

# Peer Review Comments

**Article:** Corbin, J. C., & Crawford, L. E. (2018). Biased by the Group: Memory for an Emotional Expression Biases Towards the Ensemble. *Collabra: Psychology*, 4(1): 33. DOI: <https://doi.org/10.1525/collabra.186>

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## Ported Reviews

Memory & Cognition - Decision on Manuscript ID MC-ORIG-18-091

14-Jun-2018

Dear Dr. Corbin:

I have received three expert reviews of Manuscript MC-ORIG-18-091 entitled "Biasing Toward the Group: Memory for an Emotional Expression Biases Towards the Ensemble" that you submitted to *Memory & Cognition*. The reviewers expressed some concerns about the publication of this work in the journal. After my reading, I agree and am unable to accept the paper for publication.

Although the reviewers expressed enthusiasm for your topic (and 1 was quite enthusiastic), multiple reviewers raised concerns about some critical design aspects and ability to clearly interpret the results, as well as the novelty of some of the major claims of the manuscript. Their comments likely indicate that additional data collection is needed. Their comments are very thoughtful, and I hope that you find them helpful for your work. At *Memory & Cognition* we attempt to only invite revisions when the path to acceptance is straightforward, which is not the case when there are the many unknowns associated with additional data collection (and perhaps with the re-framing that may be necessary here).

**ACTION:** I am rejecting the manuscript. I think the concerns are sufficient to preclude publication in this journal. I hope the reviewer comments will be helpful in your future work. Thank you for considering *Memory & Cognition* for the publication of your research.

Sincerely,

Angela Gutches

Action Editor, *Memory & Cognition*

Editor:

Neil Mulligan

Associate Editors:

Philip Beaman, Jeffrey Bowers, Ruth Byrne, Myra Fernandes, Angela Gutches, Jason Hicks, Joseph Magliano, Ayanna Thomas, Matthew Traxler  
Reviewer Comments to Author (if any):

*Memory & Cognition* <[onbehalf@manuscriptcentral.com](mailto:onbehalf@manuscriptcentral.com)>

Thu 6/14/2018 1:39 PM

To: Corbin, Jonathan <[jcorbin@richmond.edu](mailto:jcorbin@richmond.edu)>

Reviewer: 1

#### Comments to the Author

The authors examine the influence of crowd expression on memory for the expression of one other individual in the crowd (ensemble coding). In each of three experiments participants viewed one neutrally expressive face in a crowd of 3 expressive (happy or sad) faces which varied on intensity (via morphing). A single trial was given to a large number of participants via M-Turk. Faces were encoded for 4s, and after a 2s delay the neutral face from encoding was presented and participants had to adjust the face to its original expression. In Expt1 the same identity was repeated and in expt 2 multiple identities were used. In Expts 1 and 2 the probe face was shown in its neutral expression so any deviation from this expression in the response indicates a bias to either look more sad or more happy. Results showed that probe face recall was biased towards looking more sad in the sad crowd than in the happy crowd in both expts. In Expt 3 the probe face was presented in the 100% expressive mode (sad or happy) in each crowd emotion condition, and participants had to adjust the probe back to neutral. Again probe recall was biased towards looking more sad in the sad crowd than the happy crowd (independent of starting expression sad/happy).

Overall the topic is interesting and timely, and the manuscript is written relatively clearly. But it is not clear that the method/approach is robust or sensible enough to properly address the question. Some major concerns are outlined below followed by more minor comments.

1. The requirement to adjust a neutral probe face back to its original (neutral) expression led to a large minority of responses that comprised no adjustment of the face. While the authors comment on this, it is possible that those who did adjust the face in expts 1 and 2 did so simply because they thought the experiment required some sort of adjustment (rather than because they thought the face actually looked a bit different originally). So whether this tests short-term memory for emotional expression as a function of crowd expression is questionable.

2. The results do show a bias to reporting a neutral face as more sad when it was in the sad vs happy crowd. But there is no evidence in Expts 1 and 2 of a bias to report the neutral face as more happy when it was in the happy crowd (versus the neutral point). The authors comment on this, based on the possibility that neutral faces are simply perceived as more sad than happy anyway (due to physical similarity) when perceived in isolation (this has been shown in a publication elsewhere I think). However, this means that perhaps the neutral face would have been recalled as more sad than happy in the absence of a crowd. The main issue here though is that one cannot conclude that there is ensemble encoding happening here as it is not present in the happy condition. It appears isolated to the sad crowd condition, and this requires further discussion and also further investigation to assess the role of physical similarity effects versus expression effects.

