*Lab Report – 5*

*Intentional Binding Task*

*PSY310 – Lab in Psychology*

*Nirja Sukhadia*

*AU2120057*

*Github Link –*

**Introduction**

Intentional binding is when a person perceives a voluntary action and its sensory outcome happening close together in time. This phenomenon was first reported by Patrick Haggard and his colleagues in 202 to measure sense of agency in humans. Sense of agency is the feeling of control and autonomy one has over their actions and behaviour. Intentional binding is an implicit measure of sense of agency because it reflects the ability to perceive the effects of voluntary actions before the other stimuli presents itself. In this experiment, we try to indicate the participants’ sense of agency using intentional binding capacity by manipulating the time delay in between voluntary action and the stimuli outcome. We will also be controlling for predictability of the outcome and observing the perceived and reported time delay. (James W. Moore, 2012)

**Method**

A 21 year old participant was recruited for the experiment, enrolled in Ahmedabad University. The experiment was conducted on 16” laptop on PsychoPy software. The experiment started with a white circle presented on the screen for 1 second. Then a green circle was presented on the screen and the participant had to press the space bar key upon seeing the green circle. Following this, a beep sound appeared, and after the sound the participant was supposed to report the time delay between the pressing the space bar key and the beep sound. The time delay was to be reported in milliseconds between 0 to 999. The time delay was either 400ms or 1000ms with the ration of 1:3 in the conditions file.

**Result**

The table below shows the participant’s reported measure of delay between visual stimuli and the beep sound –

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Condition/Delay | 0.1 | 0.4 | 0.7 | Total Average |
| Unexpected | 390.9091 | 371.2121 | 353.0303 | 371.7172 |
| Expected | 325.8485 | 314.4444 | 385.9174 | 341.9174 |

*Table 1*

It is observed that the total average in the expected condition is 341.9174 and unexpected condition is 371.7172. From the total averages, it is clear that the average perceived delay is less in the expected condition which was of freq = 1000 than the unexpected condition which was of freq = 400. The intentional binding effect has occurred as the time compresses more in unexpected conditions than in expected conditions.

**Discussion**

In this experiment we observed that intentional binding task helps us understand the difference in the sense of agency the participant has in unexpected condition versus expected condition.

Implicit measures of agency are less susceptible to response biases like social desirability, compared to explicit measures. According to Walker, implicit testing also allows the assessment of attitude without the participant to deliberately introspect over their responses, addressing one of the limitations of explicit measures (Zandvoort, n.d.). These measures can also help us measure attitude and behaviour that are difficult to access through introspection, as these include capturing automatic and spontaneous reactions that are produced by unconscious thoughts. However, there are some disadvantages of implicit measures. AS these measures depend heavily on indirect indicators and unconscious processes, the results are difficult to interpret and can be misleading if all other external factors are not considered.

# Bibliography

James W. Moore, S. S. (2012). Intentional binding and the sense of agency: A review. *ScienceDirect*, 546-561.

Zandvoort, F. v. (n.d.). *Implicit Measures - What is it? How to use it?* Retrieved from NMSBA: https://www.nmsba.com/news/199-implicit-measures-what-is-it-how-to-use-it#:~:text=Benefits%20of%20implicit%20measures&text=For%20example%2C%20they%20are%20less,inaccessible%20(Wilson%2C%202002)