# Learning Objectives

1. To build on the skills learned last week by creating a choice reaction time experiment using images
2. To learn about file paths and image stimuli
3. To assign different conditions and correct responses using the conds files

# Activity 2.0

## Choice Reaction Time Task

Last week you completed a simple reaction time task, this week you are to create a Choice Reaction Time task (CRT). In a CRT paradigm the key element is that the participant must make a rapid decision about the stimuli presented and respond accordingly. You can read more about the [**CRT task here**](https://www.neurobs.com/manager/content/docs/psychlab101_experiments/Choice%20Reaction%20Time/description.html)**.** Note the **visualisation** of a trial in the “Sequence of events” figure.

Stimuli in a CRT can comprise of images, words, sounds, letters, symbols, or colours. In this weeks’ CRT we will be presenting two image stimuli. There will be a picture of a person with a happy face, and a picture with an angry face. The participant must respond with a z key if the face is happy and with the m key if the face is angry.

* What is the independent variable? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* How many levels does the independent variable have? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Name the levels\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* What are the dependent variables? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Reaction time tasks can be used to measure attention/vigilance/ability to inhibit a response to a non-target. We would typically use the mean reaction time of the trials that were correct to do this.

* What effect do you think **choice** will have on reaction time? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Figure 1. Visualisation of a single trial in a choice reaction time test

Fixation

(300ms/0.3sec)

Stimulus

(until keypress)

Blank screen

(200ms/ 0.2sec)

Instructions

Goodbye/Debrief

Condition – Emotion

2 Levels negative/positive

angry face (m key)

happy face (z key)

1. Create a folder called **CRT** within that folder createa new folder called **stims**
2. Download the images from the website, and save them into the **stims** folder
3. Create an excel file called **conds.xlsx** and save it in the root folder (the root folder is in this instance CRT, it is the folder in which all files relating to your experiment will be saved). Name the columns **faces, emotion,** and **corrAns**
4. The stimuli should be in the stims folder, therefore you need to tell the **conds file** this information. In the **faces** column type in the names of your face stimuli, including the file extension and the folder location (file path) (e.g. **stims/angry.jpg**)
5. In the **emotion** column type in **positive** or **negative** with the corresponding face stimulus
6. In the **corrAns** column type **z** for happy stimuli and **m** for angry stimuli and **save** the file
7. Open **PsychoPy Builder** and check that the monitor settings are correct and add **age** and **sex** to the experiment info, and **Screen** tab change the colour to **white,** thenset the **Units** to **pix**
8. Add a **routine** for a **fixation** before the trial, and add a **polygon** to create your fixation cross completing the duration properties as per the visualisation timing in Figure 1.
9. Save your experiment in the **CRT** root folder. **Remember to save regularly**
10. Add a **routine** for a blank screen after the trial and a use a **text component** to create this using the visualisation above to set the duration (Fig.1)
11. On the **trial** routine add an **image** component (**faceStim**) and a **keyboard** response component (**faceStimResp**) (*take note of the naming conventions I am instructing you to use*)
12. Create a **loop** around the three trial stimuli and use **Browse** to find the **conds.xlsx**
13. Change the properties of **faceStim** to look for the stimuli in the **stims** folder. Do this by typing **$faces** . Remember the dollar symbol **$** references the column in the **conds.xlsx file** that contains the corresponding information. In this case, the images.
14. Still in **faceStim** properties, beside the field where you typed **$faces**, you also must use the dropdown to **select set every repeat.** doing this means that a new stimulus will be selected on the next trial iteration
15. The properties of the **faceStimResp** also need to reference the **corrAns** column in the **conds.xlsx** file. We want the participants to respond with a **z** or **m** key, so we type these in the **Allowed keys$** box, and we want to store the correct answer, so type **$corrAns** in the **Correct answer** box
16. **Save** and **run** the experiment to test that it works in the way you expect it should.
17. Does your experiment work correctly? If not, can you determine why not? *HINT: Routine properties*

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1. Which of the properties do you think you need to alter to make the experiment work as you think it should? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Describe any potential experimental confounds you can think of in this experiment \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

# Activity 2.1

As with the experiment last week, you now need to make a few edits to the routines.

1. Add an **instruction** screen routine and a **goodbye** routine
2. Increase the number of reps to 20
3. Run the experiment through fully so you can look at the data

**It is important that you complete this activity as you will be returning to this experiment to make changes and improve it through the course, so ensure it is saved either on your I: Drive or Google Drive**

# Activity 2.2

## Folder & file management

1. Create a **new** **folder** on your hard drive/googledrive for your assessment, call the folder **assessment\_[yourstudentnumber]. This your root folder**
2. Create a **conds** file using Excel and save it in the root folder

## Version control

1. Open a new experiment window in PsychoPy Builder and save a blank experiment with your student number suffixed with v01 e.g. **19002134\_V01**
2. If you significantly change your experiment save it with the next version number, then you will always know which is the most current version to work from
3. Set the **monitor settings** as per Seminar 1 and add any demographic variables you would like to collect in the experiment settings (e.g. sex/age/handedness etc)

**You are now prepared to begin developing your experiment in PsychoPy Builder in your own time. There will be in-class time set aside to work on the assessment, but it is an independent piece of work, and you should be prepared to work on it outside class time.**

# For Next Week

1. Read the **Assessment** pages on the **EDP Website** on the Moodle
2. Read the **Introduction** and **Methodology** of the starter reference, there is some [**guidance to support this here**](https://youtu.be/g2Ay2L2nMug)
3. Run a [**demo Lexical Decision Task**](https://www.psytoolkit.org/experiment-library/experiment_ldt.html)online to help appreciate what the task that you will be developing will look like

# Answers

What is the independent variable? Facial Emotion

How many levels does the independent variable have? Two

Name the levels Happy(positive)/Angry (negative)

What are the dependent variables? Reaction time & Accuracy

What effect do you think **choice** will have on reaction time? It should slow down the time it takes the participant to respond to the stimulus

Does your experiment work correctly? If not, can you determine why not? HINT: Routine properties You have not changed the size of the fixation in the fix properties, you have not changed the colour properties of the fixation in the fix properties. In the faceStim, the default size is (0.5, 0.5), we are using pixels as the spatial units, so that is setting the image size to half a pixel, by half a pixel. Look at the image properties and change the size to match

Which of the properties do you think you need to alter to make the experiment work as you think it should? faceStim – Size and fix – size, fill colour and border colour

Describe any potential experimental confounds you can think of in this experiment. The angry face is male, and the happy face is female, we could be responding to the sex of the poser in this task rather than the positive/negative levels of the condition