

To name or not to name: The effect of changing author gender on peer review

Brown group DEI moment
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Borsuk, Robyn M., et al. *BioScience*, 2009 vol. 59, no. 11, 985–989. *JSTOR*,

The Peer review model

The Peer review model is one of the most important tools used in science to assess the relative merit of research. The review process is dependent on the largely unpaid participation of editors, referees and authors in order to function.

At any point of the process, it is possible that the assessment of manuscript will be based on something other than actual scientific merit, or “bias”, can occur in relation to attributes of the referee or to attributes of the paper.

Influencing factors:

1. **Qualification/ experience of the reviewer** : Scientists with more experience tend to be more critical in their evaluations (Nylenna *et al.* 1994)
2. **Gender of reviewers:** Male referees tend to recommend either acceptance or rejection, whereas females more frequently recommend revisions (Davo *et al.* 2003)
3. **No. of authors/ authors nationality**
4. **Gender of authors** : Articles with females as first author were more likely to receive a lower rating, Particularly when the author is not previously known in their field (Lloyd 1990).

The extent of the influences has not been tested experimentally. Most importantly, the sensitivity of author name and gender within the peer review model should be tested to ensure that these general assumptions of the model's objectivity are well founded.

Experiment

Plan: Offering a single article to a broad population of potential referees, including undergraduates, graduate students, postdoctoral researchers, and faculty researchers. The only variation in the article concerned the name of the author.

Testing the following hypothesis:

1. Author designation should not influence the recommendation to publish.
2. The gender and educational qualification of the referee influence the degree of criticality when reviewing.
3. Same gender preference

To the best of their knowledge, this was the first study to explore whether author name changes the perception of a biological study.

Sampling design

They used the publication article “ Zebra mussels decrease burrowing ability and growth of a native snail, *Campeleoma decisum*” (Published in *Hydrobiologia*).

- i. Short length
- ii. Clear figures
- iii. Direct and uncomplicated text
- iv. Received same no of citations as the mean for the journal in 2007
- v. Undoubtedly the paper can be rated as acceptable and publishable.

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SHORT RESEARCH NOTE

Zebra mussels decrease burrowing ability and growth of a native snail, *Campeleoma decisum*

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Kinneret Albalak · Catherine E. Bach

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Abstract Invasive species can drive native organisms to extinction by limiting movement and accessibility to essential resources. The purpose of this study was to determine if zebra mussels (*Dreissena polymorpha*) affect the burrowing ability and growth rate of a native snail, *Campeleoma decisum*. Snails with and without zebra mussels were collected from Douglas Lake, MI, and burrowing depths were studied in both the laboratory and Douglas Lake. Growth rates were calculated as the amount of shell growth from 2004 to 2005. Both the tendency of snails to burrow and the depth to which they burrowed into the substrate were significantly decreased by the

mussels compared to snails with zebra mussels. These negative effects of zebra mussels on growth and burrowing ability will likely lead to decreases in snail population densities in the future.

Keywords Brown mystery snail · Burrowing ability · Invasive species · Gastropod · Growth rate · Zebra mussel

Since the arrival of the invasive zebra mussel *Dreissena polymorpha* (Pallas, 1771) to North America, native aquatic communities have been significantly altered (Lauer & McComish, 2001; Havnes et al., 2005). Non-dreissenid macroin-

Sampling design

Names of the original authors were removed and replaced by four author designations:

- a. No name
- b. Initial (J. Thompson)
- c. Male (David Thompson)
- d. Female (Catherine Thompson)

Keeping the title same, so that any difference for the evaluation is attributed from only the gender.

Distribution among the different class of reviewers:

1. Undergrad students (no reviewing experience)
2. Masters and grad students
3. Post doctoral fellows
4. Faculty

Survey done by both in online and offline mode. The name, gender, career stage of each respondent were recorded.



