**Transcript: Conducting Independent Samples *t* Tests in SPSS**

In this video, we will be covering how to conduct an independent samples *t* test in SPSS. We have here our “Wells” data set read into SPSS. This is the same data set that we used in the R Commander video. In this “Variable View”, we can see our different variables as well as the type and measure that has been assigned by SPSS. The one thing we need to change is “education”, which is currently labelled as a “Nominal” variable. We know that education is measured in years in this data set, so we need to change this to “Scale”. If we click on this “Nominal” text, it will bring up a window that allows us to select “Scale” instead. Once we've done that, our data set is ready for us to conduct our analysis.

Just like in R Commander, we're first going to look at descriptive statistics between groups. To do this, we will navigate to “Analyze”, “Descriptive Statistics”, and “Explore”. First, we need to select with what our dependent variable is. This is the numeric variable that we want to look at descriptive statistics for between groups. We will select “education” and use the arrow to move it into the “Dependent List” field. Next, we want to fill in this “Factor List” field. This is the categorical variable or the grouping variable that we want descriptive statistics for each level of. We will select “switch” and move it to “Factor List”. We can go into “Statistics” and select which statistics we want. In this case, “Descriptives” is fine. It’s our default here, but if you wanted to look at outliers or percentiles, you could also do that.

Once we click “Continue” and “OK”, SPSS will produce descriptive statistics by group. If we look at this “Descriptives” section here, we can see our two levels of “switch”, “no” and “yes”. So, this is families that did not switch to a new well and families that did switch to a new well. We can see our mean and our standard deviation, as well as some other statistics like the median, variance, minimum, maximum range, et cetera. Once again, we can see that our mean is 4.47 in families that did not switch wells and 5.09 in families that did switch wells.

In order to conduct our independent samples *t* test, we will navigate to “Analyze”, “Compare Means and Proportions”, and “ Independent Samples T Test”. Our “Test Variable” is the variable that we want to look at or look for a difference between the two groups. This is “education”, so we're comparing levels of education within the grouping variable of families that did or did not switch wells. Once we select “education”, we can use the arrow to move it into the “Test Variable” field. Our “Grouping Variable” is the variable that determines our two groups, which in this case is “switch”. Once we select “switch”, we can use the arrow to move it into the “Grouping Variable” field.

The next thing we need to do is define our groups. When we click the “Define Groups” button. This will bring up a window where we can define what the two groups are. In order to do this, we need to type in the two levels of our grouping variable, which is “switch”. You can remember from the data set that the two levels are “no” and “yes”. We can fill these two in accordingly. If you filled them in in the other order, so group 1 was “yes” and group 2 is “no”, you would get the same result, just a different sign. So it would be comparing “yes” to “no” instead of “no” to “yes”. Once we click “Continue”, we will see that our grouping variable has filled in with our levels. This indicates that the grouping variable is “switch” and the levels are “no” and “yes”.

Next, we can click “OK” and SPSS will run our independent samples *t* test. This gives us our output for our independent samples *t* test, and in the next video we will go over how to interpret this output as well as the output from R Commander.