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PSY 310: Lab in Psychology

Experiment no. 2

Name of Experiment: Signal Detection Experiment(Orientation Discrimination)

GITHUB LINK:

Introduction:

Signal detection theory can therefore be described as a sort of test that measures the effectiveness of distinguishing between information pattern and random pattern which determine sensitivity (d') and thereby specializes in comprehending how decisions and judgments occur in an individual. This Venerable signal detection theory was pioneered by Gustav Fechner, who advanced it for two A two-alternative forced choice (2AFC) tasks. In perception related studies the SDT is used to differentiate between the different perceptive facets between signals that means the presence of stimuli and noise which is the absence of the stimuli. SDT includes yes/no tasks, categorized into signal trials in which the stimulus is present and the noise trials in which the stimulus is absent. In this experiment, there are four categories in which the experiment is judged : Hit, Miss, False Alarm and Correct rejection.

Hit: There is a signal and the participant responds by correct identification of the signal.

Miss: They include cases where the signal is present, but the participant himself or herself does not notice it.

False Alarm: The signal is missing but the participant falsely believes he/she has heard the signal.

Correct Rejection: There is no signal and the participant is right saying that there is no signal.

Procedure of the Experiment:

1. Experiment is done using the PsychoPy Experiment and was done by a 21 year old Undergraduate student at Ahmedabad University.
2. We made the fixation, with the size of 10, 10 and duration was kept as 1.0 and time of experiment was kept as 0.0.
3. Grafting was made with duration of 0.3 and time as 1.0 seconds.

4. Only 2 key responses were made that were 'Up' and 'down'.
5. All the codes were added before and after the experiment so that it can run smoothly.
6. Csv file should be stored in the computer for further calculation of the results and option should be clicked as yes for storing the csv files of responses that were made in the experiment.
7. In total we needed 100 trails to analyze our results.

Results and Discussion:

1. Results are calculated based on the concept of proportion hit with the help of excel.

Figure 1:

Image of Grafting that has been used in the experiment.



The d' Criterion for experiment according to the results is -0.78131

What do signal detection measures (d' & c) inform you?

d' prime tries to measure The difficulty of distinguishing or differentiating between two or more stimuli by the participant. It shows the degree to which a participant is able to distinguish signal from noise, for instance, between an oriented stimulus in one direction and non-oriented one. On the other hand, Criterion tries to measure the The participant's decision making preference, as to which of the two options he/she is inclined or more often chooses when faced with a decision, whether to say "signal present" or "signal absent".

References:

1. Google Classroom
2. PsychoPY Application
3. GitHub Link
4. Coursepack PSY 310: Lab in Psychology