

### Developing Your QL Materials

Now that you have had a chance to brainstorm about QL in your classroom, begin developing your QL materials for a specific course.

<b>Name of Course</b>	Health Psychology
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<b>Course Level</b>	316
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<b>Possible subject Areas</b>	psychology
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<b>Identify quantitative concepts/skills that students will develop</b>	Develop logical thinking skills Read and critically analyze empirical research-based articles Data collection Expressing data in graphical form Descriptive statistics (central tendency)
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<b>Overview</b>	Students will design and carry out a health modification program to change an unwanted health-compromising behavior. They will track the frequency of their target behavior over time and graphically represent the data.
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<b>Background (if needed)</b>	
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<b>Describe/List the measurable outcomes or learning goals of your activity</b>	Understanding of empirical research literature and how it relates to the student's topic. Understanding of how to graphically represent data. Understanding how to interpret graphically represented data. Perform simple descriptive statistics, such as central tendency
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### MAIN ACTIVITY

#### Part 1: Description of the behavior

Students will identify a health behavior that he or she would like to modify. They will be required to write a properly referenced (APA style) introduction paper based on empirical research articles on their topic. They will also address how the target behavior may affect later health, based on materials covered throughout the course. They will describe the characteristics behavior and explain the factors of when, where, and how it occurs (or does not occur), including the antecedents and consequences of the behavior. The student will then use this information to determine how he or she might modify the identified behavior.

#### Part 2: Baseline data and project proposal

Students will be asked to keep track of how often the target behavior occurs (or does not

occur) for one week. They will turn in the raw data and a graphical representation of this baseline data. The specific factors surrounding the behavior as well as the consequences of the behavior will also be described. This information will be used by the student to assist in developing a behavior modification plan for the target behavior.

Students will need to answer the following questions:

1. Will the behavior need to be created, reduced or shaped?
2. What kinds of variables are reinforcing and/or punishing for the behavior?
3. What kind of reinforcement or punishment will be used in the modification plan?
4. How often will he or she apply reinforcement or punishment?
5. Are there others that may assist in maintaining the modification plan?

Students will be asked to write up a proposal on how they will attempt to change the target behavior over a 3-week period of time.

### **Part 3: Health behavior modification program**

The health behavior modification program will be carried out over a three-week period. After the student has carried out the entire behavior modification program, they will prepare a report on the program. This will include the two previous sections that were previously turned in – Description of the Behavior and the Modification Program (including baseline data and graphs). The third part of the assignment will include two more sections: Results and Discussion. In the results section, the student will report and graph the frequency of the target behavior over the 3-week period and explain the graph in detail. The instructor will lead a discussion about how graphing data can aide in expressing the findings (see example below). In addition, they will discuss the use of reinforcers and/or punishers (Did they work? Why or why not?). In the discussion section, students will discuss the overall findings, the strengths and weakness of the program, how seeing a visual representation on the numbers assisted in his or her understanding of the behavior and what could be done in the future to improve upon it.

Helpful links:

<http://einstein.cs.uri.edu/tutorials/csc101/pc/excel97/excel.html>

<http://www.ncsu.edu/labwrite/res/gt/gt-bar-home.html>

**Example data and graph for class discussion/lecture:**

Let's say that Imma Goodstudent decides that she wants to change her health behavior of eating sugary snacks, specifically she want to diminish the practice.

She collects the data for one week to establish her baseline. She will count how many times each day she has a sugary snack.

Monday: 7  
Tuesday: 5  
Wednesday: 5  
Thursday: 6  
Friday: 8  
Saturday: 11  
Sunday: 10

For the next three weeks, she will put the following plan into place. She will wear a rubber band on her wrist and will snap it whenever she wants such a snack. Additionally, she will ask her roommate and friends to tape unflattering photos of her they take of her eating sugary snacks on the outside her dorm room door whenever they catch her doing it. She will continue to track the number of times she has a sugary snack.