The York University Human Protocol Research Committee approved this research

Statistical analyses

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
1. I have prior knowledge on the subject of this article	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. This article is suitable for publication	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. The title captured my attention	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. The abstract is useful	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. The graphs are useful, appropriate and clear	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. The concepts this article is trying to convey understandable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. This topic merits scientific research	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Total respondents: 989 (230 in class, 759 online)

Used chi-square statistics and general linear model (GLM) to analyze net quality score.

Results

1. The author designated test manuscripts were equally distributed to each group.
2. Female respondents (62%) more than male respondents(38%).
3. Undergrad (86.4%), Grad students (10.3%), Post doctoral researchers (3.3%).

Author gender had no effects on rejection rates for online referees.

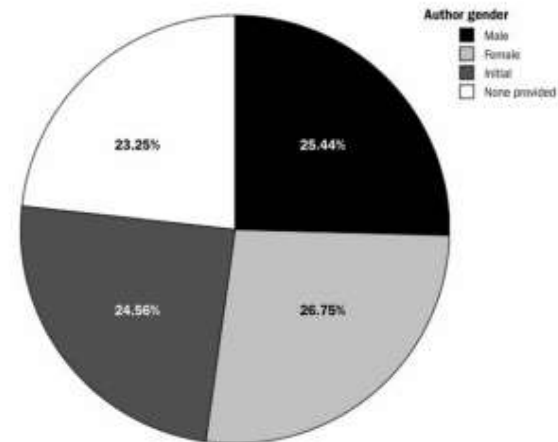


Figure 2. The relative distribution of rejection rates of an experimentally manipulated author gender for a single manuscript. A total of 456 biologists were tested.

Results

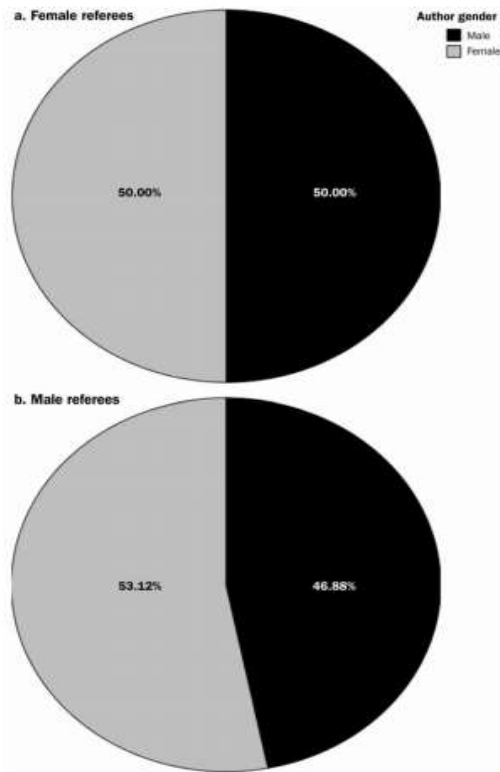


Figure 3. A comparison of the acceptance rate by referee gender by author gender of a single manuscript experimentally manipulated for author name. A total of 238 biologists were tested.

Referees were not more likely to accept authors of their own gender, nor did they rate their own gender more favorably.

Other observations:

1. post doctoral researchers and graduate students were however, more likely to reject the manuscript than undergraduate students.
2. Female respondents generally rated manuscripts significantly lower than did the male respondents.
3. Female postdoctoral researchers were more critical than any other group.

Conclusions

- Reviewers with higher qualifications are more critical as they are older and experienced, and more familiar with the expectations associated with successful publications.
- It would be easy to speculate that female biologists are more critical reviewers because they were subjected to more critical experiences in science at different stages of their career.
- This is the first experimental study of its kind and tested on only one common publication and there was no evidence of gender discrimination by author name, which is an extremely positive finding for biologists as well as other stream of science.
- This study does not imply that the peer review process is perfect, nor that all published paper within a particular journal are of equally high quality. But this study reflects positive changes within the biological field with the overall increase in the number of female biologists.