Hello everyone!

Today I want to talk about how to convert a download from a Student Information System, such as infinite campus, to easy to read graphs using pivot tables in Excel.

This is a table of data I downloaded from the SWIS demo site. Because the student names are dummy data, you wont have to burn out your eyes after viewing this video. I have formatted this file to resemble what you might get from an infinite campus download.

These files typically come as a comma separated, or csv file, so the first thing I want to do is to convert it to excel. To do this, I simply go up to the file menu and click "save as" or "Save a copy." Notice up here, it says that this is a csv file. I just click on the dropdown menu, click on excel workbook, and click save, and voila! It is now an excel workbook. Notice that it looks exactly the same, but don't let looks deceive you! This excel workbook will be more functional for you.

Now, notice that this data set is in a table format. It has records of individual behavior incidents in the rows, and the columns are the variables that are included in the office referrals. A pivot table is also a table, but it allows you to quickly and easily change the variables we are looking at, and to filter out extraneous data so that we can easily drill down. This allows us to isolate the problem and surrounding contextual information that we want to solve, so that our response can be targeted to exactly what is happening. So, let's get started.

The first thing I'm going to do is to click on this box in the upper left hand corner of my data set. This highlights all of the data on the page. Next, I will select "Insert" from the menu ribbon, then click on "Pivot Table". A dialogue box pops up that just asks me where I want the pivot table to be located. I can choose a worksheet and cell to insert the table, or I can just go with the default, which is to create a new worksheet. I think I'll do this.

If you are not familiar with a pivot table, this looks a little intimidating, but it is really kind of simple. The "Pivot Table Fields" list over here is where I choose what goes into my pivot table, and the pivot table itself will appear over here. Now, sometimes, you can be in a worksheet with a pivot table, and you won't see the pivot table fields list. This is caused by one of two reasons: First, you have to be clicked *on* the pivot table to see the pivot table fields list. If you click on any cell that is not on the pivot table, the pivot table fields list will disappear. Second, when you click on the pivot table, a Pivot Table analyze option appears on the menu ribbon. Notice over on the right hand side there is a pivot table fields list button. If this is not activated, the filed list will not show. So, go ahead and click on this button to show the field list.

So, what is the pivot table fields list. As I just mentioned, this is where you choose what you want in your table. This box contains *all* of the variables in your original data set. I decide what goes into my pivot table by dragging and dropping variables into one of the four boxes below.

As I mentioned earlier, a table consists of rows, or records, and columns, or variables. Notice I have a box for rows and columns. You also have to have something you are counting. That goes into the "values" box. We are looking at discipline incidents, so to me it makes the most sense to count behaviors. In our data set, behaviors are listed under the event name column. So, I find "Event Name" in my list of

variables, and I drag it down and drop it in the values box. "Event names" is textual data, so excel, being smarter than your average bear, assumes that you want to count this information.

So, notice the total number of events occurs here on the pivot table. If I want to know how many events by type of behavior occurred, I can drag the same variable down and plunk it into rows, because in this data set, the names of each behavior is listed in the event name column.

So now we have a table with one row and one column. This is the easiest way to interpret data, and most easy to read graphs chart a dependent variable and an independent variable. The dependent variable changes when you have a change in the independent variable. So you can think of what you pulled to the values box as the dependent variable, and what you pulled to the rows box as the independent variable.

The columns box lets me add another independent variable to the mix. So, let's say I pull locations into the columns. This will add a column for every location where an incident occurred. Now I can easily see where each of my behaviors occurred, but because there are no gridlines, it gets a little harder to read, and is also harder to graph. So, again, I usually just use one independent variable and one dependent variable.

That said, part of the power of the pivot table is that I can quickly switch out my independent variable simply by removing the variable in the rows, and exchanging it for another variable. Here, I switch out event name for location. Now, I can easily see how many incidents occurred in the different locations. I can also switch out locations for student last names. Now I have a list of the number of referrals by student. A word of caution: if you have multiple students with the same last name, the pivot table will combine all of their referrals under the one record. It is better to use a unique identifier, such as student number.

So, you probably noticed that there is still one box that we haven't used yet. The filter box lets us choose a variable we want to isolate. So, lets say that I noticed that defiance is the most frequent problem behavior, and I want to see which students have been written up for defiance. I can drag "Event Name" into the filter box, then check the "Select Multiple Items" box. When I click on all at the top, it clears all of the checks, so that now I can just check the box for defiance. This tells the pivot table that I only want to look at referrals for defiance. So, now we see that the list of students has shrunk to only include those students who were written up for defiance. If I want to see where the defiance is occurring, I can switch out the student names for the location.

An important way to use the filters is to select a date range. The pivot table is going to show all incidents for the year to date. I once worked with a school that had something like 3000 incidents written up for tardies at the beginning of the year. They came up with an intervention that was focused on reteaching and reinforcing students for getting to class on time, and were able to dramatically decrease their tardies. But because they had so many tardies at the beginning of the year, a cumulative graph is likely to show tardies as their biggest problem for the rest of the year, even though they really solved that problem back in September. So, we would recommend that you look at data one month at a time. The easiest way to do this is to drag date of incident into the filter box, clear all of the boxes, then select the date range you want to look at. In this example, I am just selecting dates in august to isolate incidents that occurred in august.

So, the last thing I want to show you is how to run a graph from a pivot table. There are really two ways to get to the same place. First, click anywhere on the table. Then, from the pivot table analyze item on your menu ribbon, select pivot chart. This will automatically chart the data in a pivot table. The other way is to click on anywhere on the pivot table and insert a graph the old fashioned way: by going to insert and select the type of graph you want.

So, a couple of things I want you to notice about these graphs: first, they have these buttons that appear on the graph. Any button with a dropdown arrow will let you filter out variables directly from the graph. The other buttons just tell you what variables you are looking at. If I'm creating a graph for a publication, I don't really want to see these, so I can right click on any of them and then click on one of the "Hide Field Buttons on Chart" options. This just makes the chart look cleaner.

The other thing I want you to notice is that the chart is linked to the pivot table. Any change I make on the pivot table is reflected by a change on the chart. This is both really cool and really annoying. It is cool because I can immediate see a new chart with different independent variables or different filters. It is annoying because if I want to run, say, a big 5 report, my chart keeps changing every time I change the independent variable.

The easiest workaround for this is to copy the graph and the paste it somewhere as a picture. A picture is just an image of the pivot chart and no longer changes no matter what you do to the pivot table. You can then just copy and paste these images into a word doc and share with your team, the staff or other stakeholders.

This just about wraps up all I wanted to say about pivot tables. I hope you found it helpful. If you have any questions, please feel free to reach out to me at wayg@missouri.edu. Thank you for watching and have a great day!