You test whether being male or female (Sex) and whether you study with notecards or not (Study Group) makes a difference in History Quiz Scores.

Study Group

Notecards No Notecards

Men ∑X = 260 ∑X = 216 ∑X = 476

Sex n = 15 n = 15

Women ∑X = 224 ∑X = 220 ∑X = 444

n = 15 n = 15

∑X = 484 ∑X = 436

∑XT = 920

∑X2 T = 14,528

Construct a source table and explain what each *F* statistic tells you about your independent variables.

What should be your next question about your interaction statistic?

How about your Sex statistic?

ANSWERS:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Source | Sum of Squares | df | *S2* | *F* | *p* |
| Sex | 17.067 | 1 | 17.067 | 2.818 | .099 (or, 9.9%) |
| Study\_group | 38.400 | 1 | 38.400 | 6.340 | .015 (or, 1.5%) |
| Sex \* Study\_group | 26.667 | 1 | 26.667 | 4.403 | .040 (or, 4.0%) |
| Error | 339.200 | 56 | 6.057 |  |  |

You retain the null for the *F* statistic of Sex. This means it probably does not create sample mean differences in History Quiz Score.

You reject the null for the *F* for the variable of Study group. This means it probably does produces sample mean differences in History Quiz Score.

You reject the Null for the *F* statistic representing the interaction. This means that Sex probably effects sample differences in History Quiz Scores differently, based on Study group.

You should calculate Q statistics to find which of the 4 pop means are likely different.

You should ask about power; it will tell you how likely a type 2 error is.