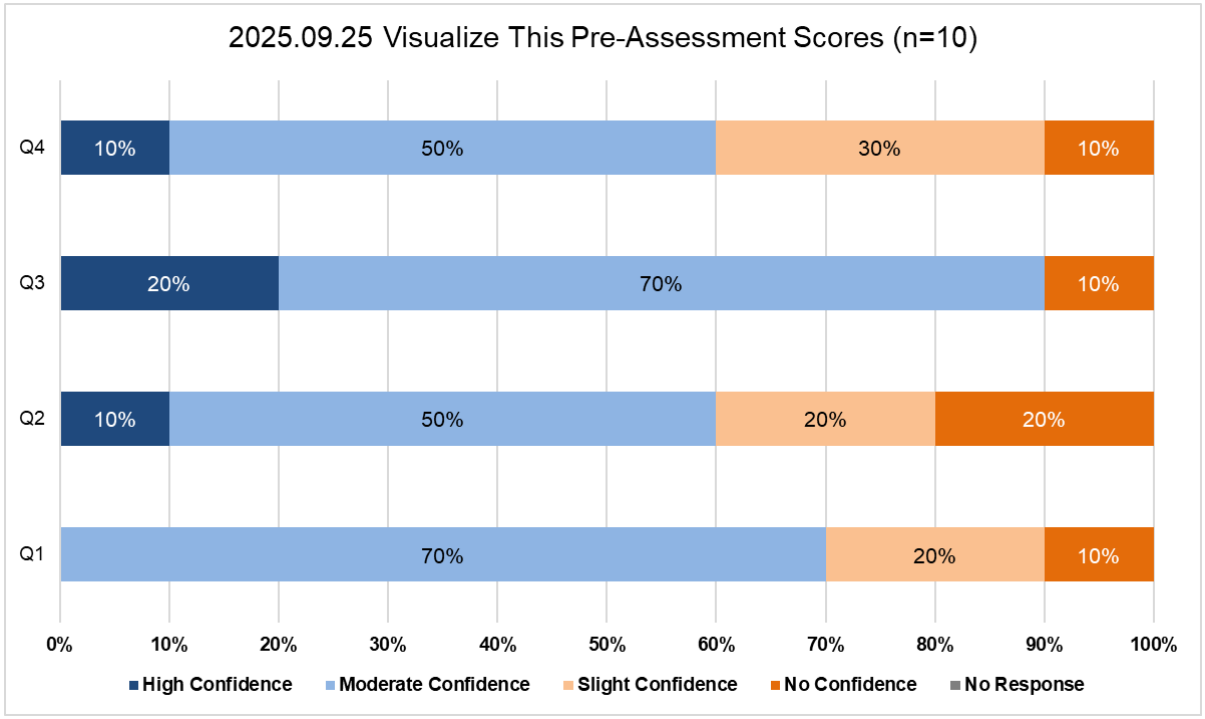
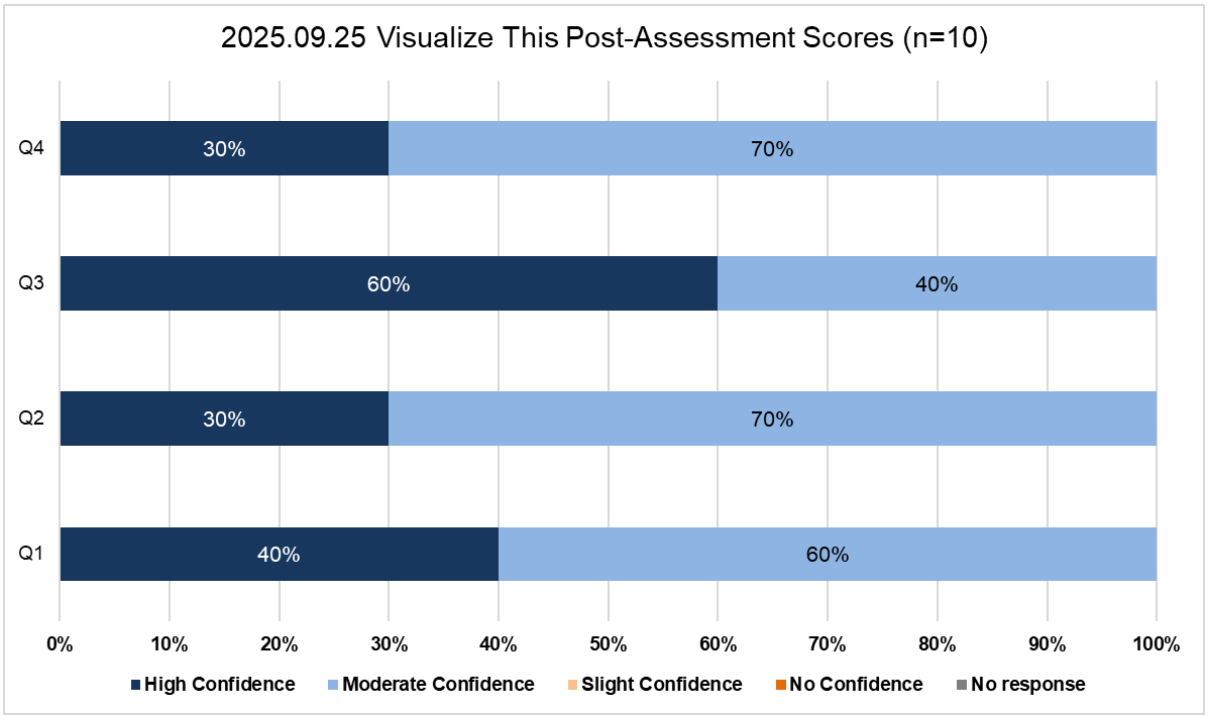
Pre/Post assessment comparison example charts

