



Using APA style for scientific communication

(Session 2)

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(upgrading slides created by Sieghard Beller, Marco A. Hirnstein,
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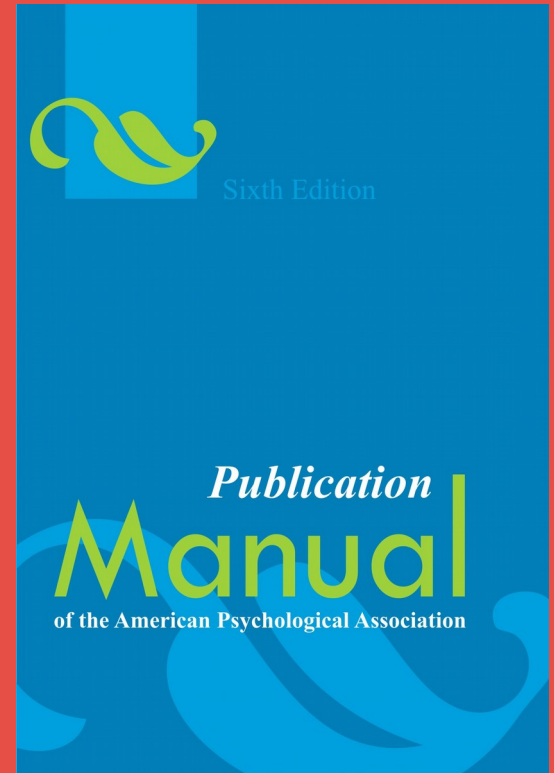


Overview

- Why publishing? Why a rule system?
- Structure
- Language use
- Mechanics of style: period (.), comma, abbreviations, parentheses, etc.
- **Figures and tables – some practical hints**
- Referencing
- Publication process
- Ethical issues (authorship, consent, plagiarism)



Displaying results (Chapter 5)





Displaying results: Purpose

- communication: tell others what your data mean (main purpose in publications)
- exploration: find out what your data mean
- calculation: displays that allow estimations / statistics
- decoration: attract attention of your readers
- storage: documentation for later use
- meta-analysis: study details -> tables





**How would you
present results and
why?**



Displaying results: General rules

- **“Design data displays with your reader in mind” and assume you are the reader**
- rule of thumb: present up to three numbers in a sentence, four to 20 numbers in a table, and more than 20 numbers as graph
- present items to be compared next to each other
- keep free of irrelevant material and consistent with text
- include all necessary information: notes, labels
- labels: clear which element they refer to
- avoid novel abbreviations + explain all abbreviations
- number consecutively (Table 1, 2, ...; Figure 1, 2, ...)





Displaying results: Tables

Number	Table X						
Title	<i>Error Rates of Older and Younger Groups</i>						
Headings	Younger			Older			
Column spanner	Difficulty	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>
Table spanner	Low ^a	.05	.08	12	.14	.15	18
Body	Moderate ^b	.05	.07	15	.17	.15	12
Cell	High	.11*	.10	16	.26	.21	14

Note. This table has notes, the first of which is a general note.

^aSpecific note about "Low," which follows a general note. ^bNotes can continue in same block of text, and flow Left-Right and Top-Bottom.

* $p < .05$. [probability notes come last]





Displaying results: Tables

Should...

- be concise
- only include essential content
- be logically ordered and easy to grasp
- be designed to show a specific “meaning”
- have a brief but clear and explanatory title
- be designed in a familiar way (“standardization”)
- be integral to the text, but interpretable in isolation
- be consistent with other tables (design, labelling)

Table titles

Too general: Relation between College Majors and Performance

Too detailed: Mean Performance Scores on Test A, Test B, and Test C of Students With Psychology, Physics, English, and Engineering Majors

Good: Mean Performance Scores of Students With Different College Majors





Displaying results: Table notes

- **general note**: provides information related to the whole table; ends with explanations of abbreviations / symbols
- **specific note**: refers to a particular column, row, or cell. Indicated by superscript letter (e.g., a, b, c).
- **probability note**: indicates how asterisks and other symbols are used in the table to indicate p values.

Note. Factor loadings greater than .45 are shown in boldface. M = match process; N = non-match process.

^a N = 25. ^b This participant did not complete the trials.

* p < .05 ** p < .01 *** p < .001

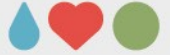




Displaying results: Table checklist

- Is it really necessary?
- Does every column have a column head?
- Are all abbreviations explained?
- Are notes in the correct order (general – specific - probability)?
- Is the title brief and explanatory?
- Is the table referred to in the text?
- Are all comparable tables consistent?
- (Permission from copyright holder?)





Displaying results: Figures

Types for different kind of information

- graphs: relationship between quantitative variables
- charts: process information (flow charts)
- maps: spatial information
- drawings: pictorial information
- photographs: direct visual representation





