

Peer Review Comments

Article: Hilgard, J., Sala, G., Boot, W. R., & Simons, D. J. (2019). Overestimation of Action-Game Training Effects:

Publication Bias and Salami Slicing. *Collabra: Psychology*, 5(1): 30. DOI:

<https://doi.org/10.1525/collabra.231>

Article type: Original Research Report

Editor: Rolf Zwaan

Article submitted: 16 January 2019

Editor decision: Accept submission

Revision submitted:

Article accepted: 14 June 2019

Article published: 02 July 2019

Responses for Version 1

Reviewer B:

1) General comments and summary of recommendation

Describe your overall impressions and your recommendation, including changes or revisions. Please note that you should pay attention to scientific, methodological, and ethical soundness only, not novelty, topicality, or scope. A checklist of things to you may want to consider is below:

- Are the methodologies used appropriate?
- Are any methodological weaknesses addressed?
- Is all statistical analysis sound?
- Does the conclusion (if present) reflect the argument, is it supported by data/facts?
- Is the article logically structured, succinct, and does the argument flow coherently?
- Are the references adequate and appropriate?:

The author's manuscript re-examines the findings from Bediou et al. (2018; BAMTGB); specifically how publication bias and outcome omission might have affected the results. Apparently the manuscript has already led to an erratum confirming some issues with the original papers for which I'd like to express my appreciation. However, the authors seem to indicate a dissatisfaction with the contents of the erratum and provide additional information in this manuscript regarding the transfer of training effects. The goal seems to be to get a better estimate of the effect, joined with an analysis of issues in the BAMTGB paper.

The manuscript lacks the detail and finesse to make it possible to evaluate the validity of the claims with respect to BAMTGB, nor does it convince the reader of the author's proposed objections.

First, the authors provide no direct reproduction of the results of BAMTGB in the manuscript. I can find a set of scripts on the Open Science Framework, but the manuscript remains the main place to verify these results so the reader can be assured any differences are not due to errors on the author's side. My worry for sloppiness is compounded when an entire table is not included in the manuscript (Table 1 is nowhere to be found).

Second, the issues and methods outlined in the "Publication bias" section of the manuscript are insufficiently supported. For example, the use of p-uniform and selection modeling to adjust for bias with multiple outcomes are not supported in any way beyond a footnote indicating a set of contradicting opinions from two meta-analytic experts (sources which are unverifiable in their current state). The footnote also indicates this is a novel approach; still the authors provide no evaluation of its value or validity. After this, the authors shift the burden of proof back to BAMTGB, which seems inappropriate when the claim of the authors here is that there are issues that they fail to adequately provide argumentation for. As such, the argumentation for this section is unconvincing.

Third, the authors fail to explain why they use a PET correction (in the section "BAMTGB's lab effect and publication bias") after they have mentioned its problems in the preceding section. It is also noteworthy here that the authors use Egger's test without any critical note after just critically evaluating some methods of evaluating publication bias. There is sufficient to say about the Egger's test on this front. This kind of oversight compounds my worries as stated in remarks one and two.

Fourth, I fail to understand the exact procedures applied in the analyses throughout the paper. The paper's non-conventional structure makes it difficult to understand the research chronology, but in itself the structure is non-objectionable if it conveys this despite this. However, the authors provide little way of directly validating the numbers in the manuscript, except through combing through several script files on the OSF and aligning the code with the results manually. I would suggest providing a one-to-one script file that reproduces each numeric result included, or produce a dynamic document (RMarkdown) for the results for clarity.

Fifth, the section on "Unreported overlap between studies" is an analysis of the published erratum and preceding public versions on the OSF by Bediou et al. Only subsequently in the "Accounting for overlapping studies" section does it become clear that the issue seems to be with the primary studies and not BAMTGB themselves directly. This is a valid point, but the manuscript makes it seem like BAMTGB is the primary issue of the authors? This is confusing in the

manuscript, which is conveyed by the sudden change in the names that re-occur: First Bediou, then Bavelier. I found this change rather difficult to understand.

In conclusion, my evaluation of the manuscript under consideration is that it fails to present an internally coherent, meticulously conducted, clearly articulated, and well supported thesis that provides sufficient grounds for publication. As such, I was not convinced that the manuscript provides "stronger and more appropriate adjustments for publication bias" as promised in the abstract. I hope the authors can rebuff my points or revise the manuscript if they feel I misunderstood key aspects.

Kind regards,
Chris Hartgerink

2) Figures/tables/data availability:

Please comment on the author's use of tables, charts, figures, if relevant. Please acknowledge that adequate underlying data is available to ensure reproducibility (see open data policies per discipline of Collabra here).:

Table 1 omitted but mentioned.

