Template

psyTeachR Team

2021-10-14

Contents

Overview

After copying this template to your project, you will need to change the information in the `CITATION` and `DESCRIPTION` files, as well as update the YAML header of `book/index.Rmd` and `book/_output.yml`. Update site-specific logos in `book/images/logos/`.

If you are not part of the psyTeachR group, please edit the Google Analytics ID in `include/google-analytics.html` or comment out the relevant line in `book/_output.yml`.

Render the book using the code in `_render.R`.

0.1 Changes

0.1.1 Version 2.1 2021-10-14

- Updated webexercises styles to include a green check and red X for correct and incorrect responses.
  - `book/include/webex.css` (replace)
  - `book/include/webex.js` (replace)
- Changed the name of `book/include/header.html` to `book/include/google-analytics.html` to better reflect its purpose.
  - `book/include/header.html` (delete)
  - `book/include/google-analytics.html` (add)
  - `book/_output.yml` (change line 10)
- Updated rendering functions to not render pdf epub or mobi by default
  - `_render.R` (replace)
  - `Makefile` (add)

Chapter 1

Inclusion

We want our resources to be accessible to everyone. This means thinking about accessibility with regards to disability, language, identity, and other characteristics. This is a work in progress; feel free to suggest additions.

1.1 Tips for text-readers

Some students need to use text readers for accessibility; others just prefer this method. Here are some tips for improving their experience from the Dyslexia Style Guide.

- Use straight quotation marks
- Avoid roman numerals
- Avoid text in figures

Bookdown books allow readers to change the font style, size, and background colour. This provides essential accessibility for some people, such as those with dyslexia or visual impairments. Therefore, avoid putting too much text in figures and provide descriptions of images in the figure caption.

1.2 Resources for blind coders

- BrailleR: a collection of tools to make use of R a happier experience for blind people
- Statistical Software from a Blind Person's Perspective

1.3 Dyslexia-friendly resources

- British Dyslexia Association
- Dyslexia Style Guide
- Dyslexia and Coding: Data Carpentry blog post
- fcuk: A package designed to help people with clumsy fingers

Some recommendations are highlighted below.

- Avoid underlining, block capitals, and italics – Use bold instead

- Use boxes and borders for effective emphasis
- Use left-justified with ragged right edge (don't full-justify)
- Use bullet points and numbering rather than continuous prose
- Use the active voice with concise, direct sentences
- Avoid abbreviations and provide a glossary of jargon

1.4 Colour

You can check your images for how they look to people with different types of colourblindness with the Coblis Color Blindness Simulator.

Desi Quintans made dark and light colour-blind safe RStudio themes.

The "pink" and "green" colours from the psyteachr_colours() function are distinguishable by people with protanopia (red-blind), deuteronopia (green-blind), and tritanopia (blue-blind) colourblindness. You can also use viridis colours with `ggplot2::scale_colour_viridis_d()` and `ggplot2::scale_fill_viridis_d()` (for discrete colours) or `ggplot2::scale_colour_viridis_c()` and `ggplot2::scale_fill_viridis_c()` (for continuous colours).

In plots, add secondary indicators in addition to colour, such as text labels or shapes.

