 2012; Tatsioni *et al.*, 2007).

Future perfect, bullshit present?

There are a lot of current initiatives which advocates claim will make psychology much more reliable and valid in the future than it has been to date. These include measures to improve researchers' methodological and statistical competence (Funder *et al.*, 2014); change the sorts of statistical analyses they use (Cumming, 2014; Dienes, in press); provide pre-registration possibilities (Chambers *et al.*, 2014), promote high-quality replications (Frank, 2015; Open Science Collaboration, 2012), facilitate open-access data and materials (Morey *et al.*, 2015); encourage post-publication review (Nosek & Bar-Anan, 2012), improve dissemination of information about corrections and retractions (Marcus & Oransky, 2011), change incentive structures (Nosek *et al.*, 2012), etc.

Some are sceptical that all such initiatives will bring net gains (Allchin, 2015; Blattman, 2015; Earp & Trafimow, 2015; Klein *et al.*, 2014; LeBel *et al.*, 2015; Nyhan, & Reifler, 2015; Sbarra, 2014; Spellman, 2015). Although we have views on such things, our concern here is less with the future than with the present.

If a plethora of sweeping changes is required to achieve trustworthiness in psychological science in the future, what can psychologists claim on the basis of the research literature *now*? Are we lying or at best bullshitting when we tell students, grant-awarding bodies, policy-makers, the public, and each other about things that psychology has discovered (Lilienfeld, 2014; Matthews, 2015)? Are we disingenuous when we trumpet the epistemological superiority of so-called psychological science and its products (e.g., Bloom, 2015)? Given the multiple serious, widespread, and enduring problems we have, can we claim hand-on-heart to confidently know anything and, if so, how can we identify it among all the bullshit and lies?

As it happens, we do think that our discipline has a lot to offer but we also think that norms of assessing and representing it need to change considerably if we are to minimise our at least complicit contribution to the collective production and concealment of yet more bullshit.

Some provisional and tentative recommendations

1. *Don't give up.* Meehl (1990) suggested that problems similar to those identified above make the psychological research literature “well-nigh uninterpretable”. When convincing others of this, he reported that some gave up studying questions of importance and interest to study things that were at least amenable to rigorous experimentation while others used defence mechanisms so that they could carry on as normal and continue to reap rewards while avoiding a guilty conscience (cf. Jussim, 2015). Both strategies seem to us to be unattractive and unnecessary. We believe that psychology has the potential to make unique and important contributions to understanding important phenomena.

2. *Prioritise scholarship.* Psychologists and their institutions should do everything within their power to champion truth and to confront all barriers to it. If we have to choose between maintaining our professional integrity and obtaining further personal or institutional benefits, may we have the will (and support) to pursue the former.

3. *Be honest.* Championing truth requires honesty about ignorance, inadequacies, and mistakes (Salmon, 2003). Denying flaws helps no one, especially if our denials are accompanied by poorly received assertions of invincibility and superiority. Acknowledgement of weakness is a strength. Expertise should be in service of scholarship, not prioritised above it. Expertise idolatry risks encouraging defensive bullshit from the anxious and generating blinkered, dogmatic bullshit from specialists (Frankfurt, 2005; Ottati et al., 2015).

4. *Use all available evidence as effectively as possible.* Important as they are, experiments are neither necessary nor sufficient for empiricism, scholarship, or “science” (Black, 1996; Robinson, 2000). To study important phenomena well, we need first to identify what they are and what central characteristics they have (Rozin, 2001). To study things thoroughly, we need to identify processes and outcomes other than those derived from our pet ‘theories’. Evaluating the research literature may well require skills different to those that have been dominant during much of its production (Koch, 1981). In particular, we have found particularly effective accurately describing others’ procedures and outcomes in ordinary language and then examining how well these justify the usually jargonistic ‘theoretical’ claims supposedly supported by them (cf. Billig, 2013).

5. *Nurture nuance*. Experiments within psychology are usually (at best) little more than demonstrations that something *can* occur. This is usually in service of rejecting a null hypothesis but it is almost as often misreported as suggesting (or showing or, worst of all, ‘proving’) something much more substantial, i.e., that something *does* or *must* occur. Perhaps the single most important thing psychology can do to quickly and substantially improve itself is to be much more careful about specifying and determining the boundary conditions for whatever phenomena it claims to identify (Lakens, 2014; Ferguson, 2015; Schaller, 2015).

6. *Triage*. A dimension can be conceived between what is important and what can be established relatively easily. Given that at least some areas of psychology seem awash with bullshit, we would be wise to prioritise evaluating topics of centrality and importance rather than on the basis that some reported findings are, for example, recent or amenable to testing using online experiments (Bevan, 1991). “Far better an approximate answer to the right question, which is often vague, than an exact answer to the wrong question, which can always be made precise” (Tukey, 1962, pp. 13-14).

The heading we chose for this section is not rhetorical. We do not consider the recommendations we list as final or complete. Science is a social enterprise and we are interested to hear the views of others with perspectives different from ours. We are certain that something needs to be done, though. We’re fed up with all the bullshit.

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