

SuperLab Workbook

SuperLab (Cedrus) is a user-friendly software package designed for building and running psychological experiments. It allows researchers to present a wide range of stimuli (words, images, audio, and videos) and record participant responses with millisecond-accurate timing. The software supports randomisation, trial blocking, condition management, and integration with specialised input devices (e.g., response pads, voice keys, EEG and eye-tracking tools). These features make SuperLab suitable for both introductory teaching and professional-level research.

Why do psychologists use SuperLab?

1. It requires no coding! Experiments are built using menus and point-and-click options, making it accessible for beginners.
2. Provides millisecond-accurate timing, which is essential for studying processes such as attention, perception, and memory.
3. Supports easy creation of trials, blocks, and conditions, helping researchers control variables and run systematic experiments.
4. Automatically stores reaction time and accuracy data, producing reliable datasets for statistical analysis.
5. Offers flexible input devices, including keyboards, mice, microphones, and research-grade response pads (similar to what is used in real laboratories).

Why Superlab is important for this module?

This module examines how emotional states influence cognitive processes such as attention, perception, memory, and communication. SuperLab is crucial because it allows these processes to be explored in a controlled, measurable, and scientifically rigorous way:

- **Studying emotional processes scientifically.** SuperLab presents emotional stimuli (pictures, words, videos) for precise durations, which is essential when looking at subtle differences in emotional processing.
- **Supporting emotion-based experimental designs.** Many classic studies on emotion use tasks such as reaction-time measures, recognition tests, and mood-induction procedures. SuperLab is specifically designed for these tasks, offering tools such as randomisation, stimulus lists, and participant grouping.
- **Understanding how emotion and communication interact.** Using SuperLab, we can examine how emotional states affect how people interpret information, how quickly they respond, how well they remember content, and where attention is directed.

Task: STROOP Test

The Stroop Test is one of the most famous tasks in cognitive psychology. It measures selective attention, automatic processing, and cognitive interference.

What is the Stroop Test?

Participants see colour words (e.g., “RED”, “BLUE”) presented in either matching or mismatching ink colours.

Congruent trial:

- The word “RED” appears in red ink.
- The word “BLUE” appears in blue ink

Incongruent trial:

- The word “RED” appears in blue ink.
- The word “BLUE” appears in yellow ink

What does it measure?

The Stroop effect demonstrates how automatic reading is. Because reading happens quickly and effortlessly, it interferes with naming the ink colour, slowing reaction times on incongruent trials.

Why is it used?

Researchers use the Stroop Test to measure:

- attentional control
- processing speed
- cognitive flexibility
- interference resolution

In clinical settings, it is sometimes used in assessments of executive functioning.

Your Task: Create a simple STROOP Test

Your Stroop Test will include 5 colour names and 5 font colours (Green, Blue, Yellow, Silver and Red), and will include two conditions. You will present your participant with colour names displayed in different font colours e.g. the word 'Red' written in Blue font and ask them to select a specific key on the computer keyboard. See table below to see the full list of word colours and fonts.

Condition 1:

You will ask participants to press a designated key that corresponds with the word they are being presented with (e.g. if participants are presented with the word 'RED' in Blue font they will have to select the 'RED' key). Repeat this for all of the words and colours.

Condition 2:

You will ask the participants to select a designated key that corresponds with the font colour the word is presented in (e.g. if the word 'RED' is presented in Blue font they will have to select the 'BLUE' key). Again, repeat this for all of the words and colours.