***** Instructions for how to make charts from evaluation data: VT2 line, stacked bar, and map instructions**





Pre/Post assessment evaluation with matched data

Pre-Assessment Results M

Response	Q1	Q2	Q3	Q4
1	3	4	3	3
2	1	1	1	1
3	3	3	3	3
4	3	3	3	2
5	3	2	3	3
6	3	3	4	4
7	3	3	3	3
8	3	3	3	3
9	2	2	4	2
10	2	1	3	2

Post-Assessment Res

Response	Q1	Q2	Q3	Q4
1	4	4	4	4
2	3	3	3	3
3	4	3	4	3
4	4	4	4	4
5	4	3	3	3
6	3	3	4	4
7	3	4	4	3
8	3	3	3	3
9	3	3	4	3
10	3	3	3	3

Here we have pre and post evaluation data from one of our previous Visualize This trainings. There are 10 total respondents, and this data is matched, meaning each respondent answered both the pre and post questions (even if they responded “no answer” to the question).

Here is the code for the number data:

High Confidence	4
Moderate Confidence	3
Slight Confidence	2
No Confidence	1
No Answer	5

We want to compare the average scores for the pre- and post-assessments to see how the confidence levels of our attendees (based on our 4 training objective questions) were changed by our training. We can calculate this by dividing the total sum of attendee responses (excluding the non-answers, which equals the number 5) by the total number of attendees that answered the pre- and post-assessment questions. This table shows the average pre-assessment scores for questions 1-4.

sum exclude 5	26	25	30	26
Count exclude 5	10	10	10	10
Average	2.6	2.5	3	2.6

The following 2 pictures show examples of the “sumif” and “countif” functions in excel. The highlighted numbers are the range of data in the table, and the “<5” criteria means that Excel will only count numbers the numbers 1-4, which correspond to the confidence levels respondents rate themselves. We do not want to sum or count non-answers, or responses that equal 5.

sum exclude 5	=SUMIF(E4:E46,"<5")		30	26
Count exclude 5		10	10	10
Average	2.6	2.5	3	2.6

SUMIF(range, criteria, [sum_range])

sum exclude 5	26	25	30	26
Count exclude 5	=COUNTIF(E4:E46, "<5")		10	10
Average	2.6	2.5	3	2.6

The average is score for each question is calculated by dividing the sum and count rows.

