**Lab Report 5:**

**Word Priming Task**

**Introduction:**

Memory is the capacity to retain and recall knowledge when necessary. Working memory, short-term memory, long-term memory, and sensory memory are the four main categories of memory. Long-term memory can also be divided into implicit (unconscious) and explicit categories (conscious). Priming is a psychological strategy where the introduction of one stimulus affects how people react to another. In order for priming to function, a memory connection or representation must be activated right before the introduction of a new stimulus or task. A three-step procedure frequently leads to priming, or alterations in our perception as a result of previous experiences. A person is initially exposed to a prime stimulus, which could be an object in the environment, a word, or a picture. Second, the prime improves a conceptual category's accessibility in the brain, which raises the possibility that it will affect how new information is encoded. The newly activated representations then lead to modifications in perception or behaviour.

When we're identifying words, things, tasks, or events at hand, one of the unconscious processes that helps our memories function is priming. Priming basically entails turning on a particular brain region so you're more likely to identify something that's in front of you. For instance, by first displaying the colour blue, you can encourage someone to notice blueberries in a fruit basket. Priming is at work whenever a word, an image, a sound, or any other input triggers an associated reaction. You might wish to find out more about this phenomena if you're looking for a powerful study aid or a fresh approach to therapy. We'll study everything there is to know about priming in this post, including the various kinds of priming and their applications. Priming experiments like word fragment tasks inform us that encoding can occur unconsciously. We don’t need selective attention for encoding.

**Method:**

The experiment was administered on one participant. The participant was made to sit in quiet and calm environment in order to reduce the interference caused by extraneous factors. She was given the laptop to perform the task on. The participant was first presented with a list of words and was asked to rate the familiarity of the words. A slider was present to rate the familiarity. 1 would rate highest familiarity and 5 would rate the least familiarity. During this experiment, it was expected that the participant unconsciously encode the words presented.

Then, another list was presented which consisted of words presented in the first list as well as some other words. But here, the words were presented in fragment and the participant was required to identify the complete word and type in the textbox. This was required to be completed in ten seconds. If the participant failed to recognize and type the word in textbox within ten seconds, the next word automatically appears.

**Results and Discussion:**

The following are the results of the experiment conducted:

|  |  |  |
| --- | --- | --- |
| Word Type | Correctly Identified | Total Words |
| Primed | 5 | 5 |
| Non-Primed | 4 | 6 |

Proportion of prime words = Correctly identified words/total words

= 5/5

= 1

Proportion of non-primed words = Correctly identified words/total words

= 4/6

= 0.67

Priming score = Proportion of prime words - Proportion of non-primed words

= 1 – 0.67

= 0.33

Similar experiment can be designed using faces as well. When a face is recognised, the incoming perceptual data is compared to mental images of well-remembered familiar faces. These stored representations must have a wide range of properties that continuously differ from one another along multiple dimensions in order to distinguish faces from one another. After seeing the same or similar faces, priming frequently causes faster and/or more accurate responses in facial recognition.

Facial priming experiment can be designed in three ways: Firstly, participant can be primed based on the race of the faces. Secondly, gender can be a variable. And lastly, emotions can be used for priming.

So like word priming task, this experiment can be divided into two stages. In stage one, the participant is exposed to faces with different emotions and micro expressions. He or she is required to rate the familiarity of it using a slider where 1 means highest familiarity and 5 means highest unfamiliarity.

Now in the second stage, the faces with the same emotions and micro expressions will be presented along with some others which were not presented in the first stage. Then the priming score will be derived from the data of correctly identified primed faces and correctly identified non-primed faces.

**GitHub Link:**

<https://github.com/sakshimundra/PsychoPy-experiments>