Running head: TITLE 1

Data Exercise 3

1

5

First Author¹ & Ernst-August Doelle^{1,2}

- ¹ Wilhelm-Wundt-University
- ² Konstanz Business School

Author Note

- Add complete departmental affiliations for each author here. Each new line herein must be indented, like this line.
- Enter author note here.
- The authors made the following contributions. First Author: Conceptualization,
- Writing Original Draft Preparation, Writing Review & Editing; Ernst-August Doelle:
- Writing Review & Editing, Supervision.
- Correspondence concerning this article should be addressed to First Author, Postal address. E-mail: my@email.com

Abstract

One or two sentences providing a basic introduction to the field, comprehensible to a scientist in any discipline. Two to three sentences of more detailed background, comprehensible to scientists in related disciplines. One sentence clearly stating the general problem being addressed by this particular study. One sentence summarizing the main result (with the words "here we show" or their equivalent). Two or three sentences explaining what the main result reveals in direct comparison to what was thought to be the case previously, or how the main result adds to previous knowledge. One or two sentences to put the results into a more general context. Two or three sentences to provide a broader perspective, readily comprehensible to a scientist in any discipline.

24 Keywords: keywords

Word count: X

Data Exercise 3

27 Themes

28 Methods

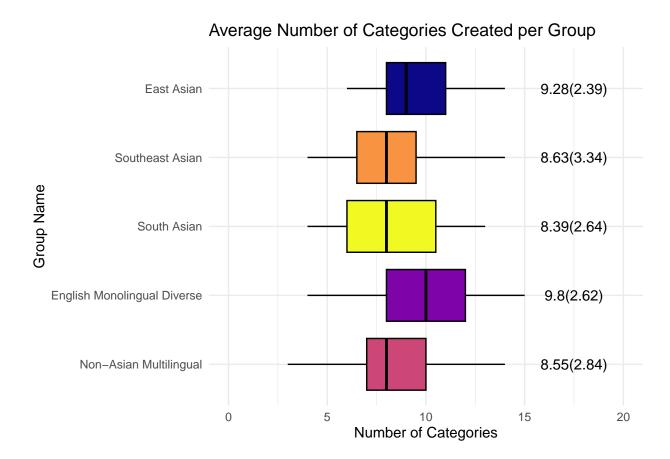
We report how we determined our sample size, all data exclusions (if any), all

manipulations, and all measures in the study.

- 31 Participants
- 32 Material
- 33 Procedure
- 34 Data analysis
- We used R (Version 4.4.1; R Core Team, 2024) and the R-packages dplyr (Version
- 1.1.4; Wickham, François, Henry, Müller, & Vaughan, 2023), forcats (Version 1.0.0;
- Wickham, 2023a), ggdist (Version 3.3.2; Kay, 2024), ggplot2 (Version 3.5.1; Wickham,
- ³⁸ 2016), lubridate (Version 1.9.3; Grolemund & Wickham, 2011), papaja (Version 0.1.3; Aust
- 39 & Barth, 2024), purr (Version 1.0.2; Wickham & Henry, 2023), readr (Version 2.1.5;
- Wickham, Hester, & Bryan, 2024), stringr (Version 1.5.1; Wickham, 2023b), tibble (Version
- 3.2.1; Müller & Wickham, 2023), tidyr (Version 1.3.1; Wickham, Vaughan, & Girlich,
- ⁴² 2024), tidyverse (Version 2.0.0; Wickham et al., 2019) and tinylabels (Version 0.2.4; Barth,
- ⁴³ 2023) for all our analyses.

44 Results

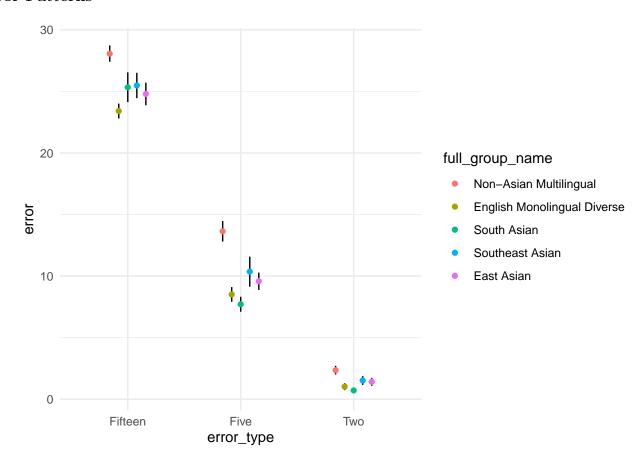
- Number of Categories
- We found differences in number of categories.



47

48 Error Patterns

49



50 Discussion

References

51

- ⁵² Aust, F., & Barth, M. (2024). papaja: Prepare reproducible APA journal articles with R
- Markdown. https://doi.org/10.32614/CRAN.package.papaja
- Barth, M. (2023). tinylabels: Lightweight variable labels. Retrieved from
- https://cran.r-project.org/package=tinylabels
- Grolemund, G., & Wickham, H. (2011). Dates and times made easy with lubridate.
- Journal of Statistical Software, 40(3), 1–25. Retrieved from
- https://www.jstatsoft.org/v40/i03/
- 59 Kay, M. (2024). ggdist: Visualizations of distributions and uncertainty in the grammar of
- graphics. IEEE Transactions on Visualization and Computer Graphics, 30(1), 414–424.
- https://doi.org/10.1109/TVCG.2023.3327195
- 62 Müller, K., & Wickham, H. (2023). Tibble: Simple data frames. Retrieved from
- 63 https://CRAN.R-project.org/package=tibble
- 64 R Core Team. (2024). R: A language and environment for statistical computing. Vienna,
- Austria: R Foundation for Statistical Computing. Retrieved from
- 66 https://www.R-project.org/
- 67 Wickham, H. (2016). qqplot2: Elegant qraphics for data analysis. Springer-Verlag New
- York. Retrieved from https://ggplot2.tidyverse.org
- 69 Wickham, H. (2023a). Forcats: Tools for working with categorical variables (factors).
- Retrieved from https://CRAN.R-project.org/package=forcats
- Wickham, H. (2023b). Stringr: Simple, consistent wrappers for common string operations.
- Retrieved from https://CRAN.R-project.org/package=stringr
- Wickham, H., Averick, M., Bryan, J., Chang, W., McGowan, L. D., François, R., ...
- Yutani, H. (2019). Welcome to the tidyverse. Journal of Open Source Software, 4(43),
- 75 1686. https://doi.org/10.21105/joss.01686
- Wickham, H., François, R., Henry, L., Müller, K., & Vaughan, D. (2023). Dplyr: A
- grammar of data manipulation. Retrieved from

- https://CRAN.R-project.org/package=dplyr
- Wickham, H., & Henry, L. (2023). Purrr: Functional programming tools. Retrieved from
- 80 https://CRAN.R-project.org/package=purrr
- Wickham, H., Hester, J., & Bryan, J. (2024). Readr: Read rectangular text data. Retrieved
- from https://CRAN.R-project.org/package=readr
- Wickham, H., Vaughan, D., & Girlich, M. (2024). Tidyr: Tidy messy data. Retrieved from
- https://CRAN.R-project.org/package=tidyr