Monday: 2	Monday: 3	Monday: 3
Tuesday: 3	Tuesday: 2	Tuesday: 2
Wednesday: 6	Wednesday: 2	Wednesday: 2
Thursday: 5	Thursday: 3	Thursday: 1
Friday: 7	Friday: 4	Friday: 4
Saturday: 6	Saturday: 6	Saturday: 6
Sunday: 9	Sunday: 5	Sunday: 4

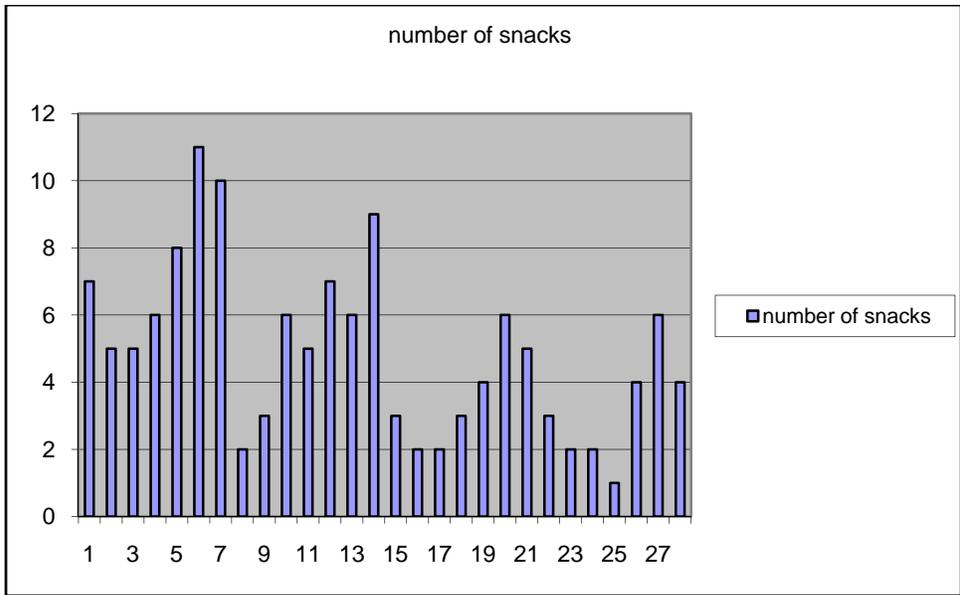
After the four weeks is up, she wants to see what effect her plan had. Did it reduce her snacking? **It is difficult to say just looking at the data.**

How could she present this in an easy to follow way? **Using a graph!!**

One way would be to show each day over the four-week program (a method often used by beginning students). Here is the data set:

**Snacks per day**

7	2	3	3
5	3	2	2
5	6	2	2
6	5	3	1
8	7	4	4
11	6	6	6
10	9	5	4



Is this the best way to present the data? **Not really.**

What is wrong with it? **There is too much information on there. It is confusing. It is still hard to see if there is any difference. It is very hard to read and understand.**

