Toolkit

Excel analysis tool

Directions

Before filling out the *Excel analysis tool*, please email June Rall at IPDAE, jrall@irsc.edu, the teacher name/ID, strategy selected, start date and end date, and total number of hours on instruction available for students for the instructional cycle for data collection.

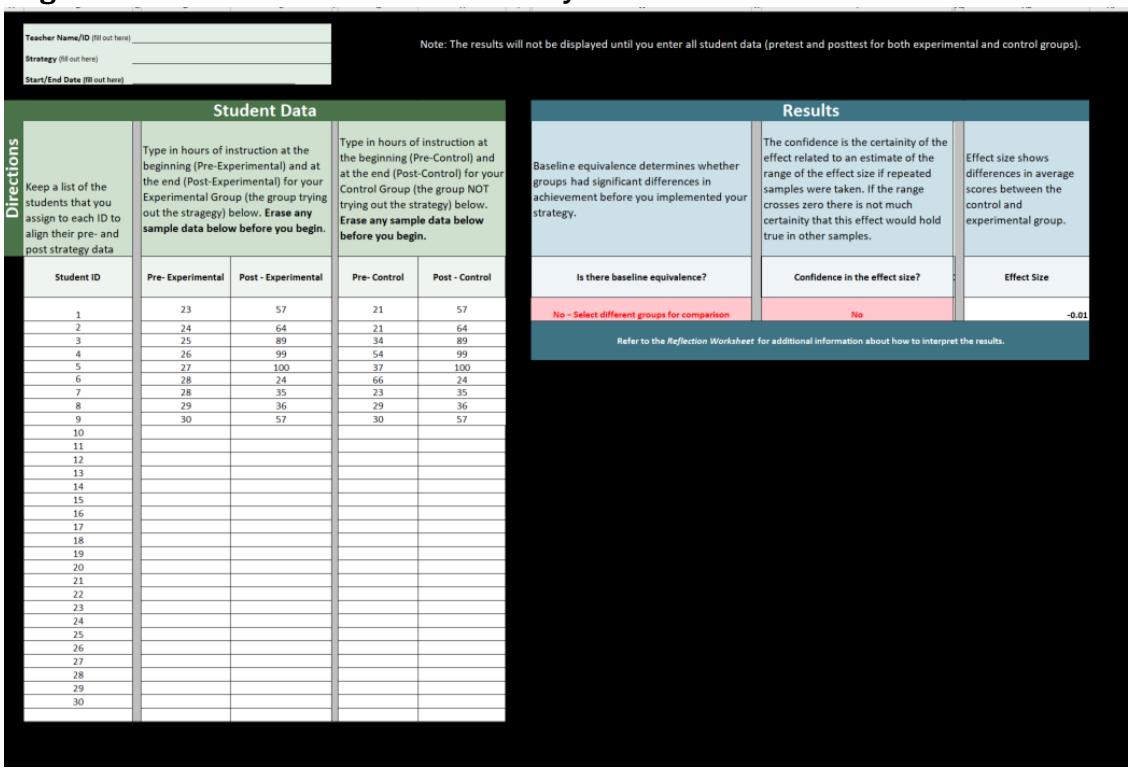
The *Excel analysis tool* will help you analyze the results of the strategy you selected and will implement. Follow the steps below to conduct your analysis.

How to use the *Excel analysis tool*

Enter the Teacher Name/ID, Strategy selected, and Start/End Date for data collection in the top left box of the spreadsheet.

Assign a Student ID number (1-30 are listed) for each of the students receiving the strategy and each of the students in the control group. Keep a list of the student numbers and the corresponding student names so that you can match pre- and post-strategy data. Locate the Student Data boxes on the spreadsheet which are highlighted in green. Double-click in each box in the Pre-Experimental, Post-Experimental, Pre-Control, and Post-Control columns and backspace to erase the sample data. Enter the data (hours of instruction students have received prior to strategy instruction) for the Experimental and Control groups before you begin implementing the chosen strategy. At the end of the instructional cycle, after strategy instruction is complete, enter the Post-Experimental and Post-Control Data (hours of instruction students have received after strategy instruction) for the Experimental and Control groups. Once the data are entered, the baseline equivalence, confidence, and effect size will show in the Results box (highlighted in blue). Guidance on how to interpret the results is provided after the screenshots below.

Figure EAT1. Screenshot from the *Excel Analysis tool*



Teacher Name/ID (fill out here) _____

Strategy (fill out here) _____

Start/End Date (fill out here) _____

Note: The results will not be displayed until you enter all student data (pretest and posttest for both experimental and control groups).

Student Data

Directions

Keep a list of the students that you assign to each ID to align their pre- and post strategy data

Type in hours of instruction at the beginning (Pre-Experimental) and at the end (Post-Experimental) for your Experimental Group (the group trying out the stragegy) below. **Erase any sample data below before you begin.**

Type in hours of instruction at the beginning (Pre-Control) and at the end (Post-Control) for your Control Group (the group NOT trying out the strategy) below. **Erase any sample data below before you begin.**

Student ID	Pre- Experimental	Post - Experimental	Pre- Control	Post - Control
1	23	57	21	57
2	24	64	21	64
3	25	89	34	89
4	26	99	54	99
5	27	100	37	100
6	28	24	66	24
7	28	35	23	35
8	29	36	29	36
9	30	57	30	57
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Results

Baseline equivalence	Confidence in the effect size?	Effect Size
Baseline equivalence determines whether groups had significant differences in achievement before you implemented your strategy.	The confidence is the certainity of the effect related to an estimate of the range of the effect size if repeated samples were taken. If the range crosses zero there is not much certainity that this effect would hold true in other samples.	Effect size shows differences in average scores between the control and experimental group.
No - Select different groups for comparison	No	-0.01

Refer to the *Reflection Worksheet* for additional information about how to interpret the results.

