

This lab is designed to further illustrate the concepts discussed in class today. In particular, this lab will emphasize partitioning variance.

Today we are going to consider the results of an educational research study; 15 students who had signed up for after-school tutoring for Math 1 were randomly assigned to one of three mediums of tutoring. Five students participated in each of the following types of tutoring for each study: (1) Tutoring from a teacher (2) Tutoring from a peer (3) Tutoring from an online module. Students were offered tutoring after school twice a week for 8 weeks. After the eight week period, students took the same final mathematics assessment.

1. The data from this study is in an Excel file that we will import into SPSS. Below are the scores on the final math assessment.

UGA Tutoring Study		
Group 1 Teacher	Group2 Peer	Group3 Online
8	5	10
7	4	12
9	6	12
8	6	11
8	4	10

2. Name the independent and dependent variables:
3. What kinds of nuisance or confounding variables might affect the results of this study?

[LETS GET A VISUAL OF THE SCORES: RUN the DOT PLOT]

4. Using the Compare Means in SPSS, find the group means and standard deviations for each group. Record your answers in the table below.

	UGA		
	Group 1 (Teacher)	Group 2 (Peer)	Group 3 (Online)
Mean			
Standard Deviation			

5. By comparing the plots and the means/sds from the Table in #4, which medium of tutoring seemed to work the best?

LET'S REVIEW THE IMPORTANCE OF THE VARIABILITY IN THE SCORES AGAIN:

Georgia State University has decided to conduct its own tutoring study. Their Exam scores are below. Insert a new variable after the factor but before UGAEXAM and name it 'GSUEXAM'. Type in the scores below:

GSU Study		
Group1 Teacher	Group2 Peer	Group3 Online
11	4	13
11	3	6
6	8	9
5	7	13
7	3	15

RUN THE DOT PLOT AND THE COMPARE MEANS. FILL in the CHART BELOW

	GSU		
	Group 1 (Teacher)	Group 2 (Peer)	Group 3 (Online)
Mean			
Standard Deviation			

- Refer to your UGA vs. GSU plots and tables. Without doing any further calculations, do you think the tutoring studies will yield the same result (come up with the same conclusion)--Why or why not?
- As you learned today, summing squared deviations (from grand or group means) can give us a measure of the between group and within group differences.

We can compute new variables that will enable us to calculate the between and within group sums of squares. LET'S DO THIS TOGETHER. PLEASE WATCH the SCREEN or follow the SPSS Guide and write down the totals we generate in the table below.

Fill in the Sums of Squares columns of the following table for the UGA study

Source of Variation	UGA		
	Sums of Squares	Degrees of Freedom	Mean SS
Between Groups (treatment)		2	
Within Groups (error)		12	
Total		14	

- This was a lot of work. Using the ANOVA procedure in SPSS, we can automatically calculate the sums of squares between and within groups for each of these studies. After running a one-way ANOVA, check to see that our values from #7 are correct.