

Reviews for jovi-2023-files-uncertainty-round2

Review #1

Completed: 11-05-2024 23:21

Recommendation: Accept Submission

Conflict Declaration

I declare that I have no known conflicts of interest with the authors.

Review

This paper presents a study on transfer learning from 2D to 3D environments for an uncertainty integration task that includes performance feedback to the participant. It provides evidence the complex interplay between 2D and 3D representations for similar or identical tasks, and contributes to our knowledge regarding the effect of task cueing or training on task completion using novel (to the user) representations. Interestingly, unpracticed participants often performed the tasks more accurately, but persisted in having longer response times with the novel representation. The experimental design is coherent, well thought-out, and the results are interesting. I greatly appreciate the effort made in this revision, and appreciate the care taken to address the previous comments. I believe the paper has been dramatically improved in terms of readability, and addresses all the substantive comments regarding research context and other potential factors affecting the results. As such, I believe this paper is ready for publication pending the resolution of some minor issues noted below.

Openness

The results/analysis and stimuli are accessible via OSF, with source code. One questionnaire not widely available has been provided. The provided notebooks provide rich detail in terms of data exploration. The organization of the repository and location of the analysis, as well as content of the notebooks, could be slightly clearer, but this is a minor issue.

Classification

Empirical Research - Quantitative

Recommendation

Minor Revisions

Revisions Requested

- The provided OSF URLs are still sometimes malformed (e.g., link on Page 8 still includes bracket within URL, breaking the URL). I assume this is just due to the PDF conversion process but will need to be checked on for publication.

- For the online supplement, it would be helpful to have slightly more intuitive names for the files and folders. For example, it's not clear that the notebook folder contains the notebooks that have the demographic data, nor differences between the notebooks.
- Within Figure 4 and 7, it is still unclear what constitutes the “Starting Accuracy” and “Ending Accuracy” and I did not see references to this in the caption or main text. I see this is noted in the caption for Figure 11, and this needs to be stated in the other captions for figures containing information groups by Start/Starting and End/Ending.
- Does the online supplement contain the code for the figures? This would be useful to have (but not strictly necessary).
- Check the grammar/formatting of the hypotheses paragraph. A couple examples:
 - I read these as “Hypotheses” (plural) rather than a single hypothesis.
 - “would” should be removed from the second sentence; hypotheses are typically in present-tense (so just “carry over” rather than “would carry over”).
 - There is a missing space after the period ending the second sentence.
- Some other stray formatting issues will need to be addressed; for example, the figure titles are a bit crowded with the text, and Figure 3 is missing a space in the caption.
- I think within the conclusions, an explicit mention of the response time differences is warranted in case the reader is skipping around (I do).

Reviewer Name

Mark B Simpson

ORCID

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Review #2

Completed: 21-05-2024 00:39

Recommendation: Accept Submission

Conflict Declaration

I declare that I have no known conflicts of interest with the authors.

Review

The authors did a nice job of addressing the reviewer comments and concerns. My remaining comments are very minor.

Openness

I believe that all of the relevant artifacts have been included or can be found in the references.

Classification

Empirical Research - Quantitative

Recommendation

Minor Revisions

Revisions Requested

I'd request that the authors use the same scales in the left and right panels of Figure 11. The figure could be wider to make room.

It would probably make sense to number all of the figures, rather than the subset that you refer to later in the text.

Reviewer Name

Anonymous

ORCID

N/A

Review #3

Completed: 27-05-2024 13:15

Recommendation: Revisions Required

Conflict Declaration

I declare that I have no known conflicts of interest with the authors.

Review

I appreciate the effort and time the authors have invested in revising the paper. The revisions attempt to address the initial feedback and improve the manuscript. However, despite these efforts, significant issues remain that must be addressed.

First, previous reviewers have raised concerns about the background and significance of this paper. While the authors have added more references and explanations in this revised version to highlight the advantages of using a 3D virtual environment, they do not connect the relevance of this study. In essence, the fundamental question is: in what situations would individuals need to be trained in a 2D setting but then carry out tasks using a 3D virtual environment? People perceive information differently in a 3D virtual environment compared to a 2D display environment. If these differences cannot be entirely addressed through the 2D to 3D transfer learning method proposed in this paper, then for complex tasks, training would ultimately need to be conducted in a 3D virtual environment that

closely matches the application environment to enhance operational efficiency. Consequently, the effectiveness of 2D to 3D transfer learning in improving user performance in real-world applications may be a minor concern. This could also explain the growing interest in virtual training. Therefore, to demonstrate the importance of this paper, the authors must provide a more precise explanation of the research background.

Second, while the authors revised their description of the hypotheses, the current presentation of this part is not smooth. Specifically, it seems like the authors wanted to use the 8th and 9th paragraphs in the Introduction section to explain their consideration of coming out with the following hypotheses. However, these two paragraphs read like some existing principles or statements to support those hypotheses.

The main conclusion of this paper, which states that practicing a 2D uncertainty task leads to faster responses in a 3D virtual environment without sacrificing accuracy, is too broad. The study only focuses on contour and scatter plots with basic rendering specifications for simple location tasks and does not cover the entire range of uncertainty visualization methods. Therefore, the authors should rephrase the conclusion, adding appropriate qualifiers to make the conclusion more credible.

Minor issues need to be addressed. For instance, the authors used the word “between-by-within,” which is not a standard or widely adopted terminology and leads to confusion. In this same paragraph, the authors described that “participants were randomly assigned to one of the six between-subjects conditions.” However, only five between-subjects conditions are introduced in this paper.

Openness

The research materials, such as experimental design, procedure guidelines, videos, and data, are publicly available and well-documented.

Classification

Empirical Research - Quantitative

Recommendation

Major Revisions

Revisions Requested

1. Provide a more precise explanation of the research background.
2. Revise the description of hypotheses.
3. Revise the conclusion by adding appropriate qualifiers to make the conclusion more credible.
4. Fix minor issues.

Reviewer Name

anonymous

ORCID

N/A

Metareview

Completed: 17-06-2024 00:44

Recommendation: Accept Submission

Conflict Declaration

I declare that I have no known conflicts of interest with the authors.

Review

Dear Authors,

Thank you for submitting the revised version of your manuscript. After a thorough review, we are pleased to inform you that your work has been accepted for publication! The reviewers have suggested several additional improvements that could enhance your manuscript further. These suggestions are summarized below, and we are asking you to address them during the copyediting phase.

Please review the Reviewers' comments carefully and make the required revisions as outlined below at a minimum. The associate editor will review these changes to ensure they meet our publication standards before the final version is made publicly available.

We appreciate your attention to these final details and look forward to your revised submission.

Revisions Requested

Required changes:

- Add appropriate qualifiers to discussion and conclusions, noting that the findings pertain to contour and scatter plots for location tasks.
- Improve Figures: Fig 11, use the same scales in the left and right panels and add relevant numbers. For Fig 4 and 7, clarify starting accuracy.

Copyediting:

- Fix OSF URLs
- Check the grammar/formatting of the hypotheses paragraph

- Fix word spacing
- Improve Figure title spacing

Supplemental materials:

- Improve file naming

Reviewer Name

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