Imaginary barriers to reproducibility: short courses with diverse students
Take Home Message:
Even with very short courses it is possible to teach Reproducible, Responsible Research Methods

• Our Short Courses
• Curriculum
• Reproducible, Responsible Research Methods
• Assessment inspired by open science
Short programmes

- **MSc Conversion – Zero to Heroes**
  - Diverse skill sets – dancers and computing science graduates in the same class
  - About 30 hours to learn quant methods, stats and communication
  - Graduate with accredited psychology degree

- **MSc Data Skills**
  - Graduates coming from undergrad psych and neuroscience degrees & plan to do a PhD.
  - Some have R skills, many have research methods and stats knowledge, many don’t have any of this
  - 20 hours of Data skills that prepare students for advanced Stats

Reproducible philosophy embedded into as many other places as we can – seminar events, M&Ms club, professional skills class
Curriculum (Zero2Hero)

• Intro to R
• Data wrangling
• Chi-square
• Correlation
• T-test
• ANOVA
• Regression

• At each stage:
  • Data wrangling
  • Visualisation
  • Assumption checking
  • Power and effect size
  • Multiple comparison corrections
  • Pre-registration
  • Reproducible scripts
Curriculum (Zero2Hero)

- **Blended support**
  - Computing & programming basics
  - Video walkthroughs

- **Realism**
  - Most Conversion students have a very specific career goal in mind & this usually has nothing to do with statistics
  - But! We can still leave them with the understanding of how data and results are “made”

- **Supplementary analyses**
  - Permutation tests
  - Non-parametric tests
  - Data transformation
  - Simulation
  - rtweet
  - tidytext
Open science style

Open Science can be inspirational for teaching

- Pre-registration makes teaching statistics *easier*
- As do reproducible scripts (*what have you done??*)
- Working with real data prepares students for their dissertations
  - And highlights why the reproducibility crisis happened

Assessment & feedback:

Research Methods 2 mini-project

- Secondary data analysis
- Research proposal
- Pre-registration
- Reproducible analysis plan on simulated data
- Simple statistics (correlation & t-test) done properly
Assessment & feedback:

- Peer reviews of pre-prints
- PsyAccelerator style group-work
- Reproducible scripts
- Resource of real data at every point

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If you think...

- I couldn’t do this because our students can’t cope with it
  - Yes they can/they weren’t coping with SPSS either

- We don’t have enough people who know R
  - Upskilling doesn’t have to just be for students
  - Almost all of this can be done with other software, R is just easier

- There are more important things to focus on/we don’t have the time
  - (You’re probably at the wrong conference)
  - Question of priorities
  - What does a psychology graduate need to know?
  - Simple things done well > a complicated car crash
Keep the bigger picture in mind: Reproducible science

OPEN MINDS

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