sum exclude 5	26	25	30	26
Count exclude 5	10	10	10	10
Average	=E70/E71	2.5	3	2.6

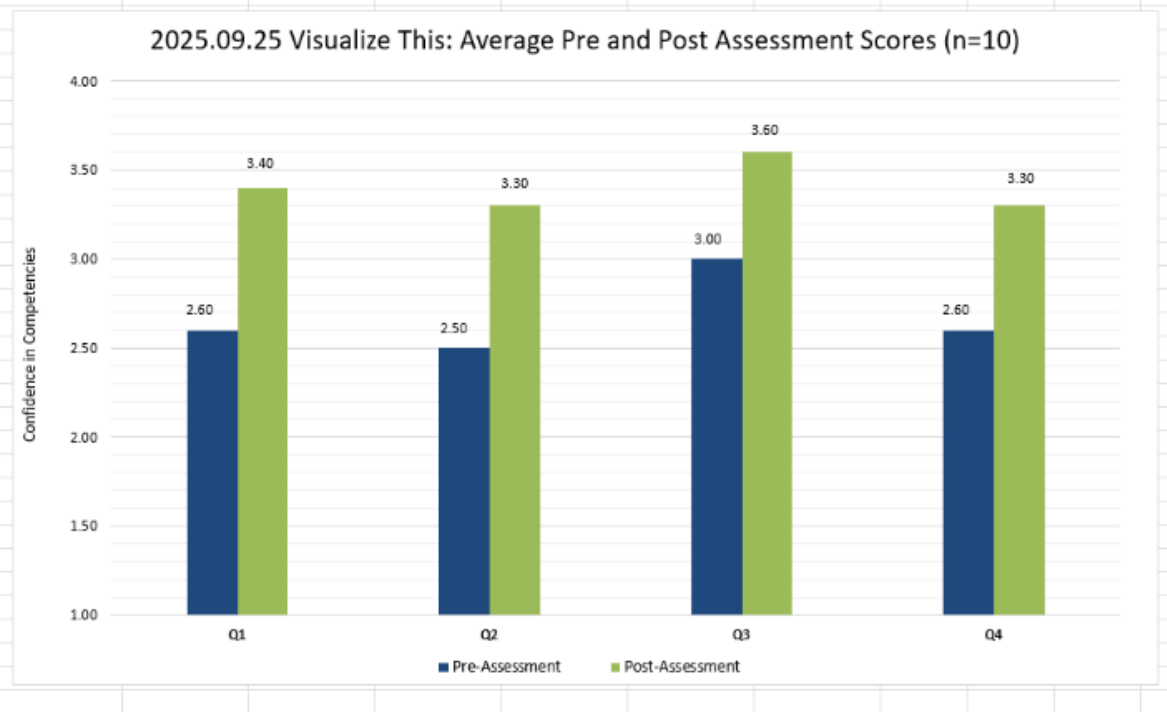
Repeat this process to get the averages for the post-assessment scores.

sum exclude 5	34	33	36	33
Count exclude 5	10	10	10	10
Average	3.4	3.3	3.6	3.3

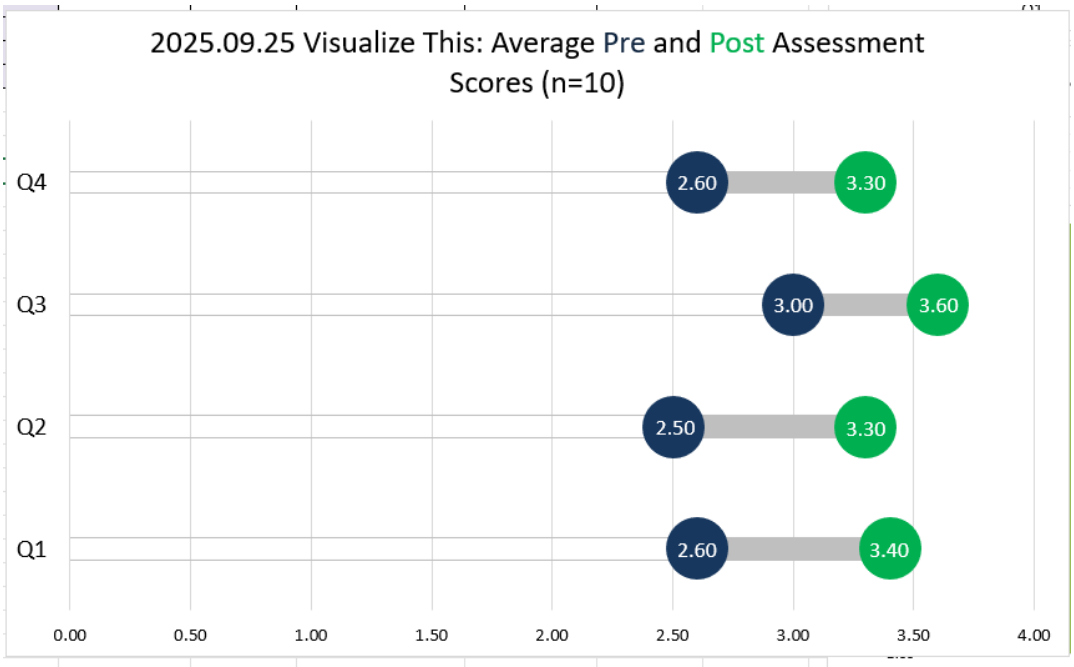
The pre- and post-assessment average scores were reformatted into a table in order to creat a chart.