3) Ethical approval:

If humans or animals have been used as research subjects, and/or tissue or field sampling, are the necessary statements of ethical approval by a relevant authority present? Where humans have participated in research, informed consent should also be declared.

If not, please detail where you think a further ethics approval/statement/follow-up is required.:

NA

4) Language:

Is the text well written and jargon free? Please comment on the quality of English and any need for improvement beyond the scope of this process.:

See (1).

Reviewer C:

1) General comments and summary of recommendation

Describe your overall impressions and your recommendation, including changes or revisions. Please note that you should pay attention to scientific, methodological, and ethical soundness only, not novelty, topicality, or scope. A checklist of things to you may want to consider is below:

- Are the methodologies used appropriate?
- Are any methodological weaknesses addressed?
- Is all statistical analysis sound?
- Does the conclusion (if present) reflect the argument, is it supported by data/facts?

- Is the article logically structured, succinct, and does the argument flow coherently?

- Are the references adequate and appropriate?:

This paper presents a "re-meta-analysis" of the studies included in Bediou et al. Such a reanalysis is important, considering the fact that the authors of the original meta-analysis were involved in a large portion of the original studies, and these studies tend towards larger effect sizes. To foreshadow my conclusion, I believe this paper could be suitable for publication, but I believe some major revisions are imperative. I will list my thoughts below:

First, the Bediou et al paper chose to exclude several studies (full disclosure: I first-authored one of those myself). Naturally, reasonable people can disagree about which studies to include in meta-analyses. But, for purposes of your paper, I believe it is important to go through these studies also and comment on (1) whether you agree with their selection; (2) examine whether there are systematic differences in effect sizes for included and excluded studies (I bet there are). The very bare minimum is a careful discussion of this issue, but I believe this is important enough to include in the main analysis.

Second, this paper is very difficult to read presently. As alluded to in 4) below, many techniques are employed in this paper that are referred to by acronym. It would greatly enhance readability if each of these techniques was introduced (preferably in a now-absent 'Methods' section). Explain what the merits of each of these techniques are and list the results of each of these in a table of some kind. Provide guidance to these numbers: which do the authors prefer and why? There is a fair bit of spread in the meta-analytic gs, so some handholding is nice.

Third, this paper could do with some structure. Presently, the introduction, methods, and results sections are sort of interleaved. It makes it difficult (for me) to follow the narrative.

If the authors can deal with all three of these issues in a convincing manner, the resulting manuscript could in my opinion be suitable for publication.

2) Figures/tables/data availability:

Please comment on the author's use of tables, charts, figures, if relevant. Please acknowledge that adequate underlying data is available to ensure reproducibility (see open data policies per discipline of Collabra here):

The osf file contains a lot of files, but it is very difficult to see for the reader what all these files are. Some handholding is desirable, the authors could write a readme.txt file explaining what each of the files contains, what each column represents in the spread sheets etc.

3) Ethical approval:

If humans or animals have been used as research subjects, and/or tissue or field sampling, are the necessary statements of ethical approval by a relevant authority present? Where humans have participated in research, informed consent should also be declared.

If not, please detail where you think a further ethics approval/statement/follow-up is required.:
NA

4) Language:

Is the text well written and jargon free? Please comment on the quality of English and any need for improvement beyond the scope of this process.:
No. The text contains many acronyms corresponding to different kinds of methodological techniques (PET, PEESE, p-uniform, trim-and-fill). Presently, this paper is almost impossible to read stand-alone.

Editor Decision for Version 1

Editor: Rolf Zwaan

Affiliation: Erasmus University

Editor decision: Revisions required

Decision date: 04 March 2019

Dear Dr. Hilgard,

I have now received two reviews of your manuscript "Overestimation of Action-Game Training Effects: Publication Bias and Salami Slicing". The reviewers have similar views on your paper. They think a major overhaul is in order. Their concerns mainly have to do with the write-up of your paper. Both reviewers mention that the structure of the paper should be made clearer. You also need to provide more detail on the various methods you discuss and better motivate the ones you use. I will not repeat the other concerns, as they are laid out clearly in the reviews.

I am confident that you will be able to address the reviewers' concerns but this will require some serious work on your part. I look forward to receiving your revision.

The full review information should be included at the bottom of this email. There may also be a copy of the manuscript file with reviewer comments available once you have accessed the submission account. A summary of the requested edits from the editorial team can be found below. Please consider these points and revise the file accordingly:

Editorial Revision Requests:

Major revisions:

[XXXX EDITOR TO INSERT LIST OF MAJOR REVISIONS HERE, IF ANY XXXX]

Minor revisions:

[XXXX EDITOR TO INSERT LIST OF MINOR REVISIONS HERE, IF ANY XXXX]

To access your submission account, follow the below instructions:

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- 2) click on the submission title
- 3) click 'Review' menu option
- 4) download Reviewed file and make revisions based on review feedback
- 5) upload the edited file
- 6) Click the 'notify editor' icon and email the confirmation of re-submission and any relevant comments to the journal.

