**SMART App User Testing Report**

**Environment**

**Location:** One room within the Neurocognitive Psychology Department at Carl von Ossietzky Universität Oldenburg (UOL), Germany

**Duration:** 1 hour

**Authors Present:** All authors for the full duration

**Testers:** Three colleagues from three research groups in the Neurocognitive Psychology Department at UOL:

* Colleague A: Senior Post-doctoral Researcher in Biological Psychology
* Colleague B: Post-doctoral Researcher in Neuropsychology
* Colleague C: Post-doctoral Researcher in Psychological Methods and Statistics

**Methodology**

We conducted informal user testing with three colleagues from UOL who have experience with and currently are conducting multiverse analyses. The testers were informed that the goal of the session was to test the usability and functionality of the SMART App in an expert sample. Participants were invited to use the tool to construct their own multiverse analysis, starting from the welcome page and progressing through each tab until the about section. They were asked to openly ask questions and provide feedback in the moment the thought arises, and that all feedback is relevant to us. Feedback was collected by the authors in a word document and is summarized below, organized by app section.

**Report**

Welcome

* Split the welcome page into two: one page for information, one page where the user enters their username
* Add a ‘continue’ button to the bottom of the pages to progress to next tabs (Info entry and multiverse 1.0: tab 1a)
* Explain that the username is automatically saved. Add a message to confirm the username is saved.
* Check whether any spaces or special characters are problematic for the username and communicate this in the instructions.
* Clicking the link to the instructional video should open a separate window, not navigate away from the app in the same window.
* Be clear that the app is for supporting documentation and systematic procedure, but it does not help you to make your decisions on what is defensible.

Tab 1a

* There should be a visual that appears when the questions at the top of the tab have been answered (scope and methods for identification), so the user can see that their answers have been accepted successfully.
* ‘Enter description’ instead of ‘enter details’. Explain a little more clearly what information should be entered into the boxes at the top of tab 1a.
* Add another question mark with an explanation box next to the heading ‘Identify defensible pipelines’.
* Give examples of typical nodes using the question marks.
* Expertise: be clearer that I mean the distinction between an individual researcher or a team of researchers.
* It needs to be made clear that you should enter all nodes including those with only one option. It must be possible to add only one option for a node for this purpose. It should be clear that you have to delete option 2 (or only generate option 1 and manually add option 2 when it exists).
* Explain that the pipeline sequences are not created in tab 1a, only that everything (defensible or indefensible) within the scope should be put on the table. Explain that pipeline sequences are constructed in a following stage.
* It should be clear that the user should click on ‘node 1’ to show the options drop down list.
* Is interactivity needed in the figure? Zooming in and out is a little annoying. Make the figures static and located further down next to where the nodes and options are entered.
* We should add a message at the end of each tab to reassure that the information is automatically saved. Because users will question if this is actually saved.

Tab 1b

* Automatically open the tabs for saying what is defensible or not.
* If the node itself is indefensible, then all options should become automatically indefensible too without also requiring classification.

Tab 1c

* Suggestion that if you want to explore all options within a node for all pipelines (none of the options have a dependency), then the user could only enter the node. In doing so, the app will include all options with all remaining pipeline sequences. It was agreed that the Cartesian product followed by refinement is the best option.

Multiverse 1.0 Overall

* Add a ‘continue’ button to the bottom of each page that takes you to the next tab.
* All figures that are generated with the tabs should be located next to were the information is being input.
* When refreshing, everything is lost. Can we prevent this?

Multiverse 2.0 Overall

* Add an upload button along the top next to the tab titles so the user doesn’t have to navigate back to the welcome page to upload.

**All suggestions have been implemented.**