619 Placement (B6) Data: Division Analysis

Analyzing your division's preschool special education placement data is not difficult. It can actually be fun. (Ok, maybe not everyone's definition of fun.) If you haven't played with your data in Excel here is a step-by-step guide. Although it may not become your new favorite hobby, it is (honestly) relatively easy to use and can provide you some insights. (Hint: There are tons of free "how to" Excel videos on line, YouTube, etc. If you get stuck, "Google it.")

STEP ONE: GET YOUR 619 DATA

1. Find the person in your agency that can supply you with the data you seek. *(You may also be able to get your data "back" from the VDOE. Check with your supervisor to find out who can make this request.)*

2. If that person knows the data pretty well talk to them first about what you want to do. Examples:
   a. Look at 619 placement data across schools
   b. Look at longitudinal (trend) data
   c. Look for differences in placement across populations

   They may have additional suggestions and may be able to assist you with Excel if you get stuck.

3. Let them know you want to "play with the data" in Excel and would like:
   a. Child-level record data
   b. Multiple years of data (3 years is an acceptable minimum for trends)
   c. All the data on a single Excel worksheet ("tab") or at least each year's data on a single sheet (that you can append together)

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4. Request easy to understand column headers. This may require someone to translate and edit what can sometimes be truncated field names.

   Alternatively, if there is a data dictionary for your local system, you can spend time reading it to find all the correct field names, definitions, etc. and bring that list to them. However, chances are they can make it happen quicker than your reading the data dictionary. **IMPORTANT:** Be sure that the person supplying the data understands all the variables you want. Spending a few minutes together going over the list to confirm a mutual understanding is time well spent.

Student level data to request

a. Year (school year, or child count year)
b. Race (*If variables are numeric codes, ask them to translate to text. Or you can do it, see page 2.*)
   1. American Indian/Alaska Native
   2. Asian
   3. Black/African American
   4. Hispanic
   5. White
   6. Native Hawaiian/Other Pacific Islander
   7. 2 or more races
c. Gender (M or F)
d. Grade (PK or K)
e. Primary Disability *(You could ask for secondary disability if desired. While informative for some analyses, it makes analyses more complex.)*
   1. Intellectual Disability
   2. Hearing Impaired
   3. Speech/Lang Impairment
   4. Visual Impairment
   5. Emotional Disturbance
   6. Orthopedic Impairment
   7. Other Health Impairment
   8. Specific Learning Disability
   9. Deaf Blind
   10. Multiple Disabilities
   11. Autism
   12. Traumatic Brain Injury
   13. Developmental Delay
f. Placement
   1. Regular Early Childhood Program
   2. Special Ed Separate Class
   3. Special Ed Separate School
   4. Special Ed Residential Facility
   5. Home
   6. Service Provider Location
g. Birth date
h. Age as of child count date for that school year
i. Age at Entry (*If available*)
j. Entry Date *(Age at entry can be calculated)*
k. School or Building
l. ESL, Migrant, Head Start, etc.: Any other data that may inform your work.

STEP TWO: PREPARE YOUR 619 DATA

Your requested data will probably come in something like the view below (with rows of student level data beneath these column headers.) Preparing your data for Excel can take a bit of work (this is the hardest part). **Again, use other resources whenever it makes sense**, such as someone who knows Excel and/or online resources (see Step Four). If you've been given columns of data you won't use, simply delete the column.

Child Name or other PII	Year	Race/ Ethnicity	Gender	Grade Level	Primary Disability	Placement	Birth date	Entry Date	Building Code	ESL Services	MISSING: Age (in Months) at Entry s	Count
Student 1	2015-16	White	F	K	VI	Reg EC Prog	10-18-2014	03-21-2015	00987	N	To be calculated	1
Student 2	2015-16	Hispanic	M	PK	AUT	Home	12-08-2014	12-11-2015	00654	N	See text	1

Some things to consider:

1. You may have requested <mark>student level, personally identifiable information</mark> (First Name, Last Name, ID Code, etc.) depending on your need. These fields are not necessary for most analyses so were not listed above.

2. The order of the columns is not important. Columns can easily be moved (and added) in Excel.

3. Because much of the work you'll be asking of Excel is counting instances (e.g., number of students by race in various placements) it is handy to have a column that simply has the number one for each record (row). Add a column called 'Count' in Excel. Put the number 1 in the top cell (probably row 2). Then double click the tiny box in the lower right corner of the cell on row 2 with the number 1 in it. It will copy this value to all rows below.