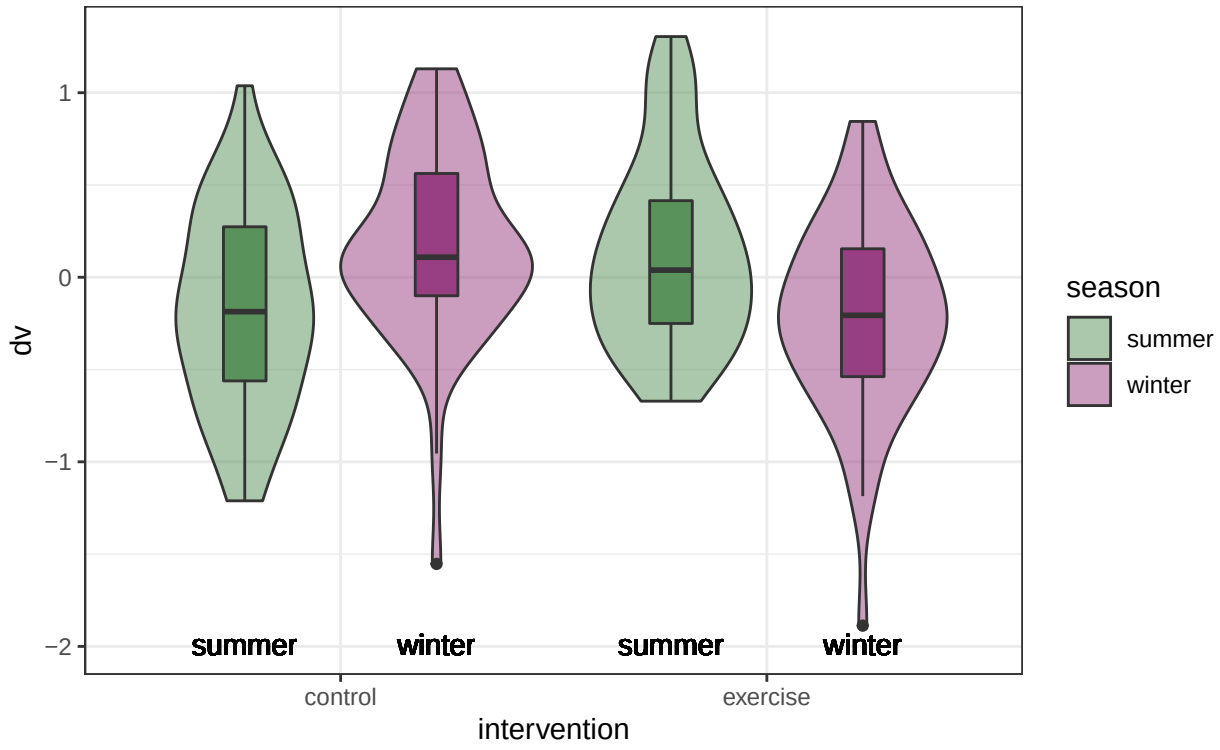

Figure 1.1: Text labels supplement colour information.

1.5 Sex, gender and sexuality

When teaching about experimental design, sex always used to be my go-to example of a two-level between-subjects factor. But this can make some people feel like their very existence is being ignored. In your examples, avoid implicitly assuming heterosexuality or binary gender.