Please ensure that your revised files adhere to our author guidelines, and that the files are fully copyedited/proofed prior to upload. Please also ensure that all copyright permissions have been obtained. This is the last opportunity for major editing;, therefore please fully check your file prior to re-submission.

If you have any questions or difficulties during this process, please do contact us.

Please could you have the revisions submitted by [GIVE 2 WEEK DEADLINE]. If you cannot make this deadline, please let us know as early as possible.

Kind regards,

Rolf Zwaan
Erasmus University, Netherlands
rolfzwaan@gmail.com

Author's Response to Review Comments for Version 1

Author: Joseph Benjamin Hilgard

Affiliation: Illinois State University

Revision submitted: 20 April 2019

Dear Dr. Zwaan,

Please find enclosed our revised paper, "Overestimation of action-game training effects." We have made a number of improvements to address reviewer requests. The full list of improvements and author replies are in the reply letter, uploaded using the Summary tab.

Thank you for the constructive criticism and for considering our manuscript for publication in Collabra.

Sincerely,
Hilgard, Sala, Boot, and Simons

Attached document:

<https://s3-eu-west-1.amazonaws.com/ubiquity-partner-network/ucp/journal/collabra/231-3056-1-SP.docx>

Responses for Version 2

Reviewer A:

1) General comments and summary of recommendation

Describe your overall impressions and your recommendation, including changes or revisions. Please note that you should pay attention to scientific, methodological, and ethical soundness only, not novelty, topicality, or scope. A checklist of things to you may want to consider is below:

- Are the methodologies used appropriate?
- Are any methodological weaknesses addressed?
- Is all statistical analysis sound?
- Does the conclusion (if present) reflect the argument, is it supported by data/facts?
- Is the article logically structured, succinct, and does the argument flow coherently?
- Are the references adequate and appropriate?:

The authors submitted a revised version of a manuscript I previously reviewed. I previously recommended major revisions and am happy to see the revised manuscript to be complete and in much better shape.

The methodologies used are appropriate and thoroughly documented. I would recommend for the authors to further consolidate these efforts into a single document for oversight in the future. Now it is transparent, but not open. If the manuscript was compiled from one RMarkdown file, it would be much easier to verify all results (and it would make life easier for the authors, I think too :)). Nonetheless, I can only give this criticism because the authors have already been so transparent; this is more a suggestion for future work.

minor point is to call `_codebook.xlsx` a readme file, it is much easier to recognize as the place to go when landing on the project page

The descriptions of the statistical analyses are now also much more adequate. I would only suggest explicating what "recommended analyses" means in the Table 2 description (it is now a bit confusing and not self-contained).

My only remaining worry is that the underreporting of outcomes contains a lot of conjecture about the behavior of the Bavelier lab. I understand that underreporting is an explanation for the differences in the number of DVs presented, but there are also other explanations possible. Also, was Bavelier or others in the lab asked whether this was the case? They should be given an opportunity to respond to this conjecture and provide an explanation (it would also help remove conjecture in your General Discussion). If they were given an

opportunity but didn't respond (or something else), it's worth reporting.

All in all, I think that the paper is much better than the previous version.

2) Figures/tables/data availability:

Please comment on the author's use of tables, charts, figures, if relevant. Please acknowledge that adequate underlying data is available to ensure reproducibility (see open data policies per discipline of Collabra here).:

I would like to see direct links to files whenever they are referenced to prevent confusion. For example, "R Markdown document provided in the online data repository" is a bit confusing when there are multiple R markdown files to be found.

Beyond that everything seems to be adequate. I did not rerun the scripts myself but from looking at the files it seems like this should be reproducible after making several adjustments to the absolute paths in the code (I'd recommend using relative paths in the future).

3) Ethical approval:

If humans or animals have been used as research subjects, and/or tissue or field sampling, are the necessary statements of ethical approval by a relevant authority present? Where humans have participated in research, informed consent should also be declared.

If not, please detail where you think a further ethics approval/statement/follow-up is required.:

Not relevant.

4) Language:

Is the text well written and jargon free? Please comment on the quality of English and any need for improvement beyond the scope of this process.: Sometimes the authors use a bit lengthy sentences that span almost an entire paragraph, but that might be my personal thing.

