

MultiPEYE Experimenter Script

Psychometric Tests Session

History of changes		
Version	Date	Changes
0.1	16/09/25	Work in progress - First version to be published on MultiPEYE website

This document details the standard procedure for the additional experiment session of the MultiPEYE data collection in which the common MultiPEYE test battery of psychometric tests is conducted.

We digitalized the psychometric test. They are accessible in the [MultiPEYE-COST GitHub MultiPEYE-psychometric-tests repository](#). Please follow the instructions in the README.md file to install and run the tests step by step.

All experimenters should have installed the tests and should be familiar with this standard procedure before starting an experiment. We recommend having a paper copy of this document available at all times during the experiments.

As specified in the [MultiPEYE Data Collection Guidelines](#), this psychometric test session is conducted **after** the eye-tracking session and the participant questionnaire.

If you have any questions please contact the experiment support team (multipleye.project@gmail.com).

Important general remarks

- The participants should feel comfortable at all times while taking part in the study. We always treat participants in a motivating and appreciative way.
- The estimated time for the psychometric tests is 90 minutes. Please be aware that a minimum break of 30 minutes must have passed since the main experiment before starting this session
- Every participant has the right to stop and cancel an experiment session at any time without providing any justification.
- **Important:** You need to run this experiment on a computer that is able to record audio through an internal or external microphone. Make sure to test the audio recording beforehand.



- Please find a general description of each psychometric test in the [MultiplEYE data collection guidelines](#) (section 6).
- Important notes regarding the **Stroop Task**:
 - If you're conducting the Stroop task in a language where two color names start with the same letter (e.g., "blue" and "black"), ensure that you write the **first two letters** of each color name on the stickers (e.g., "Bl" for blue, "Bk" for black) to avoid participant confusion.
 - Ensure that the **stickers** used in the Stroop task are **neutral in color** (preferably white). This helps minimize external influences on the test performance.

Before the experiment

Arrive at least 10 minutes before the participant to ensure everything is prepared for a smooth session. Follow these steps to set up and prepare:

- Prepare the setup so that the psychometric tests can start immediately when the participant enters.
- Make sure you have the printed [Experimenter Session Documentation Sheet](#) (PDF for print out) at hand so that you can take notes during the session. The Documentation Sheet should be available from the eye-tracking session.
- Ensure your phone is on silent mode (with vibration turned off).
- If applicable, prepare reimbursement or participant gifts and place them out of sight to avoid distraction..
- Verify that the participant's ID, name, and other details match the information from the eye-tracking session and the pre-registration form.
- Ensure that all equipment is **fully charged** or that equipment is connected to a power source to avoid any power issues during the experiment.
- Switch on the display PC and log in.
- Check and edit the `config.yaml` file in the `configs/` folder according to your lab settings (for example, select which tests your lab is going to run).
- **Activate the experiment environment** and start the psychometric tests by running the following commands on the display PC:

```
conda activate psychopy  
  
cd MultiplEYE-psychometric-tests python  
  
run_multipleye_psychometric_tests.py
```

For more detailed instructions, please refer to the [README file](#) in the github repository.

- Once the experiment software is running, **enter the participant ID** into the MultiplEYE GUI on the display PC.



Important: The participant ID used in this psychometric tests session must match the ID used during the eye-tracking session for the same individual (i.e., participant)!!

- Enter the **session ID** into the GUI.
Although you can use the same session ID as in the eye-tracking session, note that the results folder names will include a prefix “ET” for eye-tracking sessions and “PT” for psychometric test sessions.
- Verify that all other information in the GUI aligns with your lab settings.
- If everything is correct, click the “*Start*” button to start the tests.
 - If the Lewandowsky et al. Working Memory test battery (WMC) is among the tests to be run, a second GUI will pop up prompting you to select the WMC sub-tasks.
 - It is recommended to select the sub-tasks, as indicated by the default setting.
- Once the session starts successfully, the welcome screen of the first test will be shown. Leave this screen on display until the participant arrives.

