Thesis statement: Make post-publication self-correction easy / less costly.

The changing cultural landscape of science has lead to changes in how scientific criticism and self-correction is performed. Where once papers were generally criticized immediately before publication, online platforms (blogs, social media, pubpeer, pubmed commons, researchgate) allow for criticism after an article is published.

In some cases, these criticisms may reveal aspects of a study that wholly undermine its conclusions. The scientific record is well served by the dissemination of criticism and rapid action to address flaws. But such criticism carries costs. The criticized party may experience lowered status, stress, and loss of progress towards career milestones. They will incur expenses in the form of time and energy in addressing criticisms. They may need to invest more time in reconsidering theory or study design, leaving less time for publications and career progress. They may feel set upon, unwelcome, excluded, afraid; they may lose enthusiasm for continued participation in psychology. The critic, on the other hand, makes their own investment of time and energy and may make enemies.

In short, scientific self-correction in post-publication peer review is done so rarely because it is costly to authors, journals, and critics alike. In this paper, we hope to defray some of that cost by outlining an etiquette of post-publication peer review. Incoroporation of this advice, we hope, will yield post-publication criticism that is less confusing, less upsetting, more clear, and thus, more actionable.

Publishing your criticism.

See Box 1 for

There is still considerable value in attempting the conventional, formal avenues of criticism. Study authors are the best equipped to incorporate your criticisms and correct their work. Journal editors have the necessary leverage to inspire action. If nothing else, having attempted the formal channels signifies to others that you are trying to behave well.

Online platforms such as PubPeer and ResearchGate allow for commenting on research articles. Unfortunately, because such comments are not presented alongside the journal’s version of record, they will likely go undiscovered.

Box 1. The flowchart

1. Address the authors.
   1. Some misunderstandings can be resolved privately, and if one can resolve it privately, one should.
   2. This may make it easier for misconduct to be concealed. But we have given up on finding misconduct (as discussed later).
2. Address the journal.
   1. The journal is best positioned to request a correction or to issue an expression of concern.
   2. A helpful editor makes a world of difference.
3. Address other journals. (?)
   1. Other journals cannot issue a correction or EoC, but they can, at least, peer review and publish your criticism.
4. Raise a stink through back channels.
   1. At this point, unfortunately, you are in the place where scientific self-correction has become a less-than-zero-sum game. You, the authors, and the journal are all clawing at each other and bleeding terribly; if you are lucky, they will acquiesce before you are too badly damaged. You can make trouble by self-publishing on blogs and social media and hope that this embarrasses authors and editors into action. Unfortunately, this will be costly to you as well. You may develop a reputation as a loudmouth, a nitpicker, or a bully. You may make enemies who will remember you unkindly in peer and grant reviews. You will spend time and energy on a product that does not advance your CV. If you are fortunate, you will cause enough damage to inspire action before completely ruining yourself. If you are unfortunate, you will have embarrassed everybody, including yourself, and still not secured the desired action.

# How to criticize

## Shaming

Shame is, for better or worse, a powerful social force for the maintenance of group norms. Shame can be helpful in enforcing norms of scientific self-correction. The use of force, even social force, should be taken only with careful consideration and only as a last resort.

Consider the research literature on prevention focus vs. correction focus. When making a mistake is shameful, it is costly to admit to mistakes. Let us make it as easy and as painless as possible to correct mistakes.

To err is human. Every one of us has made mistakes, and every one of us will make mistakes again. To that end, it is unjust and counterproductive to shame people for the initial mistake.

Reserve the use of shame for step 4 above, when all formal channels have failed.

## Tone

An excess of ink has been spilled regarding the necessity or irrelevance of tone in scientific criticism. (Fiske, Yarkoni) I would prefer to make only one statement regarding tone, and it is a pragmatic one. A spicy tone is distracting and makes it difficult to accept and address criticism. To make things easier for the subject of your criticism, use as polite and generative a tone as possible. In much the same way that a letter with correct grammar is easier to read, a criticism with pleasant tone is easier to address.

It may be tempting to use a saucy tone to help draw attention to your criticism. Avoid this, if possible. Let the gravity of the error speak for itself.

Consider also that a somber, reluctant tone can be helpful. A preening or gleeful criticism can seem ghoulish and may cast criticism as a “loss” for the author and a “victory” for the critic. Remember that reluctance and humility are heroic; in the hero’s journey, the hero often initially refuses the call to action.

## Is the problem serious?

Ask yourself whether the problem you have identified is serious enough to require action. Research often involves compromises, and some decisions will inevitably be suboptimal. Avoid nitpicking. We have all experienced pre-publication peer review that we thought was unreasonable; definitely do not be that Reviewer 2 in post-publication peer review.

Often we find that we dislike a study because we do not like its results. Ask yourself: Would my criticism still be as serious if I liked the result? Be careful that you are not politicizing the science. Ask yourself: Am I criticizing the science, or am I criticizing the policy implications of the science?

Sometimes a paper makes an error that is common to its research area. In this case, it may be more productive and impactful to write the broad argument identifying and correcting the problem, rather than to single out one author’s work.

## Misconduct

In some cases, you may suspect that an error is due to scientific misconduct. Our advice is that misconduct is so difficult to

Misconduct requires ill intent. In general, it is exceedingly difficult to demonstrate evidence of intent. Suspicious patterns or results may arise from unintentional, honest errors.

It is better to focus on the substantive criticisms and assume ignorance rather than malfeasance.

It is much easier to get a correction or an expression of concern published than it is a retraction or an indictment. Rapid correction of the science should be your primary goal. Retributive justice should be a very distant second.

## Generalization

It is often tempting to let one or several bad papers tarnish the rest of an author’s work.

This is unfair to the accused, whose work should be critiqued on its own merits. It is unfair to co-authors, who may have other co-authored projects that are still competent.

Such overgeneralization is neither warranted nor helpful. In the end game of overgeneralization, one retraction tarnishes the whole psychological enterprise, and any mistake is cause for defunding the whole business. Let’s not.

## Maintaining diversity and inclusion in post-pub peer review.

As described above, post-publication peer review incurs certain costs to critics and the critiqued alike. These costs may be felt most sharply by underpriviledged or underrepresented groups in academia, who may have fewer resources with which to weather such costs. I do not have any strong solutions to this problem, unfortunately. I can only hope that reducing the costs of post-pub peer review in general will lower the barriers of access to these groups as well.

[AUTHOR’S NOTE: I would be grateful for any advice or ideas on this point.]

## Be grateful

Authors are trained in defense from the moment they begin their careers; they defend their articles from pre-publication peer reviewers, they defend their dissertation work from their committee, they defend their conference presentations from questions that are “more of a comment.” When an author is able to step out of this mode to do the unpleasant work of identifying and correcting error, they should be appreciated.

Editors already have a lot to do. If an editor took time and effort to revisit and correct a paper, thank them.