Reviewer B:

1) General comments and summary of recommendation

Describe your overall impressions and your recommendation, including changes or revisions. Please note that you should pay attention to scientific, methodological, and ethical soundness only, not novelty, topicality, or scope. A checklist of things to you may want to consider is below:

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- Are any methodological weaknesses addressed?
- Is all statistical analysis sound?
- Does the conclusion (if present) reflect the argument, is it supported by data/facts?

- Is the article logically structured, succinct, and does the argument flow coherently?

- Are the references adequate and appropriate?:

I like the revision. I do not agree with the authors on their decision not to discuss the BAMTGB criteria for study inclusion, this seems to me to be at the heart of publication bias and at the very least deserves mention in the GD. Rather than have a back-and-forth with the authors on this, I am happy to defer to the editor on this.

2) Figures/tables/data availability:

Please comment on the author's use of tables, charts, figures, if relevant. Please acknowledge that adequate underlying data is available to ensure reproducibility (see open data policies per discipline of Collabra here):

Excellent, the glossary table helps a lot!

3) Ethical approval:

If humans or animals have been used as research subjects, and/or tissue or field sampling, are the necessary statements of ethical approval by a relevant authority present? Where humans have participated in research, informed consent should also be declared.

If not, please detail where you think a further ethics approval/statement/follow-up is required.:

NA

4) Language:

Is the text well written and jargon free? Please comment on the quality of English and any need for improvement beyond the scope of this process.:

One last nitpicky thing: I would like to see all acronyms fully written out at least once. I get that fMRI is now often used and people know what it is, but people also know that it stands for functional magnetic resonance imaging. I do not believe that PET and PEESE have similar levels of notoriety.

Editor Decision for Version 2

Editor: Rolf Zwaan

Affiliation: Erasmus University

Editor decision: Revisions required

Decision date: 05 June 2019

Dear Dr. Hilgard,

The reviewers have now evaluated your revision. I am happy to say that both recommend acceptance of the manuscript. I am planning to follow their recommendations but note that both reviewers raise a few small issues that I want you to address. They are very minor (e.g., the point about writing out acronyms the first time they are used) and could be handled in a few minutes. Addressing them will improve the final manuscript. If the editorial system would

have allowed me to use the decision "very minor revision," it would be appropriate here.

So all in all, the news is ver positive and I expect to be able to give you a very quick turnaround on the final submission.

The full review information should be included at the bottom of this email. There may also be a copy of the manuscript file with reviewer comments available once you have accessed the submission account. A summary of the requested edits from the editorial team can be found below. Please consider these points and revise the file accordingly:

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[XXXX EDITOR TO INSERT LIST OF MINOR REVISIONS HERE, IF ANY XXXX]

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- 4) download Reviewed file and make revisions based on review feedback
- 5) upload the edited file
- 6) Click the 'notify editor' icon and email the confirmation of re-submission and any relevant comments to the journal.

Please ensure that your revised files adhere to our author guidelines, and that the files are fully copyedited/proofed prior to upload. Please also ensure that all copyright permissions have been obtained. This is the last opportunity for major editing;, therefore please fully check your file prior to re-submission.

If you have any questions or difficulties during this process, please do contact us.

Please could you have the revisions submitted by [GIVE 2 WEEK DEADLINE]. If you cannot make this deadline, please let us know as early as possible.

Kind regards,

Rolf Zwaan
Erasmus University, Netherlands
rolfzwaan@gmail.com

Author's Response to Review Comments for Version 2

Author: Joseph Benjamin Hilgard

Affiliation: Illinois State University

Revision submitted: 14 June 2019

Dear Dr. Zwaan,

We have uploaded a revised version of our manuscript that implements the minor revisions you and the reviewers requested.

Please find attached to this email a cover letter detailing those changes.

Thanks for everything,
Joe Hilgard

Editor Decision for Version 3

Editor: Rolf Zwaan

Affiliation: Erasmus University

Editor decision: Accept submission

Decision date: 14 June 2019

Dear Joseph Benjamin Hilgard,

After review, we have reached a decision regarding your submission to *Collabra: Psychology*, "Overestimation of Action-Game Training Effects: Publication Bias and Salami Slicing", and are happy to accept your submission for publication, pending the completion of copyediting and formatting processes.

As there are no further reviewer revisions to make, you do not have to complete any tasks at this point. The accepted submission will now undergo final copyediting. You will be contacted once this is complete to answer any queries that may have arisen during copyediting and to allow a final chance to edit the files prior to typesetting. If you wish to view your submission during this time, you can log in via the journal website.

The review information should be included in this email.

Kind regards,

Rolf Zwaan
Erasmus University, Netherlands
rolfzwaan@gmail.com