At the beginning of the experiment

- Greet the participant according to your local customs and current hygiene rules.
Example: “Hi, are you [PARTICIPANT’S NAME]? Nice to meet you, I am [YOUR NAME]. Thank you so much for coming back for the psychometric tests session; we really appreciate it!”
- Verify the participant’s identity by confirming details such as their participant ID number from the ET session.
- Welcome the participant to the lab.
 - Tell the participants they cannot bring any food or drink into the lab or booth.
 - Explain briefly what the psychometric test session is about and which task they are going to participate in. We strongly recommend avoiding the term “test” and recommend using the term “tasks”. Explain that these tasks are designed to assess aspects of language and thought that are important for reading and that we are interested in learning more about their relation to reading. Do not give more details about what a specific task assesses BEFORE the participant took the task unless it is anyway stated in the onscreen instructions. If a participant inquires about more information, suggest that you will explain this after the end of the session. If you explain this at the end of the session, use general layperson’s terms such as “words you know (WikiVocab)”, “things to memorize and recall (WMC)”, “ignore the written word (Stroop)”, “ignore the direction of some of the arrows (Flanker)”, “figure out how a new language works” (PLAB)
- Ask the participants to put their phones on silent mode, turn off vibration, and store them in their bags or out of sight to avoid distractions. Make sure that their phone is definitely out of sight.
- Disinfect the keyboard, mouse, and button box in front of the participant according to the current hygiene rules in your lab and country.
- Ask the participant to take a seat in the experiment chair.



- Start with the oral instructions about the experiment (see box below).

Oral instructions

Give the participants an overview of the experiment:

Welcome back to the psychometric testing session! Today, we're going to run through some tasks about language and thought processes, both of which play an important role in reading. We want to use these tasks to gain a better understanding of how they are related to reading. Here's what we'll be doing: You will participate in six different tasks that involve memorizing information, naming things, reading words and there are also concentration games and a language puzzle. Please read all instructions carefully. Some tasks have a time limit and require a quick response, while others allow you to take your time.

Thanks so much in advance for joining us today. Your participation is really important and helps a lot!

Also, make sure to include the following information in your oral instructions:

- Instruct participants to read the instructions for each test carefully if you feel like they are skipping information.
- Inform the participants about practice trials. Instruct participants to familiarize themselves with the keyboard during the practice trials. Please note that there is NO practice trial for the RAN task.
- Encourage participants to ask questions during practice trials or when reading instructions
- Inform the participants about breaks (see below).

- Tell the participant which buttons on the keyboard/controller they will need in the experiment: e.g., the right arrow key for "yes", the left arrow key for "no".

The following information regards the **Stroop Task**:

Keys may vary depending on the keyboard layout of your testing device.





- On some keyboards, especially depending on regional layouts, the **slash (/)** key may not be in the expected location or may be replaced by the **minus (-)** key.
- **Please test the task in advance on your device** to confirm which key corresponds to the expected response in the Stroop task.
- Tell the participant to familiarize themselves with the keyboard/controller: Experimenter: “Each task uses different keys, so please take a moment to get familiar with the keyboard or controller. This will help ensure that your responses are accurate and prevent any unintended mistakes.”
- Start experiment

Breaks

The participants will be shown screens that inform them of the breaks.

Participants should avoid taking breaks in the middle of a sub-task.

Optional breaks

After each task, the participants will see a screen that informs them that they can take a short break if they want to or press space to continue. **If you notice that they are tired or not focused** anymore, you should encourage them to take a short break as soon as they see the break screen and close their eyes for a bit or quickly get up and stretch their shoulders, move their head, etc. In case they already pressed space but still need a break, that is still possible as the break screen is followed by a welcome screen and instruction screens for the next test.

Highly recommended break

We highly recommend participants take at least a 15-minute break after completing the WMC battery, which lasts about 30 minutes and can be quite demanding. The following tests will measure their reaction time and require sharp attention.

Offer water or something to drink to the participants during this break.