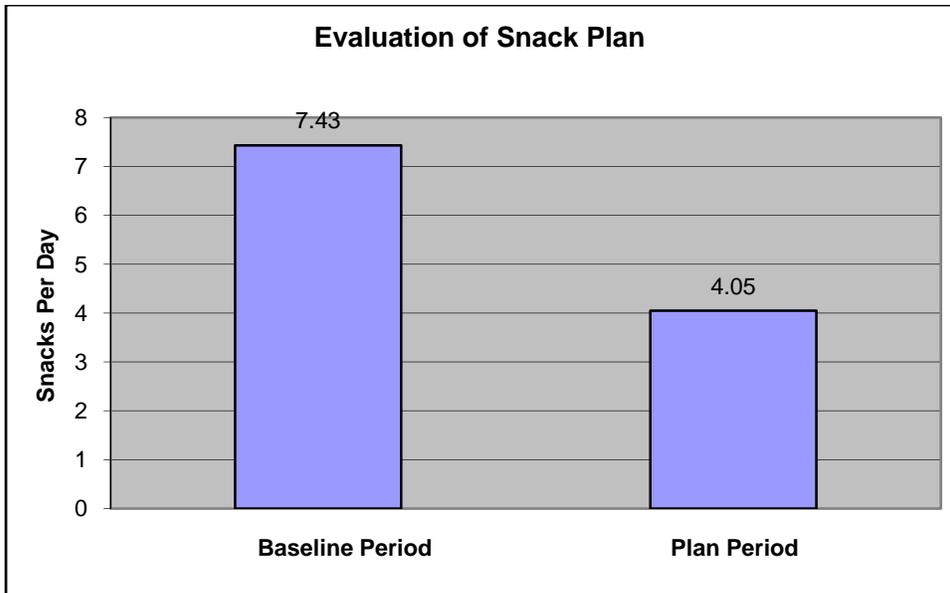
Perhaps it might look cleaner if we reduce the number of bars. What are we really looking for? **The difference between the baseline and after the plan is instituted.**

How could we reduce the bars to a more manageable number? **Find the average (mean) for each group of scores (baseline and after plan institution)**

How does one find the mean? **Take the sum of the score and divide by the number of scores.**

Baseline data	Using plan data		
7	2	3	3
5	3	2	2
5	6	2	2
6	5	3	1
8	7	4	4
11	6	6	6
<u>+10</u>	9	5	<u>+4</u>
7.43			4.05

Now we can place this into a simple bar graph.



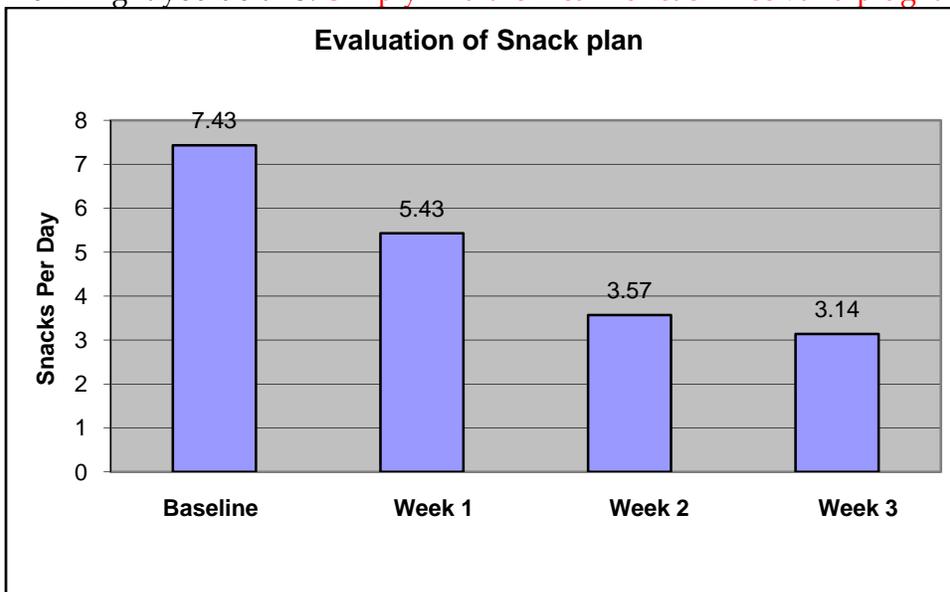
Now this looks better. What can we tell from this? **There was an effect. The plan seemed to work.**

Why can't we determine if the effect is statistically significant? **There was only one participant.**

What information is on the y-axis? **This shows the scale for the number of snacks.**

What information is on the x-axis? **This shows the two categories being compared.**

You could also look to compare the baseline vs. each other week, to see any trend while. How might you do this? **Simply find the mean for each week and plug it into the graph.**



This graph shows a definite trend. What do you think would happen if Imma kept going?