Using findings from the *Excel analysis tool*

After entering your data into the *Excel analysis tool*, look at the baseline equivalence, effect size, and confidence boxes in the Results section. These data provide information about how the implementation of a strategy may relate to student achievement in a given situation. Use figure RG1 below to help interpret your findings.

The effect size (last box on the Results screen) compares the scores on average from the comparison and experimental groups to show how much larger (or smaller) the average score is in the class where your new strategy was used compared with a class where it was not used. A positive effect means that the students who received the strategy did better on average, while a negative effect size means that the students who did not receive the strategy did better on average. The larger the effect size, the larger the difference between the groups. For example, an effect size of 0.50 indicates a larger effect than an effect size of 0.01.

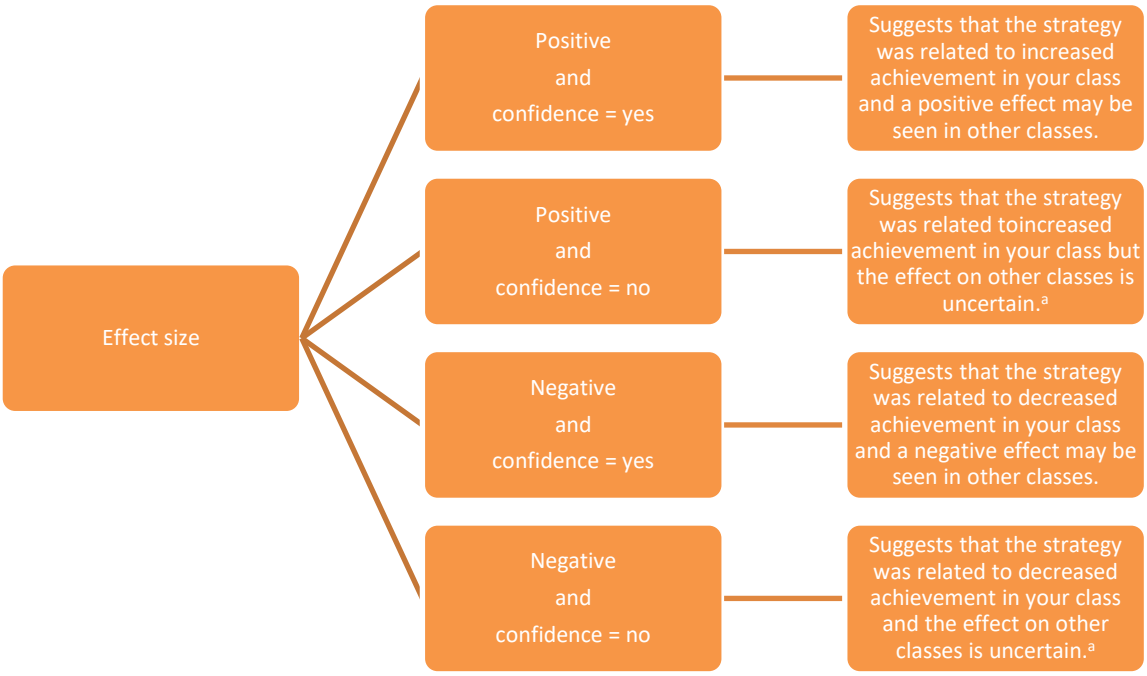
The confidence in the effect size (middle box) shows the level of certainty in the effect size by estimating what the range of the effect size would be if the study were repeated many times with different groups of students (confidence intervals). The reported effect size describes only the effect on your group of students, whereas the confidence shows what you could likely expect if you used the strategy again on another group. If there is no confidence, it is unclear whether this strategy would work again. The *Excel analysis tool* requires a confidence level of 90 percent, which means that it is 90 percent sure that the effect size would fall within a certain range if the study were repeated many times. If the range crosses zero (goes from negative to positive; for example, −0.1 to 0.5), it is uncertain whether the intervention would have a positive or a negative effect if implemented with a different group of students. Thus the results receive a "no" for confidence in the effect size. If the range does not cross 0, the results receive a "yes" for confidence in the effect size.

While the findings from one study cannot be used to conclusively state whether a strategy is effective, they do give some information about how that strategy worked in your setting.

What do your results mean?

Once all of your scores are entered, the *Excel analysis tool* provides an effect size and information on the confidence in the effect size. Your effect size can either be positive or negative, and there can either be confidence in your effect size or no confidence in your effect size. Figure RG1 can help you interpret the four possible effect size findings from the *Excel analysis tool*.

Figure RG1. Interpreting effect sizes



a. If there is no confidence, interpret the results cautiously because they cannot be distinguished from a finding of no effect.

Source: Authors' compilation.

Regardless of the magnitude of effect size (closer to either +1 or -1) or whether it was positive or negative, remember to consider and reflect on other information you have when interpreting the findings.