3. The approach of experiment 3 is an improvement where the probe face now showed 100% happy or sad expression (regardless of crowd expression), forcing participants to adjust the expression to what they thought the neutral probe looked like originally. Results here are a little more convincing, where regardless of probe expression the face was adjusted to look more sad than happy (or less happy) in the sad vs happy crowd condition. But to further increase depth of understanding of ensemble effects it would also be logical to have the probe face start at the mid to low range intensity. Using a probe at mid/low expression intensity means participants can adjust the expression both up and down within the expression category, rather than just in one direction as in the 100% intense method used in Expt 3.

4. On a broad level, the motivation for requiring adjustment back to a neutral expression is not clear. What was the justification for this? Did the authors consider presenting a singleton emotion in a crowd of other expressive faces to assess whether eg a happy face was perceived as more or less happy depending on the crowd context emotion?

#### Other comments.

1. There is other literature that has not been reviewed in the intro that is relevant here (it may not have been known to the authors at time of writing). For example, Gray, Barber, Murphy, & Cook (2017; Emotion) found that a target face was judged as happier when in the context of another happy face versus neutral or aggressive face. Griffiths, Rhodes et al (2018, JEPHPP) showed that intensity ratings of individual happy and angry faces was modulated by the ensemble expression intensity of the group.

2. The sample characteristics require more detail and clarity per happy and sad group condition in each expt.

3. The between group nature of the task weakens the ability to draw clear conclusions about ensemble effects. While I understand the authors used this as there was only one trial per participant (authors justify this OK), there would be greater benefits using a within design and using more face identities across more trials. There should also be consideration of individual differences (esp in between group design) in things such as mood state, depression, and anxiety in the context of how these can skew emotion perception and intensity perception (eg see Joorman & Gotlib, 2006).

4. The end discussion points are too far removed from what the current data show evidence of. The authors discuss line-ups, but this relies on long-term memory retrieval while the current studies measured short-term memory (2s delay).

Reviewer: 2

Comments to the Author

Reviewer: Chad Dubé

I thought this was an interesting and well-executed ms. All the questions and issues I had during the reading of the first experiment were addressed in the second one, and those of the second one in the third. I also think the authors have done a commendable job in terms of transparency and inclusion of Bayesian statistics, and their frank and straightforward discussion of all aspects of the data they report. I think the ms is suitable for publication and have only a couple of minor suggestions.

First, consider elaborating a bit more (in the intro especially) about ensemble representation and inductive category learning. Are there any implications, e.g., for models of perceptual categorization, such as the GCM and EBRW models which exclude memory representations of prototypes or other remembered statistics of the stimuli and base everything on exemplars? To plug my own work, does this work provide further support for the claim in Dubé and Sekuler (2015) that ensemble representations have an obligatory influence on responding? It is worth noting that these stimuli were only presented once, and for a long (4s) duration. So it is not as if the effects we reported only occur for very briefly-presented, confusable stimuli. There is some generality here that should be of interest to theorists.

Second, the authors say error scores were computed by computing absolute values of the responses. I don't understand this at all. Error scores are usually positive and negative differences from some benchmark or expected response, like in their figures. I think this must be a typo or something, although it is repeated in the other Methods sections..

Reviewer: 3

Comments to the Author

These experiments explore whether ensemble representations for expression influence the representation of individual expressions. In three experiments, observers on mTurk were asked to adjust a test face to match the expression of the face previously shown at the same location. Results suggest that observer responses were pulled in the direction of the mean expression, even though observers are never told to consider the average. Authors conclude that this reveals generalized ensemble effects (i.e., beyond low level) and demonstrates ensemble representations may be generated in single trial exposure.

This work poses an inherently interesting question regarding ensemble representations — how are individual and ensemble representations mutually interactive. While I am sympathetic to research within an ensemble framework, several questions regarding the novelty of these findings as well as some methodological confusions remain. If authors can clarify how these results add substantively to other work showing similar results, as well as answer some questions about the overall approach, I would be more inclined to recommend publication. As it stands, however, additional work may be warranted.

Major concerns:

Authors correctly point out that it is important to explore interactions between individual item level and ensemble level representations using higher-level stimuli such as faces. However, there is precedent for this work. For example, Haberman and Whitney, 2009 (which authors cite) showed that

individual item representations are biased toward the mean of the set (i.e., observers were more likely to say a test item was a member of the previously shown set as the test item approached the mean expression). Certainly, it is important to replicate results, and authors do provide the additional manipulation of average expression representation across different identities, but it is equally important to contextualize findings within the current theoretical framework of the field.

When it comes to work on ensemble perception, it is critical to verify that observers are responding to the mean of the set, and not just a single item from the group. In this case, can authors distinguish whether the bias reflects a draw toward the average expression, or just a randomly sampled item from the set? I am inclined to believe it is the former, but it might be necessary to empirically verify this. One way to test this might be to manipulate the average expression of the set itself. This may be achieved by changing the items in your set, including some items that cross over from happy to sad, or perhaps by doubling up some items. One would expect that the larger the absolute difference between the neutral point and the average expression, the larger the bias.

