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, spends time and energy and may make enemies.

[Very brief section w/ eye to theory regarding use of tiquette and formalities in streamlining conduct.]

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.

1. What is worth criticism
2. Formatting your criticism
3. Communicating your criticism

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. Authors generally benefit more from ignoring pubpeer comments and hoping they go unread. Some form of leverage and exposure is necessary (either through the authors, a journal, or social media).

First, relay your concerns privately to the authors. Some misunderstandings can be resolved privately, and if one can resolve it privately, one should. We are aware that some have cautioned that approaching authors first may make it easier for misconduct to be concealed. As we will discuss later, misconduct is generally too difficult to prosecute in the best of circumstances, so we feel it is better to give up on misconduct and instead handle honest criticism to the best of our ability.

Second, if the authors have not been able to resolve your concerns, follow up with the journal. If the editor chooses to get involved, they can be very influential. Emails will be answered, concerns will be addressed, and a correction or an Expression of Concern can be issued in a relatively timely manner.

Third, if the journal in question will not consider your criticism, you may consider approaching another journal. There are several benefits to going through a journal. Peer reviewers can help you to refine your criticism or to abandon it if it is misguided. Acceptance to the journal gives your criticism a mark of legitimacy. Publication in the journal helps to disseminate your criticism.

Not all journals are COPE signatories. (Does COPE apply to all criticism or only misconduct?)

[The above steps take time, especially if you have to try several alternative journals. Do we have thoughts on that?]

If you have been unsuccessful in getting your criticism published, it may be time to resort to less formal platforms. You can easily self-publish your criticism on a blog or a preprint server. Getting people to read your criticism, however, often requires some self-promotion through social media, typically Facebook groups or Twitter.

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 through 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 manage to inspire action before wiping yourself out. If you are unfortunate, you will have embarrassed everybody, including yourself, and still not secured the desired correction.

[People probably feel upset when they see criticism of themselves earning praise or moving virally through social media.]

Box 1. The flowchart

1. Address the authors.
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.

# 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. Consult with colleagues you can trust to tell you whether you are being reasonable.

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.

The usual writing advice applies to criticism. Be organized, be clear, be succinct. Nothing says “I am a crank” like ten single-spaced pages of incoherent fury.

## 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.]

[Self-publication and self-dissemination through social media is going to be easier for those with a big Twitter following.]

## 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.

[Sometimes it is sensible to go straight to blogs if the criticism isn’t too serious, e.g. for reaction blogposts or not-too-withering HIBARs.]