PSYCH 10 Final Project · Fall 2026

Week 8 · M7 · Your figures, and the start of your poster

Full name (in CAPITAL LETTERS) _____ **SUNet ID** (the part before @stanford.edu) _____ **Section** (e.g., TUES 9:30) _____

Please write legibly so the teaching team can log your attendance: if we can't read your name, we can't give you credit.

Please hand this sheet in to your TA at the end of section (each student should hand in their own copy). A copy is on the course website (psych10.github.io).

Where this milestone fits

In M5, your group prepared your data and made quick plots. In M6, you fit a model for question 1 (how strong is the relationship between your outcome and your explanatory variable?) and looked at question 2 (does another variable help account for that relationship?). In M7, you will turn your quick plots into finished figures for your poster and your final report, and you will start your poster. A figure is finished when the figure and its caption are enough for a reader to state your finding.

Deliverables

Your group should hand in work in two places by Sunday, Nov 15, at 11:59 pm:

- **On Gradescope** (the link is on Canvas): your group's `M7-figures-and-poster.Rmd` and the PDF made by knitting that file. One member should upload both files and add the other members to the submission.
- **In your group's shared Google Drive folder:** the M7 `.Rmd`, your figure files in the `figures/` folder, and your group's copy of the poster template.

Steps

Your group will do steps 1 to 7 in section, where your TA will check your figures (step 7), and finish the rest together before Sunday. The M7 `.Rmd` has a section for each step, with starter code written for the `Fingers` data from CourseKata: in each chunk, please replace `Thumb` (the outcome), `Sex` (the explanatory variable), and `Job` (the question 2 variable) with your own variables. Steps 2 to 4 repeat your M6 analysis, so that one file holds your whole analysis, from your processed data to your figures.

1. **Get the latest version of your folder.** Download your group's shared folder from Google Drive, so that the project folder on your computer has everyone's latest changes. Then download `M7-figures-and-poster.Rmd` from the course website into the `milestones/` folder. Decide which member will upload the changed files at the end of section (step 10).
2. **Load your processed data.** In the chunk for this step, replace `processed <- Fingers` with the `read.csv()` line shown in the comment. That line reads `processed-data.csv`, the file that your `R/prepare-data.R` script wrote in M5. If your processed data still needs a change (a variable to compute, cases to drop, values to correct), please make that change in `R/prepare-data.R` and run that script again; please do not change the data inside the M7 `.Rmd`. When that one script holds every change to your data, anyone can rebuild your processed data from the raw file, and your figures, poster, and report will all use the same data.
3. **Fit the question 1 model again.** The chunk for this step holds the M6 code (steps 4, 6, and 7), written for the `Fingers` data: the question 1 model, `supernova()`, and 1,000 shuffled `b1`s. Put in your own variables. One line is new: `set.seed(10)`, before the shuffling code. Shuffling is random, so the seed makes every knit produce the same 1,000 shuffled `b1`s, and therefore the same proportion of shuffled `b1`s at least as far from 0 as your real `b1`. Your `b1` and your PRE should equal the values in your M6 PDF; if either number differs, please find the reason and write that reason in the `.Rmd`. (Your proportion may differ slightly from your M6 proportion, because the M6 code had no seed.)
4. **Report b1 within each group of your question 2 variable.** Question 2 asks whether another variable helps account for the question 1 relationship; that other variable is your question 2 variable. If that variable is in your dataset, compute `b1` for the question 1 model within each group of the variable, as in M6 (step 9): copy the commented line in the chunk once for each group, with the group's name in the quotation marks. (For a quantitative variable, use the two or three groups from M6, and please make the grouped variable in `R/prepare-data.R`.) Then say whether `b1` is about the same in every group or differs between groups in direction or in size. If that variable is not in your dataset, please keep the dataset you have; your group does not need more data. Delete the chunk, name the variable you described in M5, and describe the pattern you would expect: the question 1 relationship about the same within every group, or weaker, stronger, or reversed in some groups.

