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April 13, 2011

Hello Quantitative I students! At this point in your academic career, you may be pondering whether or not you want to take Quantitative Methods II. I want to encourage you to do it! You've really just scratched the surface with Class I – you need to do Class II! Now, you might be wondering why a mostly qualitative researcher like me would encourage someone to take a quantitative class. The answer is simple. Throughout your career (whether you become a researcher, professor, do something in the corporate world, or you retire to a private estate in the south of France), quantitative methods will help you navigate your world. We are increasingly bombarded with mountains of data. You need to understand how people are presenting this data to you – what methods did they use, did they do it correctly, and what do the findings really tell us? The truth is, you need quantitative methods to be functionally literate in our times. And if you put yourself in the right mindset, it can be a lot of fun.

Here's a little preview of what you can expect in Quantitative Methods II. Let's start with a little poem (for those of you who are inclined towards poetic inquiry) to introduce ANOVA.

We like to compare, that's just what we do,
Does this measure up? Is green better than blue?
So let's compare gender, and economic class
Some will come first, and others come last!
Randomized samples, and more than one factor
Planning is essential to avoid a disaster!
Consider ANOVA, this so useful tool
But you must learn it well, or you'll look like fool!

When you want to look at group differences in your study, you can use ANOVA (which stands for analysis of variance). There are many different varieties of ANOVA, but in this paper, I just want to mention two kinds. First, is the simple one-way ANOVA. This is the method you would use to test three or more groups, comparing their variance. You're looking to see whether there is a significant difference between the groups based on a single factor. The null hypothesis is that all the population means are basically equal, where the alternative hypothesis is that at least one of the group means will differ significantly. You might consider a one-way ANOVA to be the most basic kind of ANOVA. It's useful to be sure, but limited if you have a more complicated study. And I can tell you are a complicated person and are interested in digging deeper, and that's where factorial ANOVA can be useful. Factorial ANOVA can be used to look at differences between groups when you are dealing with more than one factor. When you use factorial ANOVA you can examine two different factors that may predict the outcome. For example, maybe you want to look at how age and gender shapes success in an online class. Or maybe you want to see whether GPA and undergraduate major impacts your success in this class.

You may see something called two-way ANOVA, and this is a kind of factorial ANOVA. A one-way ANOVA can measure the effect of a single IV (independent variable) on a DV (dependent variable). A two-way ANOVA can measure the effect of two (2) IVs on a single DV. Now you might be wondering whether you can have three IVs. You really are a complex person! It certainly can be done (just check the literature) but it is rare because of the complexity involved (driven mainly by interpreting the results – things get messy really fast).

Most people refer to ANOVA designs by the number of factors involved and the number of levels within each factor. So, a one-way ANOVA is a design with one factor, etc. When you see something like a 2 x 3 ANOVA (and Dr. Oshima just might put a question about this on a weekly quiz – just saying!) you know that the method uses a two-way ANOVA with two levels of the first factor and three levels of the second factor.

In closing, know that factorial designs will let you examine interactions between your independent variables – something that one-way ANOVAs cannot do. For example, does gender and race interact to influence the outcome of your study? You can look at the interaction effect to see whether it is significant too (what would we do without SPSS?).

Now, doesn't Quantitative Methods II sound interesting? Of course it does. And you need to take it. Have you registered yet?

Factorial design, allows you to find
Interaction effects, of more than one kind
So sign up for this class, you know that you should
You can do it online, and Oshima is good!