

Instructions for color adjustment task (Experiment 1)

At the beginning of each trial you will see a cube in the center of a screen. The cube will have three distinct “buttons”, like pips on a dice – one on the right and two on the left side. The button in the center of the right side will be the target for the trial.

One of the two buttons on the left side of the cube will be either black or white. This button will be the test button for the trial. At each trial, the position of the test button is chosen at random.

Your task is to adjust the test button so that it matches the target button in color.

To adjust the color of the test button, use the joystick and red buttons on the controller (identical to those used during training).

Pressing the left or the right red button will change the intensity. Pressing the right red button will make the test more intense. Pressing the left red button will make the test less intense.

Moving the joystick up or down changes the hue of the button you are adjusting. This corresponds roughly to changing the dominant color of the test along a circular sequence [red, orange, yellow, green, blue, purple, and back to red], as shown in the diagram. Moving the joystick up will change the color in counter-clockwise direction around the circle. Moving it down will change the color in the clockwise direction around the circle.

Moving the joystick left or right will adjust the chroma, sometimes called saturation or purity, of the color test button you are adjusting. You can think of this as corresponding to how much “whiteness” is mixed in with the dominant color of the test. Moving the joystick to the left will make the test button less saturated, less pure. Moving it to the right will make it more saturated, more pure.

Initially, each movement of the joystick and each red button press will have a large effect on the color of the adjusted test button. As your adjustment approaches a good match, you will want to make the adjustment step size smaller. The yellow buttons allow you to control the step size. Press the left yellow button to make the step size smaller. Press the right yellow button to make it larger. There are three step sizes in all, and you should feel free to go back and forth as you proceed. As you finalize your match, however, you should use the smallest step size. Each time you press a yellow button, the program will remind you of your current step size, by saying “large”, “medium” or “small” so you can keep track of it.

Sometimes, you may reach the limits that the color can change in the direction you chose. Then you will hear a warning “Cannot change color further”. You should then try to move in the opposite direction of the one you just chose, change the step size and/or vary the remaining two dimensions to obtain your desired match.

When you are satisfied with your match, when it is as good as you can make it, press the right green button, labeled "Match Complete" in the diagram of the controller. In case you press match complete button by mistake while you are still not satisfied with your match, please let the experimenter know immediately.

In case you cannot make a satisfactory match no matter how hard you try, press the left green button, labeled "Match Impossible" in the diagram of the controller. You should try, however, to choose this option rarely – only when you feel you tried many combinations of dimensions and step sizes and none of them lead you to a satisfactory match.

Remember that at the beginning the test button will be either black or white. If it's black, you should first try to increase its intensity. If it's white, you should first try to decrease its intensity and then proceed with the adjustments.

When you think you found a good match, you can evaluate how good the match is by changing the test color by one step in "positive" and "negative" direction for each dimension at the time. This will allow final fine-tuning of your match.

In today's session we will do 3 blocks of trials each consisting of 4 (in the illuminant-constant condition / 8 in the illuminant-changed) single trials. Note that each trial takes a couple of seconds to load. When you hear a message "Ready to go" you will know that the trial has loaded and you can start making adjustments. At the end of each trial, you will hear the message "Wait for the next trial" indicating that the next trial is loading and that you should wait for the "Ready to go" message to view the trial and start with adjustments.

Also, note that when you're making the adjustments, each of the button presses actually takes a little bit of time to implement. After each button press you will hear a "thump" sound indicating that your last adjustment of the test button has been implemented.

Finally the experimenter reminds the observer what their task is:

Your task is to adjust the test button so that it matches the target button in color.