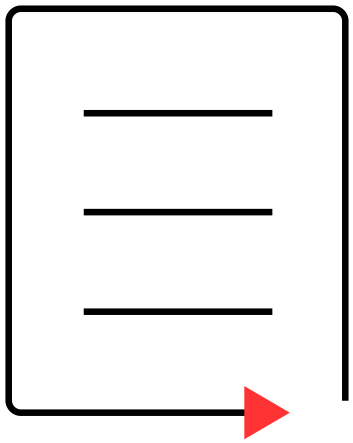


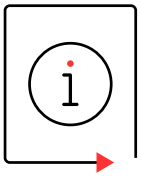
PREREVIEW

OPEN REVIEWERS

BIAS REFLECTION GUIDE

WHAT IS IT AND WHO IS IT FOR?

The Bias Reflection Guide is a tool for anyone who is reviewing a research manuscript before or after its publication. For example, a student who has been invited by an editor to peer review a manuscript in their field and is looking for guidelines on how to do it in a way that reduces biases. Or an experienced reviewer who is looking for guidance on how to improve their approach to peer review in a way that is more inclusive and less biased.



This guide is meant to help you **think deeply about the ways assumptions or biases** may be affecting your assessment of manuscripts you choose to review.

From here on, we will refer to **"you"**, as the reviewer and reader of this guide.

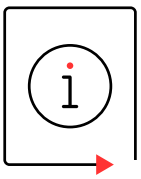
Regardless of who you are, we want you to recognize that as a reviewer of someone else's manuscript you have the power of contributing to the knowledge contained in that manuscript, and possibly of determining if that knowledge is shared with the world. With this power comes the responsibility of identifying, acknowledging, and fighting biases and assumptions you may bring to the process.

This guide is meant to help you **think deeply about the ways assumptions or biases** may be affecting your assessment of manuscripts you choose to review. It is NOT intended to pinpoint the precise assumptions or biases that you may hold; instead it is meant to provoke some thoughts and inspire discussion with your peers and mentors.

This Reviewer Guide is part of a toolkit developed in the context of **PREreview Open Reviewers**, a cohort-based peer review training and mentoring program that pairs early-career researchers with expert reviewers. The other two guides published in the toolkit are the **Reviewer Guide** (Foster *et al.*, 2021) and the **Review Assessment Rubric** (Foster *et al.*, 2021).

HOW SHOULD YOU USE IT?

We recommend reading through this document at least once before you select your manuscript to review or, if you have already selected it, before you read it for the first time. Then you can read it again once you review is complete.



Reflection means simply observing your thoughts without judgment.

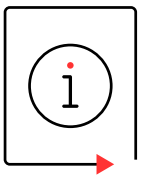
Start by reading through the **"Common Biases and Assumptions in Peer Review"** section. While you read through those statements, think about how the content and their implications may or may not impact how you select and/or review a manuscript. Let your thoughts wander a bit outside of the strict meaning of the statements and notice where your mind brings you during this exercise. Take time to reflect on these statements and take notes if you can. Reflection means simply observing your thoughts without judgment.

If you suspect these statements and ideas affect your review process of the manuscript, know that you are not alone! These are common ideas and sentiments that we hold in many situations and spaces, including science.

Once you have read and taken the time to reflect upon these statements, move onto reading the **"Guided Reflection"** section.

COMMON BIASES AND ASSUMPTIONS IN PEER REVIEW

1. The low number of authors indicates a low level of collaboration. This leads me to trust the data and conclusions less.
2. Knowing the authors' gender leads me to feel more critical in my review of the manuscript.
3. Knowing the authors' race, ethnicity and/or country of origin leads me to question the accuracy and reliability of the study and therefore, be more critical in my review of the manuscript.
4. The respected reputation of the author's home research institution helps me feel confident in the accuracy and reliability of the data and conclusions.
5. The country in which the authors' research institute is located makes me feel confident in the accuracy and reliability of the study.
6. As a respected leader in the field, the senior author' reputation helps me feel confident in the accuracy and reliability of the study.
7. Knowing that the senior author is new to the field leads me to question the accuracy and reliability of the data and the manuscript's conclusions.
8. The senior author is at a late stage of their career and therefore is likely to be very experienced. Knowing this helps me feel more confident in the accuracy and reliability of the data and conclusions.
9. The senior author is at early stages of their career and less likely to be dedicated to the conventional way of thinking. This helps instill confidence that the data and conclusions are robust and reliable.
10. The authors' writing style is dissimilar to my understanding of professional writing. This leads me to feel less confident that the data and conclusions are robust and reliable.
11. Finding several grammatical errors in the manuscript makes me question the accuracy and reliability of the study.