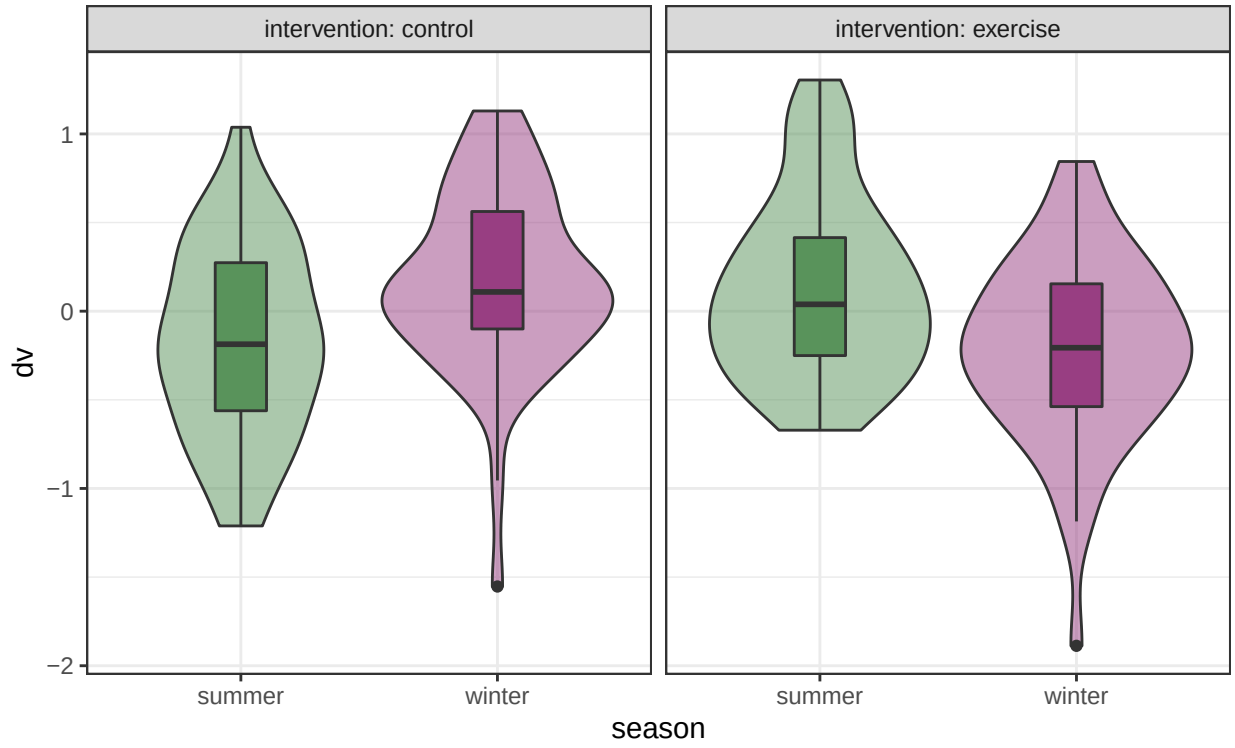

Figure 1.2: Facet labels and redundant colour information.

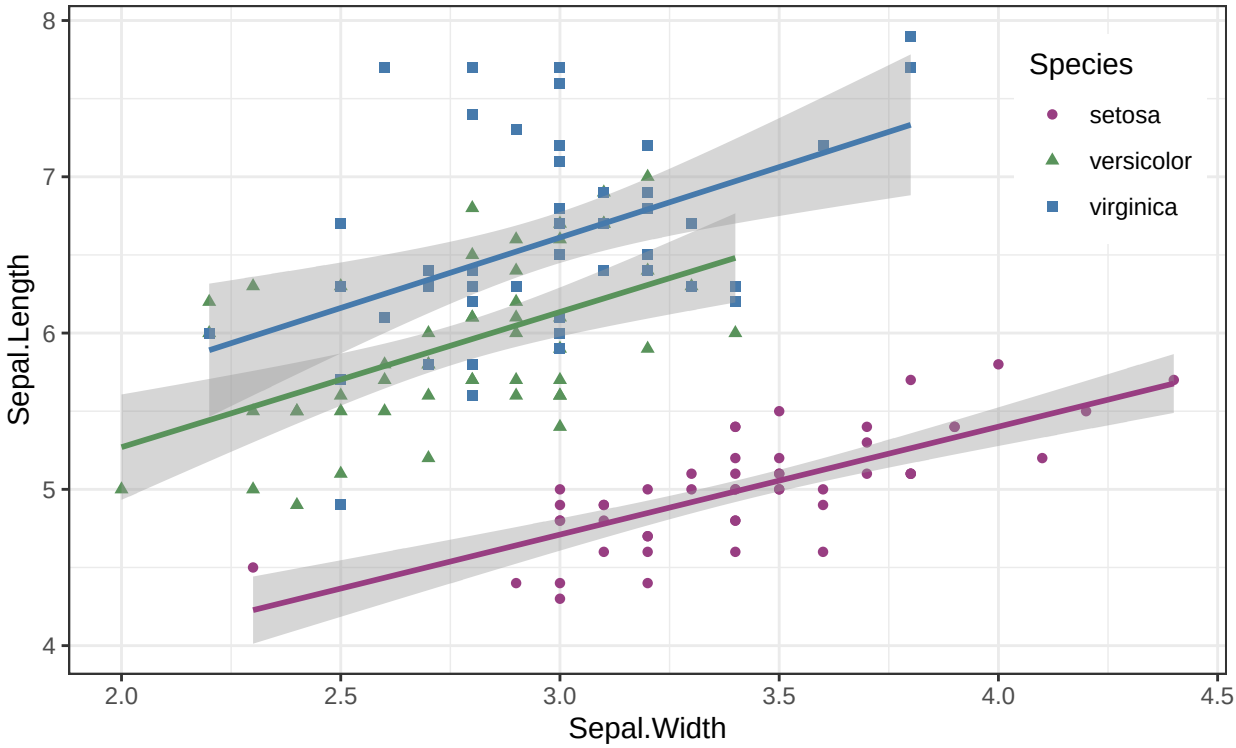

Figure 1.3: Supplement point colours with shapes.

