Task Overview

This novel emotional mnemonic discrimination task is designed to assess memory specificity and pattern separation for emotionally salient and neutral stimuli. The task has two parallel subsets: **Subset A** and **Subset B**

Both sets have been thoroughly balanced, piloted, and matched for difficulty. Each subset includes trials assessing participants’ ability to distinguish between targets, lures, and foils across varying emotional valences.

Because Subsets A and B are equivalently challenging and psychometrically matched, this task is ideal for intervention studies or within-subjects/repeated measures designs, as the alternate forms can help minimize learning effects and reduce interference from prior exposures. Each subset is designed to produce memory performance patterns consistent with those observed in the original Emotional Mnemonic Discrimination Task.

Key Features

* Two balanced and counterbalanced stimulus sets (**A** and **B**)
* Each set contains matched proportions of emotional (positive, negative) and neutral stimuli
* The emotional scene stimuli included in this task are culturally inclusive, reflect current societal contexts, and generalizable.
* Designed for repeated use in longitudinal or pre/post designs
* Normed for visual similarity and emotional valence
  + Allows for comparisons of memory performance for emotional vs. neutral content
* Tasks include target, lure, and foil stimuli for mnemonic discrimination assessment
* Compatible with behavioral or fMRI studies

Recommendations

* Task A and B can be used interchangeably. If you are measuring an intervention (pre- and post-), we recommend counterbalancing the initial vs second task across participants to reduce order effects.
* Ensure similar testing conditions across sessions to maintain consistency.
* The task is coded for a 20 inch screen. Some edits may need to be done to the task if using a different resolution
  + Similarly, all images are sized to 600px. Images can be resized smaller or different according to screen display needs
* Make sure to download the task folder into the desktop of the computer you will be using. This will ensure the task runs smoothly and doesn’t require an internet connection to run (helps avoid crashes).

Task Structure

* Task A has a total of 226 stimuli, Task B uses 227 stimuli. Both tasks are separated into an encoding (study) and retrieval (memory test) stage.
  + **Study Phase**: Participants view and encode emotional and neutral images.
  + **Test Phase**: Participants complete a mnemonic discrimination test where they must classify items as "Old" (targets) or "New" (foils/lures).

Task Software

The task is built in Psychopy (Version 2023.1.2).

* [Installation information](https://www.psychopy.org/download.html)

Stimulus Subset Details

All stimuli have been pilot-tested for:

* Recognition accuracy, false alarm and lure rejection rates
* Subjective emotional ratings (valence/arousal)
* Visual complexity and semantic similarity

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| **#** | **Task** |  |  |
| **Stim Type** | **A** | **B** | **Grand Total** |
| **Baseline Lure** | **69** | **71** | **140** |
| Negative | 20 | 18 | 38 |
| Neutral | 28 | 28 | 56 |
| Positive | 21 | 25 | 46 |
| **Foil** | **45** | **45** | **90** |
| Negative | 15 | 15 | 30 |
| Neutral | 15 | 15 | 30 |
| Positive | 15 | 15 | 30 |
| **Lure** | **69** | **71** | **140** |
| Negative | 20 | 18 | 38 |
| Neutral | 28 | 28 | 56 |
| Positive | 21 | 25 | 46 |
| **Target** | **43** | **40** | **83** |
| Negative | 15 | 15 | 30 |
| Neutral | 13 | 13 | 26 |
| Positive | 15 | 12 | 27 |
| **Grand Total** | **226** | **227** | **453** |

Instructions

**ENCODING 1**

1. Click on the **Encoding\_A.py/Encoding\_B.py** tab in the PsychoPy Coder screen to make sure you open the correct task, and then click the green run button.
   1. Fill in the assigned **Participant ID**
   2. Fill in the task version
2. Read instructions and go through examples
   1. “You will see a series of images on the screen and asked to rate each image as negative, neutral, or positive using the slider scale. Each image will be on screen for 3 seconds. Make sure that you make your response while the image is still on the screen. Press the space bar for examples”
   2. Press space bar to advance through examples.
   3. “The task will start now and last 10 minutes. Do you have any questions? Press the space bar to begin the task.”

**RETRIEVAL 1**

1. Click on the **Retrieval\_A.py/Retrieval\_B.py** tab in the PsychoPy Coder screen and click the green run button.
   1. Fill in the assigned **Participant ID**
   2. Fill in the task version
2. Give the following instructions:
   1. “Now we will move on to the last part of the experiment, in which we are going to test your memory for the images you saw earlier when you made the emotional ratings. Your job is to determine if the image on the screen is exactly the same as one you saw before or if it is a new or different image in some way. If it is exactly the same image, you will press “V” for EXACT SAME. If it is a brand new, or similar to an image you saw before, but different in some way, you will press “N” for (NEW/DIFFERENT). You will have 3 seconds to respond while the image is on the screen. This may feel fast at first, but you will get used to the pace. It’s best to keep your fingers ready to go on V and N throughout the experiment. Now we will go through an example of what this might look like on the task”.
   2. Press space bar for examples
3. Quickly remind participants of the test instructions again:
   1. “Do you have any questions? We will break this part up into two parts to give you a quick break. Remember, if the image is exactly the same, press “V” for EXACT SAME. If it is a brand-new image, or similar but not exactly the same, press “N” for (NEW/DIFFERENT).”

**ENCODING 2**

1. Click on the **Encoding\_B.py/Encoding\_A.py** tab in the PsychoPy Coder screen to make sure you open the correct task, and then click the green run button.
   1. Fill in the assigned **Participant ID**
   2. Fill in the task version
2. Read instructions and go through examples
   1. **IMPORTANT, if you are testing both A and B within the same session or within 24hrs of each other**: “Please keep in mind that the images you will be looking at now are a separate set of images from those that you previously saw today/yesterday.”

**RETRIEVAL 2**

1. Click on the **Retrieval\_B.py/Retrieval\_A.py** tab in the PsychoPy Coder screen and click the green run button.
   1. Fill in the assigned **Participant ID**
   2. Fill in the task version (A or B)
2. Give the following instructions:
   1. “Now we will move on to the last part of the experiment, in which we are going to test your memory for the images you saw earlier. (Remember, the images are from the task you completed just now not from before). Your job is to determine if the image on the screen is exactly the same as one you saw before or if it is a new or different image in some way. If it is exactly the same image, you will press “V” for EXACT SAME. If it is a brand new, or similar to an image your saw before, but different in some way, you will press “N” for (NEW/DIFFERENT). You will have 3 seconds to respond while the image is on the screen. Again, this may feel fast at first, but you will get used to the pace. It’s best to keep your fingers ready to go on V and N throughout the experiment. Now we will go through an example of what this might look like on the task”.
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   1. “Do you have any questions? We will break this part up into two parts to give you a quick break. Remember, if the image is exactly the same, press “V” for EXACT SAME. If it is a brand-new image, or similar but not exactly the same, press “N” for (NEW/DIFFERENT). Press the spacebar to start ”