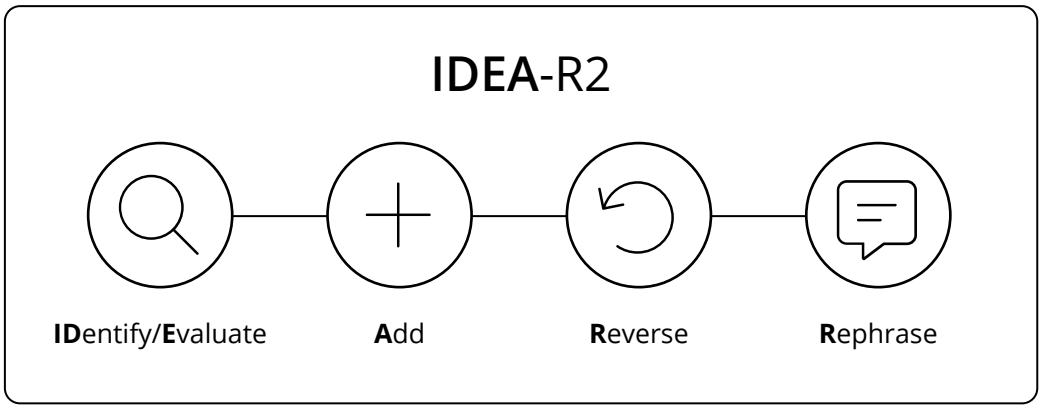
This is a non-exhaustive list of statements that capture common biases and assumptions that may arise when evaluating your peers' work. The same exercise can be applied to other biases and assumptions with which you are familiar.

GUIDED REFLECTION:
THE IDEA-R2 METHOD

While reading through the statements in the **"Common Biases and Assumptions in Peer Review"** section, you may have thought that some ideas sound very familiar, while others not at all. The first step is to identify how our own biases and assumptions may interfere with an objective evaluation of the manuscript. Once these are identified, we can begin the work needed to alleviate their implications and eventually eliminate them altogether.

To help with this process, we created what we call ***IDEA-R2 (IDentify, Evaluate, Add, Reverse, Rephrase)***, a method to help you think critically about the biases and assumptions that you may have identified as familiar while reading the statements above.

The first step is to **identify** how our own biases and assumptions may interfere with an objective evaluation of the manuscript.



Answer these questions for all familiar statements:

One by one, ***identify*** why you or someone else may have this bias or make this assumption, and ***evaluate*** whether these conclusions are backed up by a logical rationale.

Then ***add*** "absolute" words in your statement (e.g., "never", "always", or "guaranteed"). How confident are you in the rationale behind those conclusions now that they contain these absolute words?

Now ***reverse*** your thoughts and see if these new thoughts sit well with you, or are more logical or overall more accurate.

Finally, ***rephrase*** the statement to be more inclusive of new considerations you may have thought about during this self-reflection.

Here is an example of what this may look like:

Statement: *The senior author is at a late stage of their career and therefore is likely to be very experienced. Knowing this helps me feel more confident in the accuracy and reliability of the data and conclusions.*

Identify: Why do the author's years of experience lead me to believe that the data and conclusions are more accurate and reliable?

I know this author is renowned in my field and has been around for a long time, so I think they probably do good science. They wouldn't let "bad science" come from their lab. Therefore, I think this work is trustworthy.

Evaluate: Is this logical? Is there a rationale that supports the notion that experience translates into "this work is trustworthy"?

Having designed and conducted many experiments and analyses over several years and having gained the "respect" of the community may indicate that this one research work is reflective of that.

