

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 Phases, 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: Time Perception

Time perception refers to how humans experience, judge, and estimate the passage of time. Unlike physical measures of time (such as seconds or minutes measured by a clock), psychological time is subjective. This means that time does not always feel like it is passing at the same speed...

sometimes it appears to go quickly, while at other times it seems to drag on.

Psychologists study time perception to understand how factors such as attention, emotion, arousal, and cognitive load influence our experience of time. For example, when people are bored or anxious, time often feels slower, whereas enjoyable or highly engaging activities can make time feel as though it passes more quickly. These distortions reveal important information about how the brain processes information and allocates attention.

What Are Time Perception Tasks Used For?

Time perception tasks are commonly used in cognitive psychology to examine:

- Attention and focus: how concentrating on a task affects awareness of time.
- Emotional processing: how feelings such as stress, fear, or enjoyment change time judgments.
- Cognitive load: how demanding tasks alter the perception of duration.
- Decision-making and memory: how time estimates relate to how experiences are encoded and recalled.

In experimental settings, researchers often ask participants to estimate, reproduce, or judge time intervals while completing tasks or viewing different stimuli. Reaction times and accuracy are then measured to explore how perceived time differs from actual time.

By using SuperLab to study time perception, you are learning how psychologists experimentally investigate these subtle cognitive and emotional processes in a controlled, scientific way. This practical develops your understanding of how emotion, attention, and communication interact, while also building core experimental skills that you will use throughout your degree.

Your Task: Create a simple Time Perception task

For your session you will need to create a time perception task using SuperLab. This study will involve two phases:

1. For the **training phase** of the experiment, you will be displaying a target image (a pink oval shape) to participants for either a **short (400ms)** or **long (1600ms)** period of time.
2. In the **test phase** participants will be presented with the same pink oval shape for a variety of time periods and they will have to judge whether the display was closer to the long or short display from the training phase.

Study Creation:

- **Block** = a section of the experiment
 - Instructions 1
 - Practice Phase
 - Instructions 2
 - Test Phase
 - End
- **Trial** = one “unit” of a stimulus + response
 - 10 Trials for Practice Phase
 - 22 events for Test Phase
 - For each trial in the Practice Phase, the order should be: Fixation Cross → Blank Screen → Pink Oval
 - For each trial in the Test Phase, the order should be: Fixation Cross → Blank Screen → Pink Oval → Response
- **Event** = the thing that appears on the screen (picture, fixation cross, blank screen)
 - Blank Screen
 - Fixation Cross
 - 2 events for Practice Phase (Pink Oval Short & Pink Oval Long)
 - 6 events for Test Phase (5 Pink Ovals with different times and 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: Practice Phase Instruction

- Create a new Block and name it Instructions1.
- Create a new Trial and name it Instructions1.
- Create a new Event and name it Instructions1.
- Event Type: Text.
- Type clear instructions for the Practice Phase (see Appendix)
- Change the settings within each Event to set the format to 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. Create new event: Short

- Call event 'Short'
- Event Type: Picture File
- Upload the pink oval image
- Go to Input: Only after a time limit

- Set time to 400ms
- Add new 'Correct Response' and call it 'Short' and designate the 'a' key
- Set Correct Response to 'one or more of the following': Short

5. Create new event: Long

- Call event 'Long'
- Event Type: Picture File
- Upload the pink oval image
- Go to Input: Only after a time limit
- Set time to 1600ms
- Add new 'Correct Response' and call it 'Long' and designate the 'l' key
- Set Correct Response to 'one or more of the following': Long

6. Block 2: Practice Phase

- Create your Block (called Practice Phase)
- Create 10 Trials (PP1 – PP10)
- Link the Short event or Long event to alternating Trials (e.g., PP1 to Short, PP2 to Long, PP3 to Short...)
- Link the Blank Screen and Fixation Cross to each Trial
- Link all Trials to the 'Practice Phase' block

7. Block 3: Test Phase Instructions

- Follow steps for Block 1
- In the text box, type clear instructions for the Test Phase (see Appendix)

8. Block 4: Test Phase

- Create your Block (called Test Phase)
- Create 22 Trials (TP1 – TP22)
- Create a new Event called 'Pink Oval 400ms'
- Event Type: Picture File
- Upload the pink oval image
- Set time to 400ms
- DO NOT SET A CORRECT RESPONSE

- Create a new Event called 'Pink Oval 800'
- Event Type: Picture File
- Upload the pink oval image
- Set time to 800ms
- DO NOT SET A CORRECT RESPONSE

- Create a new Event called 'Pink Oval 1000'
- Event Type: Picture File
- Upload the pink oval image
- Set time to 1000ms
- DO NOT SET A CORRECT RESPONSE

- Create a new Event called 'Pink Oval 1200'
- Event Type: Picture File
- Upload the pink oval image
- Set time to 1200ms
- DO NOT SET A CORRECT RESPONSE

- Create a new Event called 'Pink Oval 1600'
- Event Type: Picture File
- Upload the pink oval image
- Set time to 1600ms
- DO NOT SET A CORRECT RESPONSE

- Create a new Event called Response
- Stimulus Type: Text (see appendix)
- Set Correct Response: After any response

- Attach Trials TP1 – TP3 to Pink Oval 400
- Attach Trials TP4 – TP6 to Pink Oval 800
- Attach Trials TP7 – TP16 to Pink Oval 1000 (it is the 1000ms events we are interested in, so we have ten of them and three of all the others as distractors)
- Attach Trials TP17 – TP19 to Pink Oval 1200
- Attach Trials TP20 – TP22 to Pink Oval 1600

- Link Blank Screen, Fixation Cross and Response to all TP Trials
- Link all Trials to Block
- Randomise Block

9. 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 end message
- 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 Phases 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

Appendix:

Instructions 1:

You will be shown a pink oval that will stay on the screen for either a long period of time (1600ms) or a short period of time (400ms). Please press the coloured button that corresponds to the length of time the oval is displayed (L = long; A = short).

This first trial is a practice trial; the oval will alternate between long and short displays.

Press SPACE BAR to begin

Instructions 2:

You will now be shown a number of pink ovals but their presentation will be randomised and they will be displayed for varying lengths of time.

Your task is to press the key that best corresponds to the display length (long or short).

Again, please press the red key for a long display and the blue key for a short display.

Press SPACE BAR to begin

Response:

Was the oval on the screen for:

- A long time (press L key)
- A short time (press A key)

Pink Oval:

