

CogLab: Communicate

WEEK 12

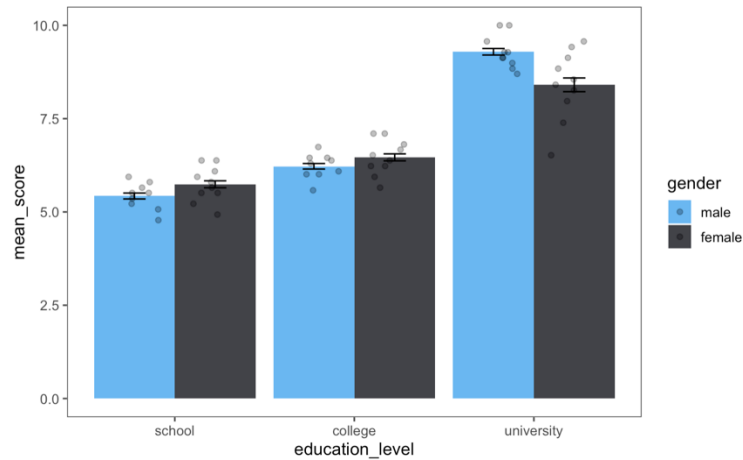
coming up

12	Thursday, November 21, 2024	Weeks 10-12: Data Collection
12	Friday, November 22, 2024	Project Milestone #6b (Analyses: Deadline 2) Due
13	Tuesday, November 26, 2024	THANKSGIVING BREAK!!! NO CLASS
13	Thursday, November 28, 2024	THANKSGIVING BREAK!!! NO CLASS
14	Monday, December 2, 2024	Formative Assignment (R Inferential) Due
14	Tuesday, December 3, 2024	W14: Odds and Ends
14	Wednesday, December 4, 2024	Project Milestone #7 (Poster Draft) Due
14	Thursday, December 5, 2024	W14 continued...
14	Sunday, December 8, 2024	Formative Assignment (R Inferential) Resubmission Due

today's agenda

- poster design principles
- data collection + analyses check-in

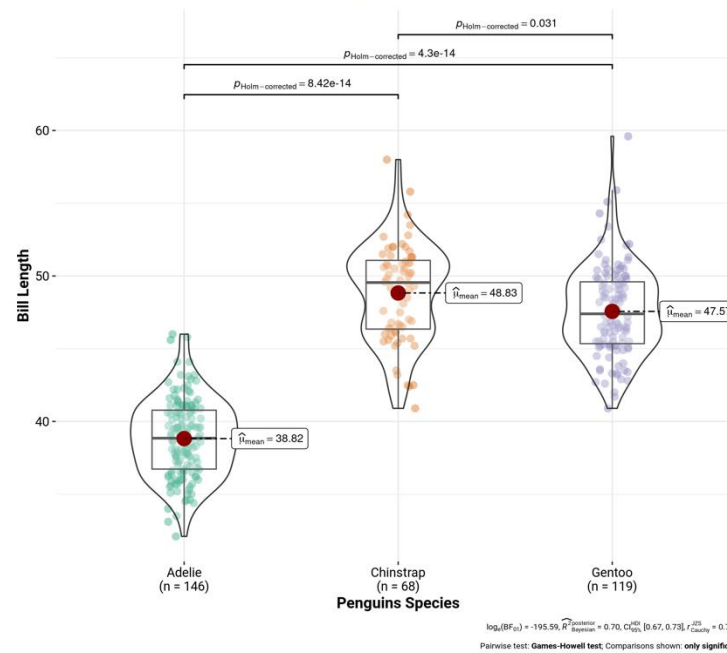
plots for variation



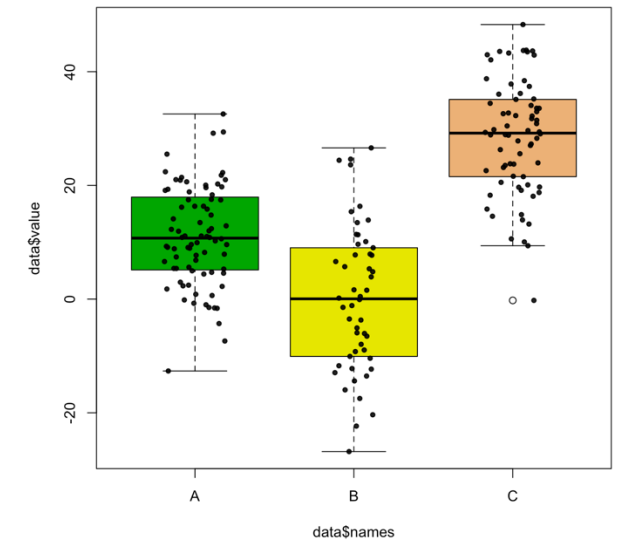
bar plots with error bars
(use standard ERRORS
or confidence
intervals)

