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Your Students R Ready for It: Teaching Applied Statistics with R

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What is R?

- Open-source programming language for data analysis, manipulation, and visualization
- Rather than use a GUI (Graphical User Interface) with point-and-click menus like with SPSS, R uses a command line interface to work with data
- Adoption in university courses becoming more widespread across the social sciences in recent years and is on-track to overtake SPSS as the primary analysis software in the near future (Muenchen, 2022)

Challenges to Adopting

- Although it is becoming more common, many faculty have not yet developed the skills themselves to teach using R
- New users without prior coding experience may be intimidated by learning to code
- There are typically several ways to conduct the same analysis, data manipulation, or data visualization depending on the package used which can be confusing to new learners

Why Teaching with R is Worth It

No monetary cost

- R is completely free to use. This eases cost burdens for many students with already limited budgets and allows them to use the analysis software on their own devices instead of having to work on campus computers with software preinstalled by the university. This might be particularly relevant for non-traditional and marginalized students

Figure 1.
Prior to taking my class(es),
what software/programs have you used
to conduct data analysis?

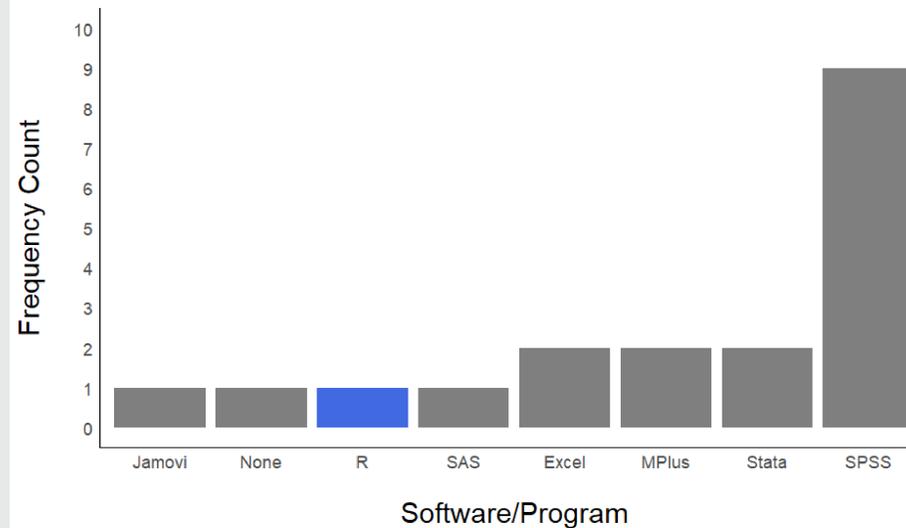
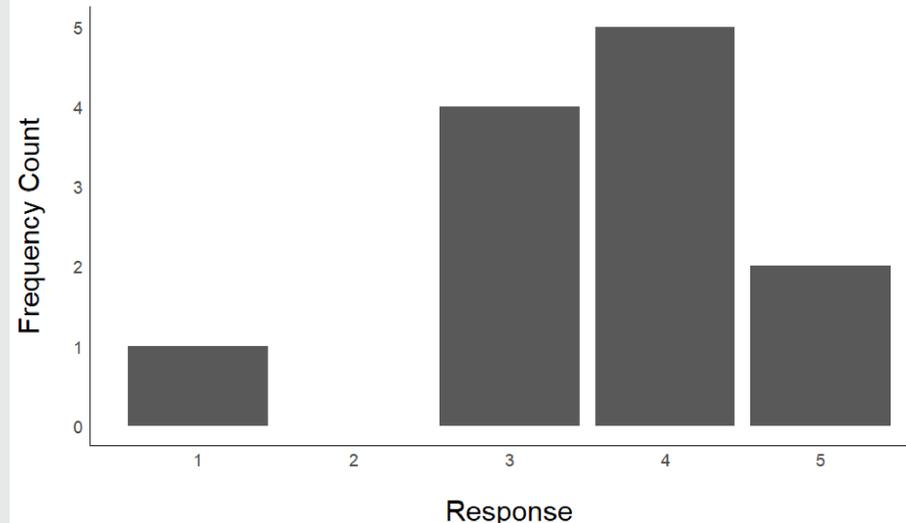


Figure 2.
How likely are you to use R
for your own research after this class ends?
(0 = Not At All Likely, 5 = Extremely Likely)



Why Teaching with R is Worth It (cont.)

Flexible and cutting-edge analyses

- R is considered one of the simplest languages to learn
- Users download free packages developed by the R community to conduct most any analysis desired offering greater customization for a wider range of statistical questions than offered by other more limited software

Easy integration with open science practices

- Can make saved code scripts openly available for others to reproduce and build on the analyses

Expanding student competency for in-demand data skills

- R is among the most in-demand skills in data jobs while SPSS is one of the least (Muenchen, 2022)
- Teaching with R expands the skills and types of careers school psychology trainees could pursue to offer students a wider variety of career options where they could make an impact outside traditional practice

What My Students Thought

- I gave an anonymous survey to my Psy.D. students at the end of their statistical analysis course sequence
- Figure 1 shows only one student had used R before my classes and the vast majority have used SPSS
- Figure 2 shows that by the end, more than half were likely or extremely likely to use R for their own work
- Most expressed apprehension at the beginning but indicated more comfort by the end of the courses and preference for R over other software consistent with other research on psychology student attitudes toward learning statistics with R (e.g., Barr, 2016)

References

- Barr, D. J. (2016, September 10). No more excuses: R is better than SPSS for psychology undergrads, and students agree. *DATAHOWLER*. <https://datahowler.wordpress.com/2016/09/10/no-more-excuses-r-is-better-than-spss-for-psychology-undergrads-and-students-agree/>
- Muenchen, R. A. (2022, October 10). *The popularity of data science software*. <https://r4stats.com/articles/popularity/>