If you want to suggest an in-class exercise that uses data from the students, make sure to choose something that doesn't exclude anyone.

- Pet owners/non-pet owners
- Normally does/doesn't wear glasses
- Can/can't juggle
- Native/non-native English speakers
- Born in Scotland/elsewhere

Appendix A

Installing `R`

Installing R and RStudio is usually straightforward. The sections below explain how and there is a helpful YouTube video here.

A.1 Installing Base R

Install base R. Choose the download link for your operating system (Linux, Mac OS X, or Windows).

If you have a Mac, install the latest release from the newest `R-x.x.x.pkg` link (or a legacy version if you have an older operating system). After you install R, you should also install XQuartz to be able to use some visualisation packages.

If you are installing the Windows version, choose the "base" subdirectory and click on the download link at the top of the page. After you install R, you should also install RTools; use the "recommended" version highlighted near the top of the list.

If you are using Linux, choose your specific operating system and follow the installation instructions.

A.2 Installing RStudio

Go to rstudio.com and download the RStudio Desktop (Open Source License) version for your operating system under the list titled **Installers for Supported Platforms**.

A.3 RStudio Settings

There are a few settings you should fix immediately after updating RStudio. Go to **`Global Options...`** under the **`Tools`** menu (,), and in the General tab, uncheck the box that says **`Restore .RData into workspace at startup`**. If you keep things around in your workspace, things will get messy, and unexpected things will happen. You should always start with a clear workspace. This also means that you never want to save your workspace when you exit, so set this to **`Never`**. The only thing you want to save are your scripts.

You may also want to change the appearance of your code. Different fonts and themes can sometimes help with visual difficulties or dyslexia.

You may also want to change the settings in the Code tab. Foe example, Lisa prefers two spaces instead of tabs for my code and likes to be able to see the whitespace characters. But these are all a matter of personal preference.