Distribution of bill length across penguins species

$F_{Welch}(2,165.34) = 409.93, p = 8.27e-65, \hat{\omega}_p^2 = 0.83, CI_{95\%} [0.79, 0.86], n_{obs} = 333$



violin plots



box plots with raw data

project milestone #7: poster draft

- general tips:
 - **de-clutter**, keep the text to a minimum
 - use **tables/figures** wherever possible (procedure, results, etc.)
 - use variation!
 - use **symmetry** and **colors** to guide the reader
 - think of what you will say and **organize** in a logical manner
- sample posters/resources up on course website

Milestone 7a: Poster Draft ^A

Start Assignment

Due Dec 4 by 11:59pm Points 20 Submitting a file upload

- Review the [resources on the course website](#) [↗] for designing good posters. **You MUST use the [template provided](#) [↗] to make your poster.**
- While there isn't a single definitive way to design a compelling poster, the following elements are expected. You can use elements from previous milestones to create your poster.
 - **Set the stage.** In your opening section(s) set the stage: Introduce your broad question. Use the appropriate terminology by providing the necessary definitions or by providing examples. Do not use any psychological jargon without defining it first (e.g., "inattention blindness", "anterograde amnesia", "consolidation", "retrieval cue", etc.). Assume that your reader is a layperson and does not share the background you have in cognitive psychology.
 - **Add a thesis or orienting statement:** In the opening section (typically either at the very beginning or the end), outline your goal for this poster. This is where you want to bridge the connection between the broad and specific questions you came up with earlier.
 - In the next one or two section(s), describe some key findings and/or theoretical frameworks concerning your topic. At this stage, you need to cite some literature: this can include your selected research article(s) and/or material presented in class. Think about how to visually present this information - you could diagrams, flowcharts, etc.
 - **Describe your method:** At this stage, give a broad overview of your analysis, and then describe your method in detail. You may use sub-headings. This section should contain ALL the information required to replicate your analysis by a stranger. Think about how to visually present this information - you could diagrams, flowcharts, etc.
 - **Predicted/Obtained Results:** Describe the results of your analysis and any measures you computed (e.g., score, accuracy, etc.). You may also use plots/graphs if they might help the reader understand your broad message.
 - Finally, wrap up your poster with some concluding remarks. This can include a summary of the main points you made in the poster, or a clearer answer to the question you posed at the beginning of your poster. There is no single recipe for how to end your poster but aim to end on a strong and compelling point!

Please upload your poster in PDF form.

poster contents

- introduction

- why is this topic important, what can we learn?
- background & current research question
- ideas: venn diagrams, smart art, etc.

- methods

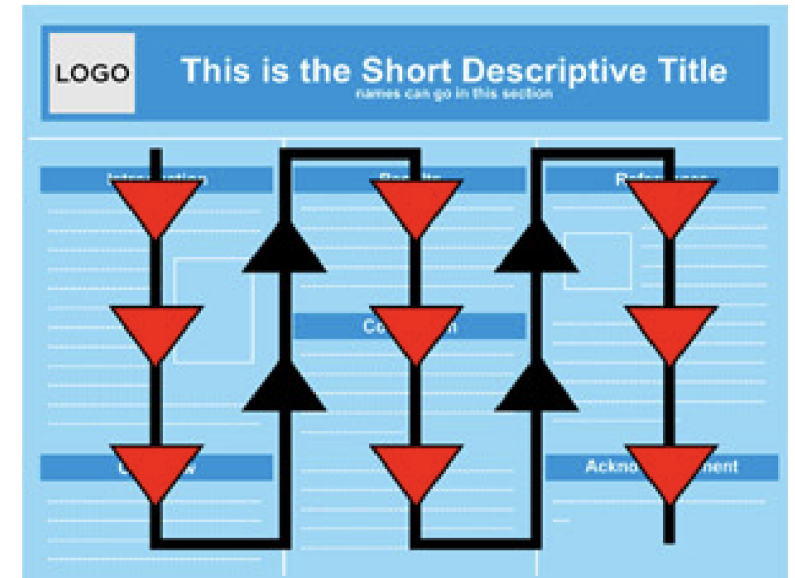
- IV/DV, items, counterbalancing etc.
- ideas: design figure, sample trial, etc.

- analysis

- statistical tests & results, inclusion/exclusion criteria, etc.
- ideas: tables, figures with p-values, regular figure

