

## Editorial

### Dual-Anonymous Review

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Peer review—in which an independent expert critiques a research report in order to assist the author in achieving the highest possible quality—is at the core of the scientific process. Traditionally, the reviewer is anonymous in order to be able to criticize the work frankly. In recent years, however, there has arisen the practice of making the author’s identity also unknown to the reviewer: double blinding or dual anonymization. The goal is to help reviewers concentrate on the scientific merits of the article rather than the merits of the authors themselves. It’s difficult to assess the merits of individuals without bias, whether conscious or unconscious.

For about five years (Percy 2016), *JAAVSO* has been following this practice, asking authors not to include identifying information in the initially submitted version of their manuscripts.

Dual-anonymous review has a history going back a decade or more. As a well-known example in the world of performance art, musicians auditioning for a position in an orchestra now often play behind an opaque screen, a change that has received credit for the recent increase in the number of women who play in symphony orchestras. In just one example of what can happen in the absence of dual-anonymous review, Moss-Racusin (2012) constructed two identical resumes, one bearing a male and one a female name, and sent one or the other of them to more than a hundred university faculty members, asking them to rate the materials as if they were applications for a hypothetical laboratory manager position. Both male and female professors rated the male “applicant” significantly more highly and suggested a significantly higher starting salary for that person.

Among North American astronomy journals, *JAAVSO* is the first, to my knowledge, to institute dual-anonymous refereeing as the default. The American Astronomical Society’s (AAS) journals (*The Astronomical Journal* and *The Astrophysical Journal* family) have offered it as an option for about the same length of time, but few authors select it. The explanation sometimes offered is that, since so few authors request it, referees suspect a problem when they see it and a stigma is associated with it—a vicious circle. The recently-launched *Planetary Science Journal* is the first of the AAS journals to require authors to opt out of dual-anonymous refereeing if they don’t want it.

Recently, NASA has instituted mandatory dual-anonymous refereeing of proposals for observing time on NASA missions, starting gradually with the Hubble Space Telescope (HST). In proposal cycle 22 (2011), the name of the principal investigator

(PI) was removed from the front page of the proposal. Two years later, the PI’s full name was replaced with initials in the body of the proposal, and the following year it was made difficult to determine which of the proposal’s authors was the PI. Finally, in Cycle 26, all identifying information was removed from the proposals, and authors were instructed how to mask their identities in writing their proposals. For each year, the success rates of men and women PIs were studied (Johnson and Kirk 2020). In all the years studied except the last, men had significantly higher success rates than women (the original cause of the dual-anonymization effort); only in Cycle 26 (2016), with full anonymization, were the rates equal. Subsequent years’ results are still under study.

Because of the HST experience, NASA is now moving ahead with full anonymization in its proposal process for numerous guest observer missions. This program was summarized in a town hall at the recent 236th meeting of the American Astronomical Society (held virtually). NASA representatives summarized recent results of the HST experiment; for example, Iain Reid (of the Space Telescope Science Institute) mentioned dramatically improved success rates for first-time PIs. Daniel Evans (of NASA Headquarters) emphasized that the biases being addressed are not just those of gender and race but also career stage, institutional prestige, and others. Since scientific talent is found in all sorts of people and in a wide range of settings, removing personal variables from consideration is bound to improve the scientific enterprise as a whole.

The stakes are higher in proposals for observing time than in journal articles, because successful proposals receive funding to support the research and carry higher weight in assessment of scientists’ careers. But it is just as important for journal authors to enable referees to be unbiased. According to the HST results on success rates, only full anonymization is effective in reducing bias. Therefore, it is important for our journal to ensure the robustness of its processes.

*JAAVSO*’s authors vary in their efforts to hide their identities and in their success. Some potentially identifying details have to be retained because they are important for evaluating the paper, such as the setting of the observatory: mountaintop, suburban, or light-polluted urban? Northern or southern, desert or forested? Who took the data? The equipment that was used need to be described. Finally, the referee needs a complete citation list, which may need to include the authors’ previous work, in order to evaluate the scientific content.

Still, some steps can be taken to obscure the authors' identities without harming, and maybe even improving, the readability of the paper. Advice from NASA includes:

- When citing your previous work, don't claim ownership. Rather than, "in our previous work, we found...", just say, for example: "previous studies (citation) demonstrated..."
- Citing your own unpublished work is not encouraged. If you must do so, say that the information was received by personal communication.

And in the *JAAVSO* context:

- Don't name your observatory, but give the relevant scientific details and fully describe the equipment used to make the observations.
- It suffices to say that the observations were made by one or more of the authors.

After the paper is accepted, you will be asked to de-anonymize the article and fill in all the needed details. These are just

examples; the *JAAVSO* editorial office plans to issue more detailed guidelines soon.

Despite all efforts, it is sometimes impossible to hide the authors' identities. Indeed, if you choose to keep your identifying information in your submitted manuscript, I'll still send it out for review. But the more the reviewer's attention can be deflected away from the authors personally and toward the scientific content, the more the quality and objectivity of the review will benefit.

We thank our reviewers once again for their contributions! In virtually all cases, they do an excellent job and are fair to the authors, whether or not they know the authors' identities. Still, I am convinced that dual anonymization is helpful to them in fulfilling this role and helpful to authors in ensuring unbiased consideration of their articles.

## References

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