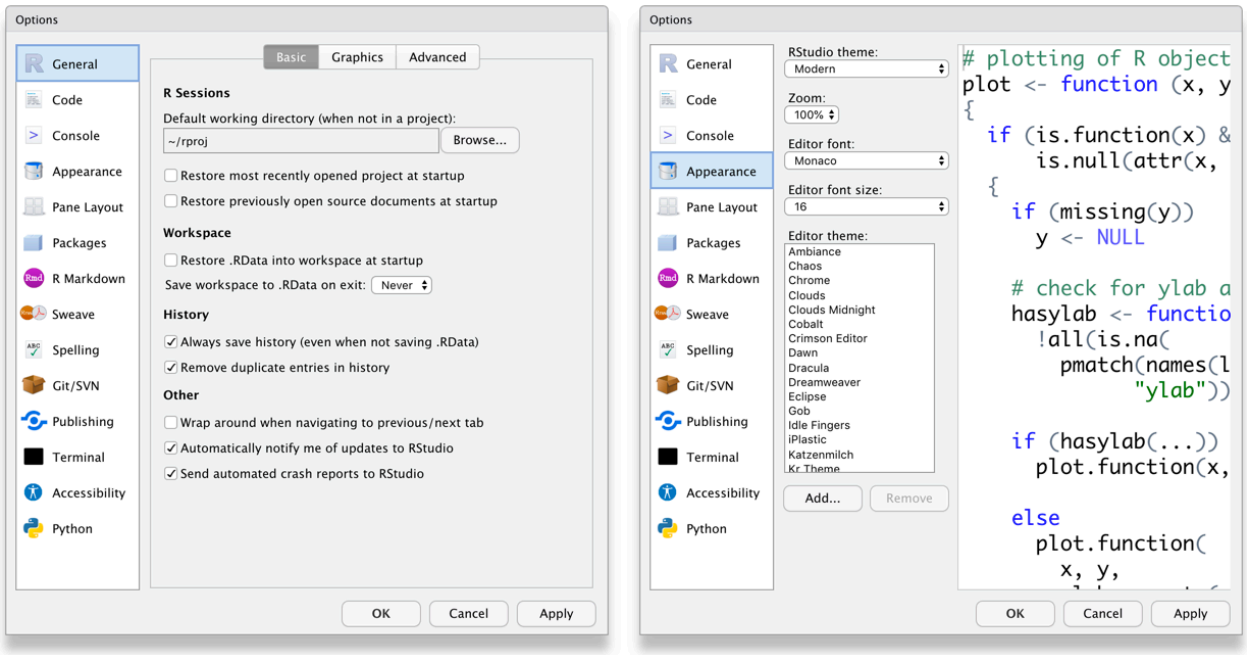

Figure A.1: RStudio General and Appearance settings

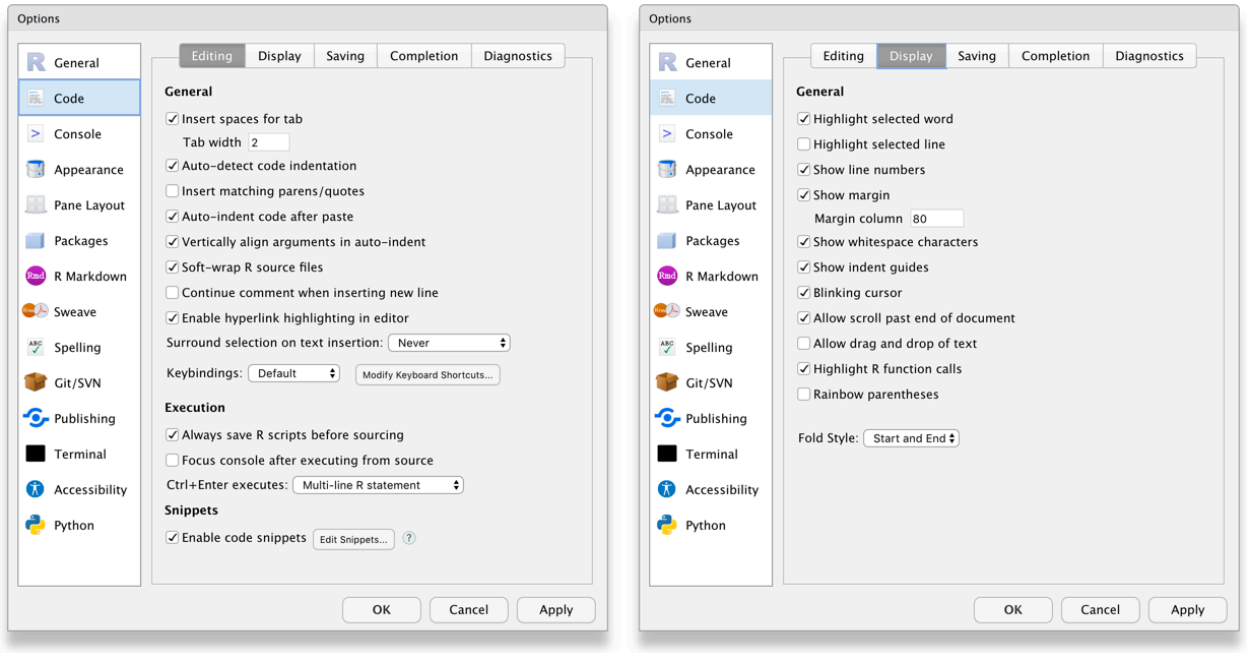

Figure A.2: RStudio Code settings

A.4 Installing LaTeX

You can install the LaTeX typesetting system to produce PDF reports from RStudio. Without this additional installation, you will be able to produce reports in HTML but not PDF. This course will not require you to make PDFs. To generate PDF reports, you will additionally need to install tinytex [Xie, 2021] and run the following code:

```
tinytex::install_tinytex()
```