Add: Is this always true? Let's place "always", "guarantee", or "never" into the statement:

Does the author's years of experience always mean or guarantee the data and conclusions are trustworthy? Does the author's experience mean they could never improve on their manuscript, or that aspects of their manuscript could never be questionable?

Reverse: Are there situations I can think of in which the years of experience would not influence the quality of this manuscript?

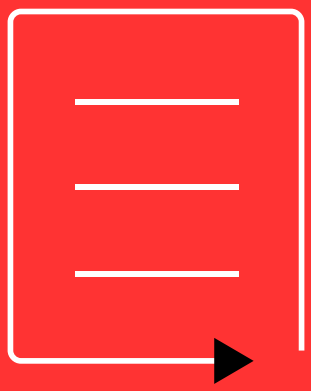
There are many factors that could influence a manuscript's need for revision. For example, the senior author didn't do the experiments and analyses themselves and did not have time to revise the work in depth prior to submission, or this is a new experiment and analysis in the lab so the senior author actually does not have much experience with this work.

Rephrase: Take what I have learned and rephrase.

Although the author's experience and recognition in the field may correlate with sound and rigorous experiments, data analysis, and conclusions, it is not something I can take for granted. There are many factors that could influence a manuscript's need for revision. I should remember that experience does not necessarily mean that the work is not questionable or that I can be quicker at evaluating the rigor of the work.

Repeat this process! Bias and assumptions are ingrained, so you should walk through this process every time you notice these thoughts.

Bias and assumptions are ingrained, so you should walk through this process every time you notice these thoughts.



PREREVIEW

REFERENCES

Foster, A., Hindle, S., Murphy, K. M., Saderi, D. (2021). Open Reviewers Reviewer Guide. *Zenodo*. **https://doi.org/10.5281/zenodo.5484087**
Foster, A., Hindle, S., Murphy, K. M., Saderi, D. (2021). Open Reviewers Review Assessment Rubric. *Zenodo*. **https://doi.org/10.5281/zenodo.5484072**

A NOTE FOR THE READER

Do you have constructive feedback on this tool? Do you want to talk about your experience using/reading through it? Do you have suggestions on how to improve it? We want to hear it all and engage the community in content creation! So please, if you have the time, consider emailing us at **mentoring@prereview.org**. Thank you so much!

AUTHOR CONTRIBUTION

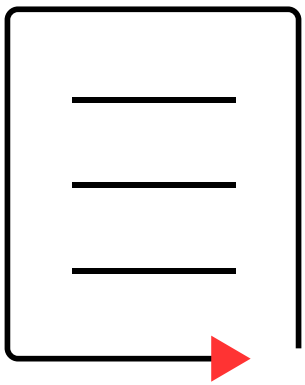
Conceptualization	Antoinette Foster
Visualization	Samantha Hindle, Katrina M. Murphy, Daniela Saderi
Writing and Editing	Antoinette Foster, Samantha Hindle, Katrina M. Murphy, Daniela Saderi

ACKNOWLEDGEMENTS

The PREreview Open Reviewers Team is sincerely grateful to all Stage 1 Review Trainees who participated in the 14-week pilot program and provided us with helpful feedback to the first version of this guide. We would also like to thank the team at eLife for their support in publishing and distributing this guide, in particular Kora Korzec for connecting us with staff, Melissa Harrison for her editorial contributions, and Emily Packer for her communication and dissemination support. Lastly, we want to acknowledge the design work by Dan Gould and the final feedback by the PREreview Leadership Team, including Monica Granados. Thank you all!

CITE THIS WORK AS

Foster, A., Hindle, S., Murphy, K. M., Saderi, D. (2021). Open Reviewers Bias Reflection Guide. *Zenodo*. **https://doi.org/10.5281/zenodo.5484052** -



PREREVIEW

prereview.org

Find out more about the Open Reviewers program. #OpenReviewers

PREreview is a fiscally sponsored project of Code for Science and Society.

@PREreview_
PREreview

CATALYZING CHANGE IN PEER REVIEW THROUGH EQUITY, OPENNESS, AND COLLABORATION