Study Creation:

- **Block** = a section of the experiment
 - Instructions 1
 - Condition 1
 - Instructions 2
 - Condition 2
 - End
- **Trial** = one "unit" of a stimulus + response
 - 20 Trials for condition 1 (colour words in different font colours linked to the Condition 1 events)
 - 20 events for Condition 2 (colour words in different font colours linked to Condition 2 events)
 - For each trial, the order should be: Fixation Cross → Blank Screen → Stroop Word Event
- **Event** = the thing that appears on the screen (word, picture, fixation cross, blank screen)
 - 20 events for condition 1 (colour words in different font colours – specific correct response)
 - 20 events for Condition 2 (colour words in different font colours - specific correct response)

Step-by-step instructions:

1. Create new experiment:

- Open SuperLab 6
- Create a New Experiment
- Blank Experiment

2. Create reusable inter-stimulus events:

Create two Events you'll insert between stimuli:

- Fixation Cross: Create a new Event, change 'Event Type' to Text and type in a '+' in size 72 font. Set to display for 500ms
- Blank Screen: Create a new Event, change 'Event Type' to Text and set to display for 500ms

3. Block 1: Condition 1 Instruction

- Create a new Block and name it Instructions1.
- Inside the block, create a new Trial and name it Instructions1.
- Inside the trial, create a new Event and name it Instructions1.
- Event Type: Text.
- Type clear instructions for Condition 1, for example:
 - "In this first part, you will see colour names displayed in different colour fonts. Your task is to press the key that matches the WORD, not the font colour. Press SPACE to begin."
- Change the settings within each Event to set the colour fonts and make the words easily presentable (e.g., make sure the font size is big enough – preview this to see how it looks).
- Go to Input: Keyboard
- Add new 'Correct Response' and call it 'SPACEBAR'
- Set Correct Response: SPACEBAR.
- Set End Event After Correct Response.
- Link the Block, Trial and Event:
 - When the Block is highlighted, tick the corresponding Trial(s)
 - When the Trial is highlighted, tick the corresponding Event(s)

4. Block 2: Condition 1

- Create your Block (called Condition1)
- Create 20 Trials (Condition1.1 to Condition1.20)
- Create a new Event inside the trial. Name it exactly as the trial (e.g., Condition1.1).
- Event Type: Text.
- Type the WORD (e.g., “Red”). Change the font colour to match what the table requires (e.g., Blue font).
- Set font size large (36–48) so it is visible.
 - Add new ‘Correct Response’ You must assign keys for each colour word:
 - R = Red
 - B = Blue
 - Y = Yellow
 - G = Green
 - S = Silver
- Input: ‘After a correct response..’ For Condition 1, the correct response is the WORD, not the font.
- Duration: Until response; RT recorded.
- Link the Instruction Block, Trials and Events. Ensure you are separating each word with the Blank Screen and Fixation Cross. For each Trial, click on the Fixation Cross, Blank screen and then your word
- Randomise the Block.

5. Block 3: Condition 2 Instruction

- Follow steps for Block 1
- In the text box, type clear instructions for Condition 2, such as:

“In this second part, you will see colour names displayed in different colour fonts. Your task is to press the key that matches the FONT COLOUR, not the word. Press SPACE to begin.”

6. Block 4: Condition 2

- Follow the steps for Block 2
- You must create new Events so the previous events cannot be reused – this is because the correct response must be different
- Input: ‘After a correct response..’ For Condition 2, the correct response is the FONT colour, not the word

7. Block 5: Thank you page

- Create a new Block (End)
- Create a new Trial (End)
- Create a new Event (End), change 'Event Type' to Text and enter your instructions for your first condition
- Now you need to link the Instruction Block, Trial and Event

Test the Experiment Before Running It

You must check:

- Do all stimuli appear correctly?
- Are the colours correct?
- Do the keys work for each colour?
- Does the Fixation-Blank-Stimulus sequence work?
- Are both conditions randomised?
- Does each block end properly with SPACE?

In addition to the SuperLab task, you will be required to create your study materials (template and examples of these are available via the Module Moodle page). These include:

1. Study Information Sheet
2. Consent Form
3. Debrief Sheet
4. Study Protocol

Word	Font
Red	Blue font
Red	Yellow font
Red	Green font
Red	Silver font
Blue	Red font
Blue	Yellow font
Blue	Green font
Blue	Silver font
Yellow	Red font
Yellow	Blue font
Yellow	Green font
Yellow	Silver font
Green	Red font
Green	Blue font
Green	Yellow font
Green	Silver font
Silver	Red font
Silver	Blue font
Silver	Yellow font
Silver	Green font