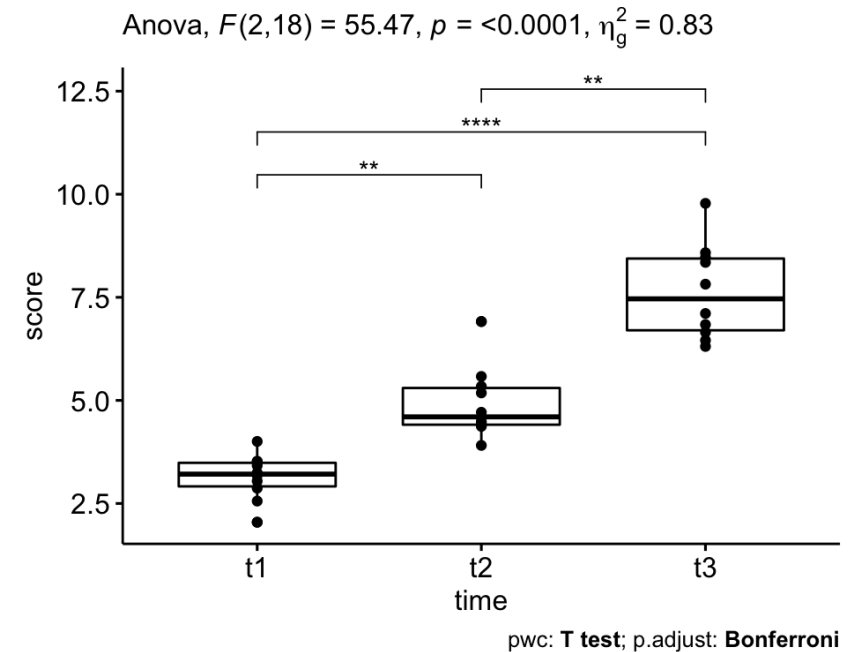
- conclusion / future steps

- small and picture: what did you learn? where do you see it going?



statistics in posters

- **less text**, more images & numbers
- use the same format to report statistics but edit out all the text and **point to figures**



project milestone 6b: Analyses

Milestone 6b: Analyses II

Start Assignment

Due Friday by 11:59pm **Points** 20 **Submitting** a website url

For this milestone, you will submit your FINAL R code to analyze ALL the data you have collected so far in your project.

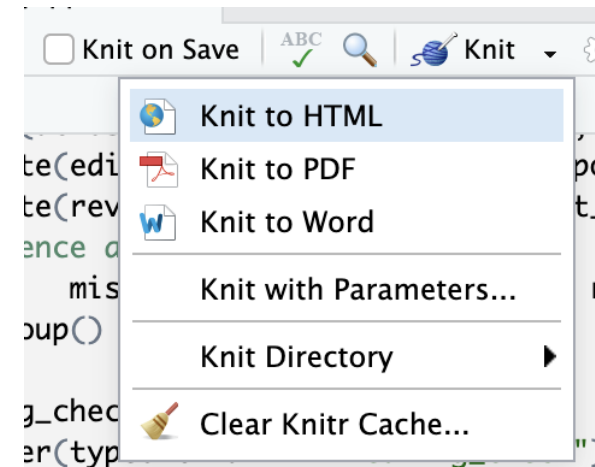
You will use the SAME repository you created in the previous milestone and simply add any changes/updates to this repository.

Make sure:

- There are only 5 headings (with # sign) in your notebook. All answers/verbal descriptions should be without any # signs. If you have subsections within these headings that you would like to highlight, you can use ##. The headings you should have are as follows:
 - # Install and load packages
 - # Import data
 - # Inspect data
 - # Basic descriptives
 - ## bar plot(s)
 - # Inferential statistics
 - ## exclusions
 - ## priming model
 - ## (optional/additional) model(s)
- Your plot(s) show some type of variation via standard errors, confidence intervals, OR boxplots.
- You have reported exactly how many participants you have data from, how many did not finish the experiment, how many were excluded based on pre-registered criteria, and how many total participants you are analyzing in your main model(s).
- You correctly report all statistical tests and follow-up comparisons.
- You have clearly addressed all feedback/comments from the previous milestone (6a).
- You have "knit" the notebook and it successfully knits with no errors.

knitting R notebooks

- checking for errors / wrong code is hard in R
- knitting shows you how your notebook may look “cleaned up”
- will give you a sense of headings, plain text, code and code outputs
- your notebook should knit successfully if all code is correct



reporting statistical results

- **car::Anova()**

- A significant interaction between gender and education on job satisfaction was found, $\chi^2(2, N = 150) = 7.34, p = .002$.

- **emmeans()**

- Tukey-corrected post-hoc comparisons showed that males reported higher job satisfaction at the university level, $t(52) = 3.60, p = .001$, and no differences were observed between male vs. female job satisfaction at the school ($p = .347$) and college level ($p = .219$).

```
> car::Anova(job_model)
Anova Table (Type II tests)
```

```
Response: score
              Sum Sq Df F value    Pr(>F)
gender          0.225  1  0.7447 0.392115
education_level 113.684  2 187.8921 < 2.2e-16 ***
gender:education_level  4.440  2  7.3379 0.001559 **
Residuals      15.731 52
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

```
emmeans::emmeans(job_model,
                  pairwise ~ gender | education_level,
                  adjust="tukey")
```

```
$contrasts
education_level = school:
contrast      estimate    SE df t.ratio p.value
male - female -0.314 0.253 52  -1.244 0.2191

education_level = college:
contrast      estimate    SE df t.ratio p.value
male - female -0.240 0.253 52  -0.948 0.3473

education_level = university:
contrast      estimate    SE df t.ratio p.value
male - female  0.886 0.246 52   3.602 0.0007
```

next time

- **before** class

- *work on*: project milestone #6b (analyses)
- *work on*: project milestone #7 (poster draft)