48	I am able to...	Pre-Assessment	Post-Assessment
49	Q1	2.60	3.40
50	Q2	2.50	3.30
51	Q3	3.00	3.60
52	Q4	2.60	3.30
53			

After creating and formatting the chart below, we can see the change in scores from before and after the training.



Here is an alternate version of this chart. Directions to create this can be found here: https://stephanieevergreen.com/horizontal-dumbbell-dot-plots-easier/



Additionally, we can also create a chart showing percent change between pre- and post-assessment scores. The percent change formula for this example is equal to the post-assessment average score minus the pre-assessment average score divided by the pre-assessment average score.

Percent Change

$$\text{Percent Change} = \frac{\text{New Value} - \text{Old Value}}{\text{Old Value}} \times 100\%$$

If the result is positive, it is an increase.
If the result is negative, it is a decrease.

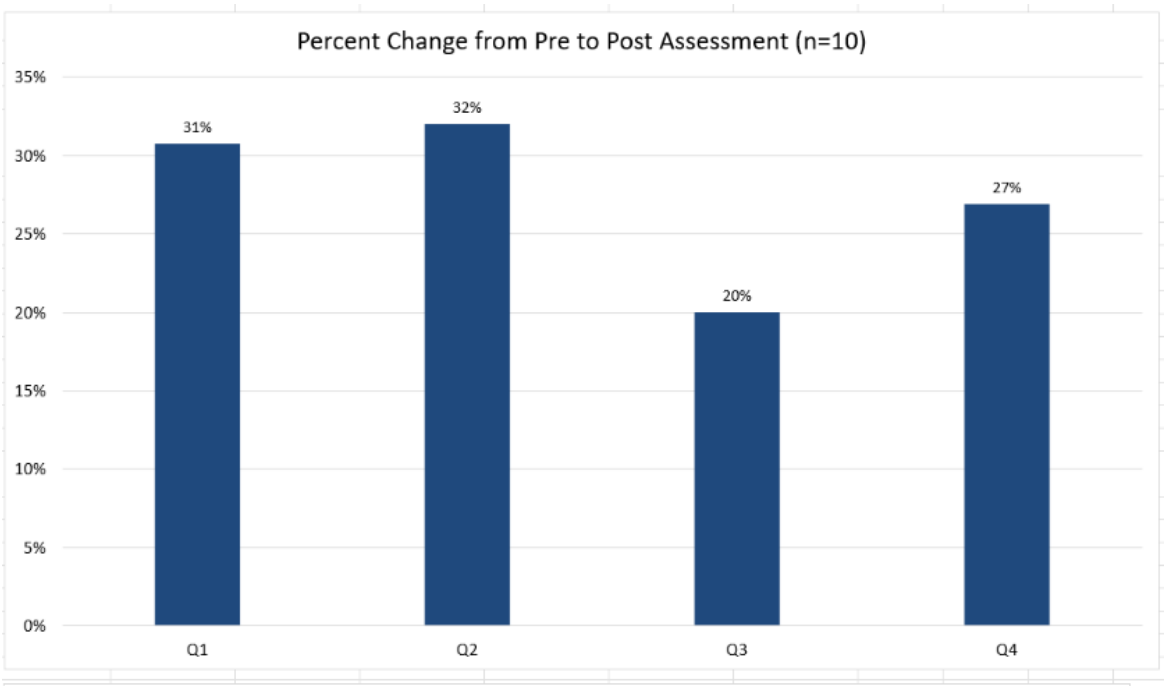
Here is an example of how to use functions to calculate these values in Excel.

Percent Change Table				
Pre Average Score	2.6	2.5	3	2.6
Post Average Score	3.4	3.3	3.6	3.3
Change in score	0.8	0.8	0.6	0.7
Percent Change	31%	32%	20%	27%

Percent Change Table				
Pre Average Score	2.6	2.5	3	2.6
Post Average Score	3.4	3.3	3.6	3.3
Change in score	=E91-E90	0.8	0.6	0.7
Percent Change	31%	32%	20%	27%

Percent Change Table				
Pre Average Score	2.6	2.5	3	2.6
Post Average Score	3.4	3.3	3.6	3.3
Change in score	0.8	0.8	0.6	0.7
Percent Change	=E92/E90	32%	20%	27%

Take the corresponding percent change numbers and create a bar chart showing the percent change between the pre- and post- assessment average scores.


Percent Change from Pre to Post Assessment (n=10)
35%
30%
25%
20%
15%
10%
5%
0%
31%
32%
20%
27%
Q1
Q2
Q3
Q4