Experiment 3: The starting value of the test face was always  $\pm 20$ , but the correct answer was still always 0, right? In that case, observers must always choose an answer that is closer 0, by definition, because the starting point is at the edge of the morph sequence. This automatically builds in a response bias into their response (this is why many researchers use a circular or continuous response wheel, which avoids such edge effects). Authors argue that it's the relative difference between happy and sad sets that reveals the bias. While a difference exists, isn't it more striking (and worth noting) that when all of the faces in a set were happy, the average response did not cross over the 0 point when the test face was -20 (and vice versa). In other words, shouldn't one consider the absolute value of the error, not just the relative difference between happy/sad conditions, when interpreting the effect?

Finally, authors contend that single trial ensemble representation is novel, but this was demonstrated by Haberman & Whitney, 2007 (supplemental material). Additionally, isn't this also addressed by the fact that, in standard ensemble experiments, the average changes on every trial and yet observers remain sensitive to the mean on every trial?

Other concerns:

- Authors use an 'inductive' framework but do not spend adequate time scaffolding that concept.
- Several references are missing from the reference list.
- In the Sekuler reference, authors mention how many for gabor patches is influenced by surrounding items, but in what feature dimension was this tested? Orientation? Spatial frequency?
- Regarding the methods, I'm guessing this must be true, but it wasn't explicitly stated — could participants in the sad condition select morphs on the 'happy' side of the sequence?
- Was the bias in each condition significantly different than the neutral (0) point? This is related to the above point regarding the importance of interpreting the absolute error.
- Displaying multiple identities doesn't actually address the question of whether observers represent the average expression, per se, or the organization of facial features, by the authors' own admission (page 10, line 13). A better motivation for using multiple identities might be that in the real world we encounter multiple faces in crowds. Single identity crowds might better represent how we capture ensemble information as the expression of a single individual changes over time (and, indeed, researchers have tested this by displaying facial expression ensembles over time).
- Experiment 2 methods (page 11, line 18-21): Somewhat confusing sentence structure.
- Page 13, line 6: Authors claim that neutral face is more physically similar to sad than happy faces. How do authors know this? Was an image similarity analysis performed? Psychophysics?
- Page 13, line 20: Lack of engagement in previous tasks seems implausible, since it takes effort and engagement to adjust the face to begin with. Authors have given them the correct answer, and so any attempts to change the answer shows involvement, not laziness.
- Figure 2: Why does the y-axis for Figure 2 have '20' in parentheses if the correct answer was the neutral point?
- Experiment 3 methods: How was the identity of the response face selected? Was it always the

same identity that displayed the  $\pm 20$  expression in the original set, or could it be a different identity?

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## Editor Decision

**Editor:** Akira O'Connor

**Affiliation:** University of St. Andrews, UK

**Editor decision:** Accept Submission

**Decision date:** 31 August 2018

Dear Dr Jonathan Corbin,

After review, we have reached a decision regarding your submission to *Collabra: Psychology*, "Biased by the group: Memory for an Emotional Expression Biases Towards the Ensemble", and are happy to accept your submission for publication, pending the completion of copyediting and formatting processes.

As you chose streamlined review, I will summarise how I made my decision in an open decision letter. You originally submitted your manuscript to *Collabra* alongside three reviews and an editorial decision to reject the manuscript from *Memory and Cognition*. My editorial evaluation of the reviews and decision letter, which I communicated to you in my first decision letter was:

"All reviewers responded enthusiastically to the subject being investigated in your paper. Whilst some scientific/methodological issues were raised by two reviewers, the key criticisms were, in my judgement, issues that could have been dealt with in revision. (The remaining reviewer was minded to accept the manuscript for publication with only minimal amendment.)"

The first version of the manuscript you submitted to *Collabra* was also accompanied by a cover letter in which you provided a detailed set of responses to the original reviews. In my judgement, you dealt in a satisfactory manner with the vast majority of points made by the reviewers. A key issue which, in my judgement, had not been dealt with satisfactorily in that version of the manuscript concerned an asymmetry of the ensemble encoding effect in Experiment 2. Given the number of reviewers contributing to the editorial decision from *Memory and Cognition* and the extent to which you had dealt with the vast majority of their concerns in the manuscript submitted to *Collabra*, I deemed it appropriate to make an editorial decision based on my own reading of the paper. The decision I took was to suggest that the manuscript be revised to address the point raised above, without consulting further reviewers.

The revision of the manuscript you submitted in response to my first editorial decision highlighted the asymmetry as an anomaly in the broader context of the three experiments presented in the manuscript. I was satisfied with this explanation and have now chosen to accept the manuscript for publication in *Collabra: Psychology*.

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,

Akira O'Connor

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