Lab: 9/30/09

WE WILL USE YOUR MIDTERM PRACTICE TO CALCULATE EFFECT SIZE:

SAVE YOUR RESULTS!

Effect Size

SPSS doesn't present the best effect size, it's under a different menu option (more on this in a future lab). You should calculate the effect you want manually--We will use Excel as our calculator.

Omega Squared in the Population

- This is for your omnibus (all groups). It adjusts R^2 so that you can generalize to the population
- The easy way to obtain this is from your ANOVA table. You can choose from the following formulas but the second is simple and something you will be able to do when reviewing journal articles.

$$\hat{\omega}^2 = \frac{SS_A - (a-1)MS_{S/A}}{SS_{Total} + MS_{S/A}}$$

EQUIVALENTLY

$$\omega^2 = \frac{(a-1)(F-1)}{(a-1)(F-1) + an}$$

ANOVA

Comprehension Score

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	210.000	2	105.000	7.000	.010
Within Groups	180.000	12	15.000		
Total	390.000	14			

WHAT THIS LOOKS LIKE IN EXCEL =(2*(7-1))/(2*(7-1)+3*5)

ω^2 = .444, In your own words, what does this mean?

Complete Omega Squared for a Contrast

- Total variance accounted for by the contrast
- You must use F_A from above ANOVA table. So, even though this is a contrast effect size, remember to run the omnibus for ease of computation.

$$\hat{\omega}_{\psi}^{2} = \frac{F_{\psi} - 1}{(a-1)(F_A - 1) + an}$$

Square the t to get F_{ψ}

Contrast Tests

		Contrast	Value of Contrast	Std. Error	t	df	Sig. (2-tailed)
Comprehension Score	Assume equal variances	1	-3.0000	2.44949	-1.225	12	.244
	Does not assume equal variances	1	-3.0000	2.44949	-1.225	7.784	.256

WHAT THIS LOOKS LIKE IN EXCEL

Calculate this $F_{\psi\ first}$ = -1.225^2

Then, =(1.5-1)/(2*(7-1)+3*5)

$\hat{\omega}_{\psi}^{2}$ =.0185, what does this value mean? Why is it so small?

Partial Omega Squared for a Contrast

- Expresses the variability of the contrast relative to itself and the error (so does not include information about the variability of other unrelated contrasts)
- Replace F_A with your calculated F_{ψ}

$$\hat{\omega}_{(\psi)}^{2} = \frac{F_{\psi} - 1}{F_{\psi} - 1 + 2n}$$

WHAT THIS LOOKS LIKE IN EXCEL

Calculate this $F_{\psi\ first}$ = -1.225^2

Then, = (1.5-1)/(1.5-1)+2*5)

$\hat{\omega}_{(\psi)}^{2}$ = .0476 Did you expect this value to be larger? Why?

Compare the population omnibus effect size to your contrast effect sizes and review your means plot. Do our findings make sense?