**Motor Sequence Learning Experiment**

PSY310: Lab in Psychology

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**Githublink:**

**Introduction:**

According to psychology, learning is the process of a relatively permanent change in behaviour or knowledge that results from experience(OpenStaxCollege, n.d.). It also refers to the acquisition of knowledge and skills through experience. It is a fundamental cognitive process. Outcome-interface, which is contingency, seems to be relevant when it comes to learning process. Contiguity is best illustrated by sequence learning whereby people note patterns and subsequent events and factors that connect them (Cleeremans & McClelland, 1991). Contingency affects learning in various ways, in which sequence learning where learners identify and learn about sequences, is an example (Abrahamse et al., 2013). To determine the participants’ learning rate and their retention of sequential information.

**Method**

The software PsychoPy (v2024.1.5) was used to build and conduct the task. In each trial of the task, a certain set of stimuli were displayed in a pre-planned sequential or a random manner. The stimuli consisted of 4 bars with one of them having a triangle displayed on top for a brief time. A total of 400 trials were carried out. The participants were asked to respond as rapidly as possible as soon as they as they detected the triangle. The time taken by each participant to respond was measured by the average reaction time (RT) for each trial. The task was divided into two main conditions: 1)fixed allocation sequence 2) random. In the first condition the allocation sequence was fixed throughout various trials, whereas in the second condition the sequence was changed between trials..

**Results:**

The mean RT for all the sequence trials is 0.842452

The mean RT for all the random trials is 1.161686

We can see that the sequence reaction time is lesser than the random response time.

**Discussion:**

If in trials, participants could identify what is next then their RT would be faster than in random trials, in which unpredictable trials demand more mental effort and also an effort to solve in sequence will always make the RT slower. This graph indicates the correct key response combined with the key response reaction time. As we can measure from the results, the reaction time for the sequence condition was less than the random condition.

**References:**

Abrahamse, E. L., Ruitenberg, M. F. L., De Kleine, E., & Verwey, W. B. (2013). Control of automated behavior: insights from the discrete sequence production task. Frontiers in Human Neuroscience, 7. <https://doi.org/10.3389/fnhum.2013.00082>

Cleeremans, A., & McClelland, J. L. (1991). Learning the structure of event sequences. Journal of Experimental Psychology General, 120(3), 235–253. <https://doi.org/10.1037/0096-3445.120.3.235>