4. **This paragraph is for someone with moderate comfort with Excel**. If you requested 'Age at Entry' but it was not available, here is a calculation you can use in Excel to have it calculate the number of months between two dates:
   a. Add a new column entitled Age in Months at Entry
   b. In the top data cell of that column (here assumed as row 2) add this function:
   =(YEAR(C2)-YEAR(E2))*12+MONTH(C2)-MONTH(E2)
   c. Where column C is 'Entry Date' and column E is 'Date of Birth'.
   d. Copy the formula down remaining rows to provide the age in months for each record.

5. Many people find it easier, more intuitive, to work with cells that have descriptive text rather than numeric "codes." Text codes are easier to read when selecting variables and when Excel populates charts and tables.

(Otherwise you'd see a code number, e.g., "86," as the row or column title in a table, or under a bar in a chart. It would be much more intuitive if the label read what the code meant, e.g., AUT, Service Provider, or Washington Elem School.) If you received text in all the columns you need great. However, if some columns have codes and you'd prefer text, you can work with Excel to change any numeric code to text. First find a key so you know what the numeric codes represent. (There are multiple ways to do change codes to text. One way is briefly described in the paragraph below. Another is to have someone in the office show you how.)

This paragraph is for someone with moderate comfort with Excel. A nested "IF" function in Excel is one way to change cell content into something else. For this example, suppose in column A heading is Color. But the colors were given numeric codes and we'd prefer the actual text, in this case the color name. We want to change the number 1 to yellow, 2 to green, and 3 to purple. (You are not limited to three nestings of IF statements, only in this example.) In Excel we could nest IF statements to change numbers to the name of the color. For the above, the nested IF function would be:
=IF(A2=1,"yellow",IF(A2=2,"green",IF(A2=3,"purple",FALSE)))

Anything NOT a 1, 2, 3 would come back as FALSE (or whatever you want it to be.) These can get tricky, especially when many IF statements are nested together for changing a lot of codes. Check videos or ask someone in the office who can help you.

6. **Save your file frequently**. Especially if you are new to Excel, you may want to save different iterations along the way. So that you can go back to your last version if needed. (Not that this author has ever had to do that!!)

Once your data are in Excel using a pivot chart and pivot table is an easy way to "play" with your data. Pivot charts and tables provide both a table with rows and columns of numbers, and generate a visual chart showing the data. You can further refine your data views, capture them for later use, or create new data views very quickly. The remainder of this section describes how to put your data into a pivot chart and table. Remember there are lots of videos on this.

Before you get started, make sure your data is organized in a tabular format, with no blank rows or columns. Ideally, you'll have a fully populated Excel table similar to the above example. Data in each column should be the same type. In other words, don't mix dates and text *in the same column*.

PivotTables work on a snapshot of your data, called so your actual data doesn't get altered in any way.

1. Highlight the data in your worksheet. With one click you can click the cell in the upper left corner above row #1 and to the left of the letter A.

2. Below is based on MS Excel 2013, but earlier versions are similar. Google your version number along with: "create pivot chart" for steps specific to your version.

On the ribbon, go to Insert > Charts > PivotChart>Pivot Chart & PivotTable (you could just select pivot table, but the charting function is recommended and just as easy).

(If you're using Excel for Mac 2011 and earlier, the PivotTable button is on the Data tab in the Analysis group.)
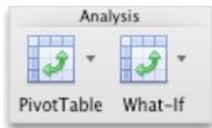
3. Excel will display the Create PivotTable dialog box with your range or table name selected.

4. In the Choose where you want the PivotTable report to be placed section, select New Worksheet as shown below.
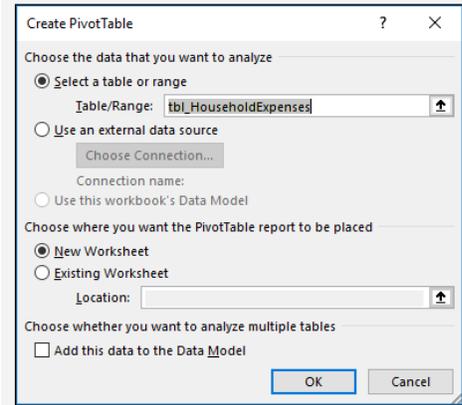
5. Note that you could include multiple tables or data sources in your PivotTable, by clicking Add this data to the Data Model check box—but this is not recommended, and not needed if all your data are in one worksheet already.

6. Click OK, and Excel will create a new worksheet with a blank PivotTable, and display the PivotTable Fieldslist. Your original data sheet is not altered.

Now the fun begins. The pivot lets you manipulate your data in different ways showing you what relationships looks like. Try this exercise (based on the field names above) to look at your **Placement data in relation to your Primary Disability data**.

1. On the new pivotchart worksheet that opened, your data columns are listed in the top right with checkboxes. Put a check in the "COUNT" box. Then drag the word COUNT down to the lower right of the pivot worksheet and drop it in the area with the word "VALUES" (proceeded by the Σ, the summation sign.) A single column (bar) should have appeared in the chart and the Y axis (the vertical axis) will have populated accordingly showing you the total number of records. (For added fun, mouse over it to see the N for the actual number of records.)

