Background

In a Stroop task, participants are presented with a list of words, with each word displayed in a color of ink. The participant’s task is to say out loud the *color of the ink* in which the word is printed. The task has two conditions: a congruent words condition, and an incongruent words condition. In the *congruent words* condition, the words being displayed are color words whose names match the colors in which they are printed: for example RED, BLUE. In the *incongruent words* condition, the words displayed are color words whose names do not match the colors in which they are printed: for example PURPLE, ORANGE. In each case, we measure the time it takes to name the ink colors in equally-sized lists. Each participant will go through and record a time from each condition.



|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Congruent Words | | Incongruent Words | |  | 95% CI for Mean Difference |  |  |  |
| M | SD | M | SD | n |  | r | t | df |
| 14.05 | 3.48 | 22.02 | 4.7 | 24 | (5.91, 10.02) | .74 | 8.02 | 23 |

A paired-samples t-test was conducted to test the hypothesis that the time (seconds) it takes participants to recite a list of congruent (same color) words and incongruent (different color) words was equal. There was a significant difference in the times of congruent (M=14.05, SD=3.48) and incongruent (M=22.02, SD=4.7) recitations so the null hypothesis was rejected, t(23)=1.714, p=0.05. These results suggest that the use of incongruent color and words increases the time it takes to process and recite the word lists. It will be noted that the correlation between the two samples was estimated at r=0.74, p < 0.05. Cohen’s *d* was estimated at 1.64 putting the incongruent mean more than 1.5 standard deviations away from the congruent mean.