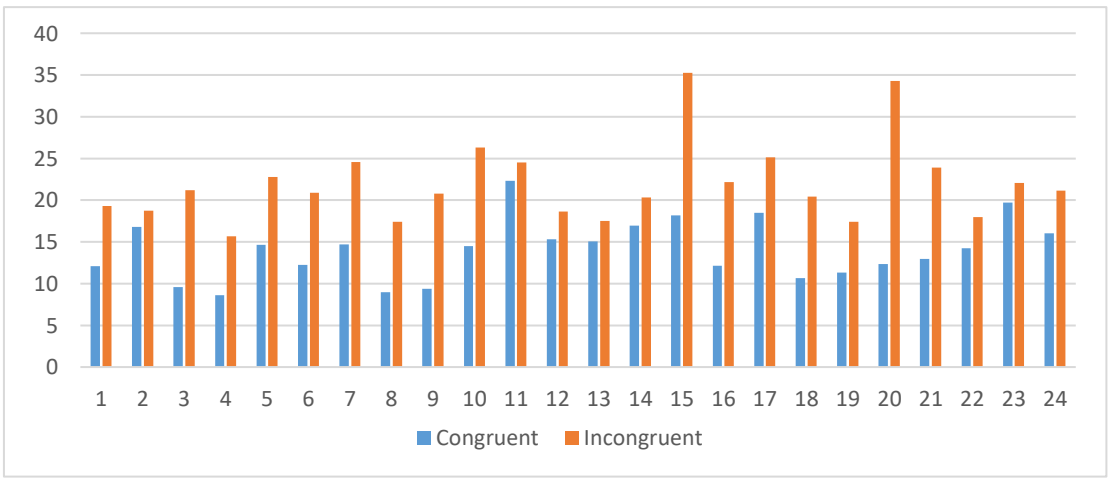
<table>
<tr><td>Question 1: Identify variables in the experiment</td><td colspan="2">Independent variables: the words are congruent with the colors or incongruent
Dependent variables: the amount of time it takes to name with the color in which the words are displayed.</td></tr>
<tr><td>Question 2a: Establish hypotheses</td><td colspan="2">μ0 = Time(the sample mean time with congruent), μ = Time(the sample mean time with incongruent)
H0: μ = μ0
H1: μ > μ0 α=0.01</td></tr>
<tr><td>Question 2b: Establish a statistical test</td><td colspan="2">The test statistic for the T Test is comparing the values of t-statistic and t-critical.
The appropriate t-critical value for the T Test can be found in the table of t values. To determine the appropriate t-critical value we need the sample size (or number of matched pairs, n=24), and our one-tailed of significance α=0.01.
The t-critical value for this one-tailed test with n=24 and α=0.05 is -2.5, and the decision rule is as follows:
Reject H0 if the values of t-statistic smaller than t-critical.</td></tr>
<tr><td rowspan="4">Question 3: Report descriptive statistics</td><td>Min(Congruent)=8.63
Median(Congruent)=14.3565
Max(Congruent)=22.328
μ(Congurent)=μ0=14.051125
size(Congruent)=24
σ(Congruent-sample)=3.559357958
SE(Congruent-sample)=0.726550901</td><td>Min(Incongruent)=15.687
Median(Incongruent)=21.0175
Max(Incongruent)=35.255
μ(Incongruent)=μ=22.01591667
size(Incongruent)=24
σ(Incongruent-sample)=4.797057122
SE(Incongruent-sample)=0.979195185</td></tr>
<tr><td colspan="2">z-score=2.33</td></tr>
<tr><td>Cong_CI(95%) = (12.3582614, 15.7439886)</td><td>Incong_CI(95%) = (19.73439189, 24.29744145)</td></tr>
<tr><td colspan="2">As the values, especially μ and CI tell μ > μ0</td></tr>
<tr><td>Question 4: Plot the data</td><td colspan="2"> 

According to the graph, all people, own orange bar all higher than own blue bar, that means all Incongruent tests took longer time than Congruent tests.</td></tr>
<tr><td>Question 5: Perform the statistical test and interpret your results</td><td colspan="2">The samples are dependent and paired.
Decision: T-test (some values reference Q3)
S=4.8648269
t-statistic=-8.02071
According to t-table with α=0.01, t-critical = -2.5, t-statistic < t-critical, the P-value < 0.01.
Compare t(z)-statistic and t(z)-critical, certainly μ > μ0.</td></tr>
<tr><td>Question 6: Digging deeper and extending the investigation</td><td colspan="2">Primary simultaneous interpretation(two languages stroop) and numbers stroop that to count the number of words in each box, which Do NOT say what the word says and so on are similar to this test.</td></tr>
</table>

Refer

https://en.wikipedia.org/wiki/Stroop_effect
http://baike.baidu.com/link?url=4t-mAs3S2dULT_8hZZr57s8lgmykHTs0Qmr27ikvBbAbEk5cZCyYCGvMfb3QwEVP9gA4gW2FHXjp4TJxKq4JPjF6zrd
http://blog.sina.com.cn/s/blog_52510b1d01014xku.html
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