2. Our real investigation is to look at the relationship between PLACEMENT and PRIMARY DISABILITY. So click PLACEMENT in the top right (leave Count where it is). Now move the word PLACEMENT down to where is says LEGEND and drop it.

3. What should have happened is that all of your records that were in a solitary column are now divided across multiple columns with each representing the number of records assigned that PLACEMENT type. So you have one for Reg Early Childhood Program, one for Separate Class, one for Home, etc.

4. (If you have only one year of data, skip this step.) If you want to look at just one year of PLACEMENT data at a time (we'll get to PRIMARY DISABILITY in the next step!) then go to YEAR in the top right. Click it, but don't move it. You'll see a filter icon (funnel) to the right of the word YEAR. Click the down triangle to the right of the icon and you'll see the years of data you have. Click any one year you want to see. The data in the chart (and the corresponding table that is always showing) changes and now you are looking at a graph of your PLACEMENT data for the YEAR you selected.

5. Now let's look at this one year of PLACEMENT data by PRIMARY DISABILITY. Because we want to display the data in a way that supports easy comparisons of these two variables we are going to change the chart type. You want make sure the chart with the bars is highlighted with small little boxes around the outside perimeter. A total of eight little boxes, three on each side. (You can also highlight the actual chart within the window with the chart.) Once you see the little squares go to the ribbon and go to Insert > Charts > Recommended Charts and you'll where you can view different chart types. This is an area that you can explore to find the view that you believe best fits your data. For this example select the word Column in the list to the left and then select on top the 100% stacked column type. Then hit OK.

6. What should have happened is that the separate columns of PLACEMENT data should have stacked on top of each other and the Y axis should have turned to %. The PLACMENT data should be different colors (and there should be a key that populated earlier to define the colors). Now we want to add the PRIMARY DISABILITY variable. Really what we want is to separate out all the PLACEMENT data, that is already in the chart, into each separate PRIMARY DISABILITY. Right now all the records are only separated out by PLACEMENT and by YEAR.

Put a check mark next to PRIMARY DISABILITY in the upper right. Bingo! All the PLACEMENT data is now separated into individual groupings by each PRIMARY DISABILITY. Moreover, because we selected a 100% stacked column the display is by percent (not numbers). So we easily compare the proportional PLACEMENTS by each PRIMARY DISABILITY. (Of course the numbers of some disabilities are quite small and that must always be a consideration when comparing data. A discussion of cell size is outside the scope of this short handout. But a caution is in order when interpreting data, especially with small N sizes.)

PLACEMENT by PRIMARY DISABILITY is just one example of data you can investigate. Within the pivot you can select and deselect fields, change chart types, look at three way comparisons, develop multiyear trend views, copy and paste charts and tables into Word docs, develop a report for the board, etc. Pivot charts and tables support easy data exploration allowing you to see relationships. If you've read this far hopefully you enjoyed enough to continue on your own.

Here are some other analyses that can be replicated similar to the above example:
  a. PLACEMENT by RACE/ETHNICITY
  b. PLACEMENT by BUILDING
  c. AGE AT ENTRY by RACE/ETHNICITY
  d. DISABILITY by AGE at ENTRY
  e. PLACEMENT by GRADE

Reminders:
- Go online and learn more about pivots. Talk to others who use them.
- When you select variables you are really deselecting others. Check your filters. (Paying close attention to your N size is a quick way to check that you've got all the expected records.)
- (Unfortunately) Colors will not be consistent across charts.
- You cannot break your data with a pivot. Your data remain on the other worksheet and are not changing; the pivot is simply "counting" your data and displaying it as you direct.

As you investigate your data share it with those with a vested interest. (Suggestion: Before reporting data to the board, double check your findings. Have someone else who knows Excel double check your work.) Ask those who might know questions about the data. Is this expected? Why or why not? Do these building level differences make sense? What might populations might we focus on in a different way? How should we prioritize our work based on how we are interpreting the data?

Resources

Disclaimer: This is not a definitive source for pivot tables, pivot charts, Excel, or preschool special education placement data. There are lots of resources out there, a few of which are listed below.

The *DaSy Data Visualization Toolkit* is an excellent resource to assist with data displays.
The Center for IDEA Early Childhood Data Systems (DaSy)[1]
The Early Childhood Technical Assistance Center (ECTA Centers)
How to Learn Excel: The 10 Best Resources on the Internet (many of which are free.)

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[1] This handout was developed by: DaSy (The Center for IDEA Early Childhood Data Systems), *Powerful Data for 619* Cohort, Nov 4, 2016