

STROOP EFFECT

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Intro/Lit. Review: The psychological phenomenon that I decided to study was the Stroop Effect. To begin my study/experiment I first decided to look at some sources on the internet for any background information and other experiments done using the Stroop Effect. My first source was a peer-reviewed source that studied the Stroop Effect and how it relates to delayed match-to-sample tasks (DMTS) and match-to-sample tasks (MTS). From this source, I found that the Stroop Effect was likely similar to the DMTS when it comes to the results. The second source that I looked at consisted of a plentiful amount of background information on the Stroop Effect that helped me in making and conducting the experiment. It also provided some theories as to why the Stroop Effect happens and this would then go on to help me in creating my hypothesis. In my last source, I looked at an experiment involving the Stroop Effect on Nepalese medical students. This source helped me create a general outline of how I should conduct my experiment based on the one that they conducted. I then made sure that each of my sources was relevant and also credible. Afterward, through the information found from these sources, I was also able to create my own hypothesis in my experiment. My hypothesis was that predicted that the experiment/incongruent students would have a longer reaction time and more interference than that of the control/congruent group. This would likely be because of the selective attention theory, speed of processing theory, etc. Both of these theories state that when it comes to reading words and colors you are able to identify and read the words faster than the colors. They also state that colors need more of your attention than words thus making it longer for you to identify and state the colors if these are both incongruent.

Methods: The method that I used to conduct the experiment was to get 10 participants and randomly sort them into both a control and experimental group. This was done by switching each

Stroop card when I would get a new participant. An example of this would be having the first participant be in group 1 and having the next participant in group 2, and constantly switching throughout the experiment. This would be the population that I studied in my experiment. My independent variable would be the two different Stroop cards that I had made. One would have congruent words and colors and the other would have incongruent colors and words. A picture of the cards will be shown below.

Red	Blue	Yellow	Purple	Green
Blue	Green	Red	Yellow	Purple
Purple	Red	Green	Blue	Yellow
Green	Yellow	Purple	Red	Blue
Yellow	Purple	Blue	Green	Red

Red	Blue	Yellow	Purple	Green
Blue	Green	Red	Yellow	Purple
Purple	Red	Green	Blue	Yellow
Green	Yellow	Purple	Red	Blue
Yellow	Purple	Blue	Green	Red

My dependent variable that I measured was the reaction times/total time for each participant. This was done by starting a stopwatch when they started reading the Stroop card and ending it when they have finished the Stroop card.

Results: After I had conducted the experiment I had later gotten my results from my recorded data. I first calculated all measures of central tendency such as the mean, median, and mode. My means included 14.938 seconds for the first group or the control group and 28.238 seconds for the second group or the experimental group. My median for Group 1 was 15.13 seconds, and for Group 2 it was 27.6 seconds. I had no mode in my experiment. I also calculated the standard deviation for both groups, Group 1's being 2.091443521 and Group 2's being 2.320356869. A table with the results and a graph will be shown at the end of the article in the "**Appendices**" section.

Discussion/Conclusion: According to my results, I have found that 10 LEAD freshmen and sophomores have a longer reaction time and more interference when performing a Stroop Test. This conclusion supports my hypothesis as I predicted that there would be an increase in reaction time when comparing both the congruent and incongruent Stroop Tests. Overall, I feel that there weren't many challenges that were present when I was doing my experiment. Some notes that I put down stated that there were some distractions when I did my last experiment. I also found that one of my participants had made an uncorrected error during their experiment. Both of these factors may have influenced my results a bit, but I don't feel that they were strong enough to completely change the results. Another factor that may influence my results is if any of my participants are colorblind. I failed to ask them if they were colorblind when I was

experimenting, but I feel that if they were then I would have a major outlier as it would likely cause even more interference in the experiment. If I were to do this experiment again in the future, I would likely perform it in the same way with a couple of tweaks. I would first ask my participants to see if any of them are colorblind as this would likely largely affect the results of the experiment. I may also add another group of participants that would instead change each word so that they were all unrelated to colors. This would include having words such as car, table, can, etc. to see if this would add any interference to the experiment.

References:

- Ghimire, N., Paudel, B. H., Khadka, R., & Singh, P. N. (2014). Reaction time in Stroop test in Nepalese Medical Students. *Journal of clinical and diagnostic research : JCDR*, 8(9), BC14–BC16. <https://doi.org/10.7860/JCDR/2014/10615.4891>
- Green, M. L., Locker, L., Boyer, T. W., & Sturz, B. R. (2016). Stroop-like interference in a match-to-sample task: Further evidence for semantic competition? *Learning & Motivation*, 56, 53–64. <https://doi-org.mcpl.idm.oclc.org/10.1016/j.lmot.2016.09.003>
- Ruhl, C. (2020, Dec 01). The Stroop Effect. *Simply Psychology*. <https://www.simplypsychology.org/stroop-effect.html>

Appendices: The link can also be accessed here: [Vincent Cadiz Stroop Test Results](#)

Group 1	Participants (#)	Recorded Time (sec)	Notes	Group 1 =	Group 2 =
	1	17.77	none	Control Group	Experimental Group
	2	16.5	none		
	3	13.3	none		
	4	15.13	none		
	5	11.99	none		
Group 2	6	24.97	none		
	7	27.6	none		
	8	30.11	1 uncorrected error		
	9	31.52	none		
	10	26.99	had distractions		
Group 1	Mean Recorded Time (sec)	Median Recorded Time (sec)	Mode Recorded Time (sec)	Standard Deviation	
	14.938	15.13	no mode	2.091443521	
Group 2	28.238	27.6	no mode	2.320356869	

Recorded Time (sec) vs. Participants (#)