Appendix B

Symbols

Symbol	psyTeachR Term	Also Known As
()	(round) brackets	parentheses
[]	square brackets	brackets
{}	curly brackets	squiggly brackets
<>	chevrons	angled brackets / guillemets
<	less than	
>	greater than	
&	ampersand	"and" symbol
#	hash	pound / octothorpe
/	slash	forward slash
\	backslash	
-	dash	hyphen / minus
_	underscore	
*	asterisk	star
^	caret	power symbol
~	tilde	twiddle / squiggle
=	equal sign	
==	double equal sign	
.	full stop	period / point
!	exclamation mark	bang / not
?	question mark	
'	single quote	quote / apostrophe
"	double quote	quote
%>%	pipe	magrittr pipe
|	vertical bar	pipe
,	comma	
;	semi-colon	
:	colon	
@	"at" symbol	various hilarious regional terms
...	`glossary("ellipsis")`	dots

Figure B.1: [Image by James Chapman/Soundimals](https://soundimals.tumblr.com/post/167354564886/chapmangamo-the-symbol-has-too-many-names)

Appendix C

Conventions

This book will use the following conventions:

- Generic code: `list(number = 1, letter = "A")`
- Highlighted code: dplyr::slice_max()
- File paths: data/sales.csv
- R Packages: tidyverse
- Functions: paste()
- Strings: "psyTeachR"
- Numbers: 100, 3.14
- Logical values: TRUE, FALSE
- Glossary items: ordinal
- Citations: Wickham [2021]
- Internal links: Chapter 1
- External links: R for Data Science
- Menu/interface options: **`New File...`**

C.1 Webexercises

See webexercises for more details about how to use this in your materials.

- Type an integer:
- I am going to learn a lot: TRUEFALSE
- What is a p-value?
  the probability that the null hypothesis is true the probability of the observed (or more extreme) data, under the assumption that the null-hypothesis is true the probability of making an error in your conclusion

Hidden Text

You found some hidden text!

Hidden Code

```
print("You found some hidden code!")
```

```
## [1] "You found some hidden code!"
```

C.2 Alert boxes

Informational asides.

Notes to warn you about something.

Notes about things that could cause serious errors.

Try it yourself.

C.3 Code Chunks

```
# code chunks
paste("Applied", "Data", "Skills", 1, sep = " ")
```

```
## [1] "Applied Data Skills 1"
```

```
# code chunks with visible r headers
library(tidyverse)
```

C.4 Glossary

term	definition
ordinal	Discrete variables that have an inherent order, such as number of legs

Appendix D

Glossary

You can use the `glossary()` function to automatically link to a term in the psyTeachR glossary or make your own project-specific glossary.

This will create a link to the glossary and include a tooltip with a short definition when you hover over the term. Use the following syntax in inline r: `glossary("word")`. For example, common data types are integer, double, and character.

If you need to link to a definition, but are using a different form of the word, add the display version as the second argument (`display`). You can also override the automatic short definition by providing your own in the third argument (`def`). Add the argument `link = FALSE` if you just want the hover definition and not a link to the psyTeachR glossary.

```
glossary("data type",
         display = "Data Types",
         def = "My custom definition of data types",
         link = FALSE)
```

[1] "Data Types"

You can add a glossary table to the end of a chapter with the following code. It creates a table of all terms used in that chapter previous to the `glossary_table()` function. It uses `kableExtra()`, so if you use it in a code chunk, set `results='asis'`.

```
glossary_table()
```

term	definition
character	A data type representing strings of text.
data-type	My custom definition of data types
double	A data type representing a real decimal number
integer	A data type representing whole numbers.

If you want to contribute to the glossary, fork the github project, add your terms and submit a pull request, or suggest a new term at the issues page.

License

Bibliography

Lisa DeBruine. psyteachr book template, 2021. URL https://github.com/psyteachr/template/.

Hadley Wickham. *tidyverse: Easily Install and Load the Tidyverse*, 2021. URL https://CRAN.R-project.org/package=tidyverse. R package version 1.3.1.

Yihui Xie. *tinytex: Helper Functions to Install and Maintain TeX Live, and Compile LaTeX Documents*, 2021. URL https://github.com/yihui/tinytex. R package version 0.34.