5. **Make Figure 1, for question 1.** The chunk for this step has starter code for a plot of the data with the question 1 model drawn on the plot. Please revise the code until your figure meets every item on this checklist:
   - **Plot type:** a jitter plot or box plot for a categorical explanatory variable, a scatter plot for a quantitative explanatory variable, with the outcome on the y-axis.
   - **Model:** the question 1 model drawn on the data, with `gf_model()` (group means) or `gf_lm()` (a regression line).
   - **Axis labels:** each axis labeled in words, with units for a quantitative variable: "Thumb length (mm)", not `Thumb`.
   - **Group names:** each group named in words ("Female", not `1`), renamed on the plot with the `labels` line in the `.Rmd`.
   - **Text size:** `base_size = 16` or larger in the `gf_theme()` line, for text that a reader can read on a poster.
   - **Title:** a title that names both variables, written in `fig.cap` at the top of the chunk ("Thumb Length by Sex").
   - **Take-home sentence:** one sentence, on the line below the chunk, that states your finding with a number and its units: "Men's thumbs were 6.4 mm longer than women's thumbs, on average," not "This figure shows thumb length by sex."

   The last line of the chunk, `ggsave()`, saves the figure as `figures/figure1.png` at every knit.
6. **Make Figure 2, for question 2.** Figure 2 shows your Figure 1 plot separately for each group of your question 2 variable: one panel for each group (`gf_facet_grid()`, as in the chunk) or one color for each group. Check Figure 2 against the checklist in step 5 (the model is optional in Figure 2), and use the `b1`s from step 4 in its take-home sentence, for example "Among students of similar height, men's thumbs were still 4 to 5 mm longer than women's thumbs." The chunk saves the figure as `figures/figure2.png`. If your question 2 variable is not in your dataset, delete the chunk: your group will make Figure 1 only, and your answer to step 4 will take the place of Figure 2 on your poster.
7. **Have your TA check your figures.** In section, show your TA each figure with its title and take-home sentence. Your TA will read each figure first, without an explanation from your group, and will tell you the finding they take from the figure and its caption. If that finding differs from the finding you intended, the figure or its caption needs a change. In the `.Rmd`, write down your TA's comments on each figure, revise the figures, and list each revision with its reason.
8. **Start your poster.** Open the poster template, linked from the Project tab of the course website, and save a copy for your group in your shared Google Drive folder. This week, please fill in three parts of the template:
   - **The title:** your main finding for question 1, as one sentence in words, with no numbers. The title should give the direction of the relationship and its strength, for example "Men had somewhat longer thumbs than women, on average."
   - **Your two questions,** each as one sentence in everyday words.
   - **Your figures** (the `.png` files in `figures/`), each with its take-home sentence.

   The speaker notes under slide 1 give the text size and word limit for each part, and slide 2 gives the design guidelines. You will finish the poster in M8.
9. **Knit to PDF in a fresh session** (Session → Restart R, then Knit → Knit to PDF). One member should submit the `.Rmd` and the PDF on Gradescope and add the other members to the submission.
10. **Upload your changed files to the shared folder:** the M7 `.Rmd`, the files in `figures/`, and, if you changed them in step 2, `R/prepare-data.R` and the processed data file.

Using AI tools on this milestone

The course encourages you to use AI tools on the project. This week, you may use an AI tool to help you write the code for your figures: the axis labels, the group names, the colors, the theme, the panels, and the `ggsave()` line. To get code that runs on your data, give the tool the `str()` output for your processed data and a description of the figure you want, in everyday words. Then run the code, and compare the figure with your description and with the checklist in step 5. Every member of the group should be able to explain the purpose of each line of code. Please write the titles and take-home sentences in your own words.

How it's graded (2 points)

	Points
The question 1 model refitted from the processed data, with `set.seed()`; any difference from M6 explained	0.4
`b1` within each group of the question 2 variable, compared between groups; or the variable you would want	0.2
Figure 1: plot type, model, axis labels, group names, and text size as on the step 5 checklist	0.4
Figure 2: the same checklist items; or the pattern you would expect across the groups of that variable	0.3
Each figure's title and take-home sentence, with a number and units; your TA's comments and your revisions	0.4
The poster in the shared folder: its title, both questions, and each figure with its take-home sentence	0.3