During the experiment

Unexpected crash or interruption

Whenever the program interrupts or shuts down during an experimental session, copy the output from the final interface window with the MultiplEYE logo in the top right corner and save it on your laptop in a text file (.txt or a Word document). Please copy it to the participant folder and name it “interface_output.txt/doc” and provide this document together with the data files. Then, you can try to restart the psychometric tests as described below.



First, don't worry if anything unexpected occurs. You can always restart the session flexibly. Follow these steps to manage your data:

Copy Final Output: From the final interface window, copy the output displaying the MultipleYE logo in the top right corner. Save this output as a text file on your laptop and include it with the data files.

Handling Crashes:

- If no tests were completed before a crash, simply rerun the tests as usual.
- If some tests were completed, modify the `config.yaml` file: change "*True*" to "*False*" for the completed tests to avoid repetition.
- If only part of the WMC tests were done, keep `wmc` as "*True*" in the `config.yaml` file but deselect those specific sub-tasks in the second GUI.

After Rerunning Tests:

- Once the session is successfully rerun, visit the `data/` folder to ensure all data has been saved correctly.
- Don't forget to change the `config.yaml` file back for the next participant!

Alternatively:

- You can always simply rerun the tests without making any changes. This approach will generate multiple versions of the data for the tests that have been run, with different timestamps in the filenames.
- After you complete the rerun process, manually check the `data/` folder and delete any versions of the data that you don't need.

After the experiment

- Make sure the data is saved.
 - You should be able to see a `.log` file, a `.csv` file in this folder:

```
Multipleye-psychometric-tests > data >
psychometric_tests_[LANGUAGE_CODE]_[COUNTRY_CODE]_[LAB_NUMBER] > [TEST NAME] >
[PARTICIPANT_ID]_[LANGUAGE_CODE]_[COUNTRY_CODE]_[LAB_NUMBER]_S2
```

 - For the RAN task, there is an extra folder storing the recorded audio:

```
audio_[LANGUAGE_CODE]_[COUNTRY_CODE]_[LAB_NUMBER]_[PARTICIPANT_ID]_S2_[TIME STAMP]
```
 - You should also be able to see a `.yaml` file with participant-specific configurations in:

```
Multipleye-psychometric-tests > data >
participant_configs_[LANGUAGE_CODE]_[COUNTRY_CODE]_[LAB_NUMBER] >
[PARTICIPANT_ID]_[LANGUAGE_CODE]_[COUNTRY_CODE]_[LAB_NUMBER]_S2.yaml
```
- Reimburse participants according to the rules in your lab and country.



- Thank and say goodbye to the participant:
“Again thank you so much for your time! We would be happy if you could spread the word about this study to encourage other people to participate. Have a great day!”
- If not agreed upon yet, ask the participant to participate in an additional psychometrics test session (if applicable).
- **Note that at this point all collected data is stored locally.** To have a backup of the data, **zip** the whole **data folder** in Multipleye-psychometric-tests, which contains the output files, then transfer it to your password-protected SWITCHdrive folder and in that folder to the folder named `psychometric-tests-sessions`.
- You have downloaded the [experimenter session documentation sheet](#) (digital version) and used it to take notes for the current participant during the eye-tracking (ET) session. Please also add notes about the psychometric test session in this same file. The Excel file serves as a **digital version of your handwritten notes** from the printed *Experimenter Session Documentation Sheet*—these notes must be **transferred** into the Excel file after every session. Always use the same Excel file you originally downloaded from SWITCHdrive, updating it regularly on your local device. For each new eye-tracking session, add a new row for the corresponding participant. Notes for psychometric test sessions should be entered in the additional sheet **within the same Excel file**. Once your entire data collection is complete, upload the finalized Excel file—including data for all participants—to the secure SWITCHdrive folder. To prevent data loss, always save copies or backups of the file on your local device throughout the data collection process.

Thank you for adhering to the protocol and ensuring a consistent and reliable approach to each session. Your diligence plays a critical role in the success of MultipleYE, bringing us closer to our research objectives. Every session you complete adds meaningful value to our work. Your dedication and contributions are deeply appreciated—thank you for being an integral part of this team!