The results are in!

Unit 3 - Lab 1

Directions: Follow along with the slides and answer the questions in **BOLDED** font in your journal.

The beauty of it all

- The nice thing about conducting experiments is that you can take the results and act on them.
- For instance, if one brand of laundry detergent is shown to be better at removing stains than another, then we can buy the better detergent.
- The experiment we conducted in class deals with people's perception of time.
- **Give an example of when you might want to perceive time as moving slowly.**
- **Write another example for when you might want to perceive time as moving quickly.**

Analyzing our experiment data

- In this lab, we'll ask you to analyze the data that were generated from your class' experiment.
- First things first: *Download*, *upload* and *load* your class' time perception data into RStudio.
- Be sure to `View` your data to get familiar with the variable names, values, etc.

Starting off simple

- Start by making a histogram or a dotplot of the `elapsed_time` variable.
- **Describe the *center*, *shape* and *spread* of the distribution**
- Now split the histogram or dotplot into two, one for each of the treatment groups.

- **Describe the *center*, *shape* and *spread* of each distribution**
- **Make a table in your journal that shows each group's `mean/median` and `standard deviation/IQR`.**
- **Compare the different distributions & summary statistics: How are they similar? How are they different? What do these similarities and differences tell us about how people perceive time?**

Try something advanced

- Try doing one or both of the following with your data:
- Use a `do`-loop to compute the differences in medians of each group for 300 random shuffles. Were the observed differences in your actual data really all that different? (Look at Unit 2 - Lab 6 for help)
- If your distributions look (roughly) *Normally* distributed, compute the probability of observing a more extreme value than the mean of the treatment group using the distribution of the control group. (Use the Unit 2 - Lab 14 lab if you need help remembering how to compute these values)

Bringing it all back together

- Answer the following questions in your data science journals: NA

- **How did the results of the experiment compare to the predictions you made before conducting the experiment?**
- **What effects did applying the treatment of the experiment *cause* to the treatment group?**
- **What are some real-world impacts of your experiment results?**