Displaying results: Figures

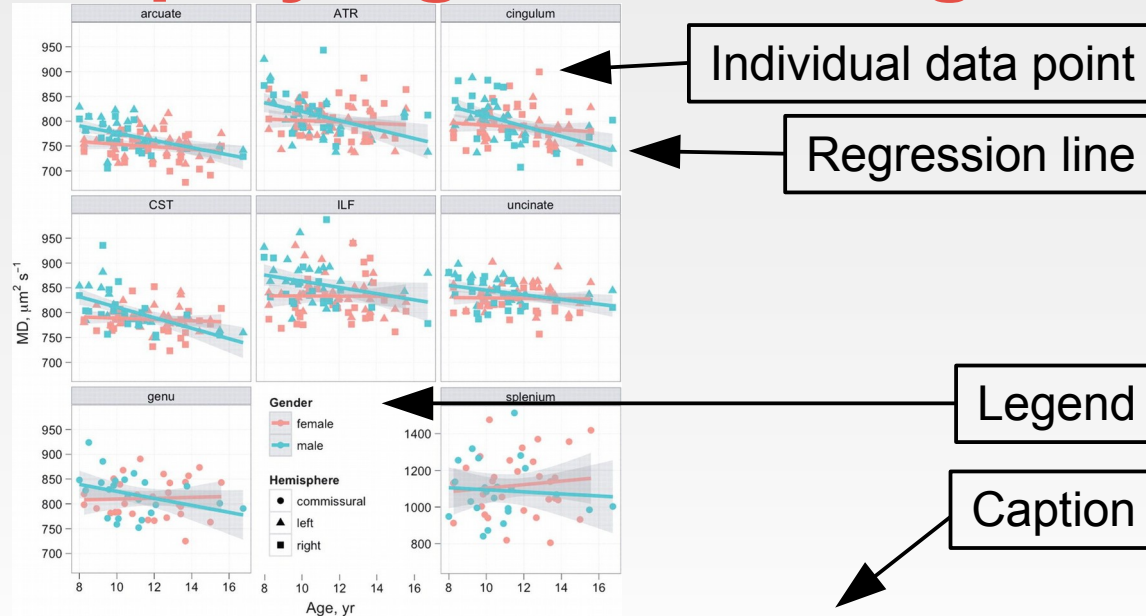


Example figure, combining a **drawing** (left) and a **photo-graph** (right)

Figure 3. The Mafa flutes consist of two functional components, a resonance body made out of forged iron and a mouthpiece crafted from a mixture of clay and wax. The flute is an open tube which is blown like a bottle, and has a small hole at its bottom end with which the degree to which the tube is opened or closed can be controlled. The depicted set of Mafa flutes is “refined” with a rubber band.



Displaying results: Figures



Example figure, showing **graphs**

Clayden, J. D., Jentschke, S., Muñoz, M., Cooper, J. M., Chadwick, M. J., Banks, T., ... Vargha-Khadem, F. (2012). Normative development of white matter tracts: Similarities and differences in relation to age, gender, and intelligence. *Cerebral Cortex*, 22(8), 1738–1747.
<https://doi.org/10.1093/cercor/bhr243>

Figure 3. Scatter plots of age against MD for all tracts of interest. Linear regression lines and associated standard errors are shown for each gender. The splenium subplot uses a different y-axis to the others due to its much greater variability across individuals.





Displaying results: Figures

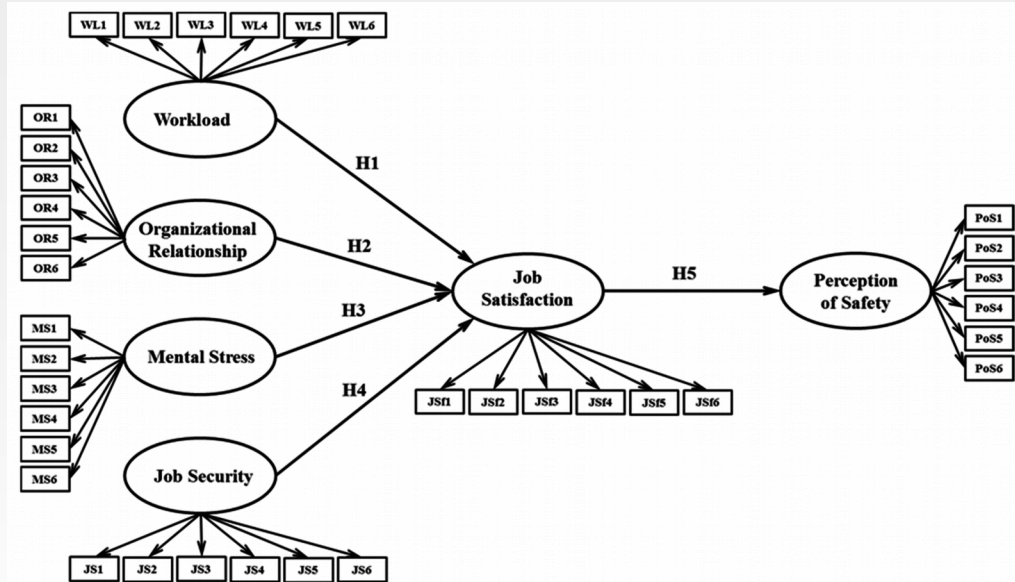


Figure 2. Baseline hypothetical structural equation model for the perception of safety (latent variables with their indicators).

Necessary?

Yes: it gives a sense of the structure that is more difficult to convey by text.

Idrees, M. D., Hafeez, M., & Kim, J.-Y. (2017). Workers' Age and the Impact of Psychological Factors on the Perception of Safety at Construction Sites. *Sustainability*, 9(5), 745. <https://doi.org/10.3390/su9050745>





Results: Figure checklist

- Is the figure needed and is it free of unnecessary material?
- Is it simple and clear?
- Is the caption descriptive of the content?
- Are all elements clearly labelled (legend)?
- Is the figure mentioned / related to in the text?
- Are all comparable figures consistent?
- Is the resolution sufficient for reproduction?
- Is it in an acceptable file format (journal/publisher)?
- (Permission from copyright holder?)





Some practical hints

- exporting tables from SPSS
- Word / Writer vs. Latex (*overleaf.com*, *papeeria.com*)
- Inkscape and vector-based graphics (SVG, EPS, WMF)
- EndNote vs. Mendeley
- Quality of meta-data: PubMed

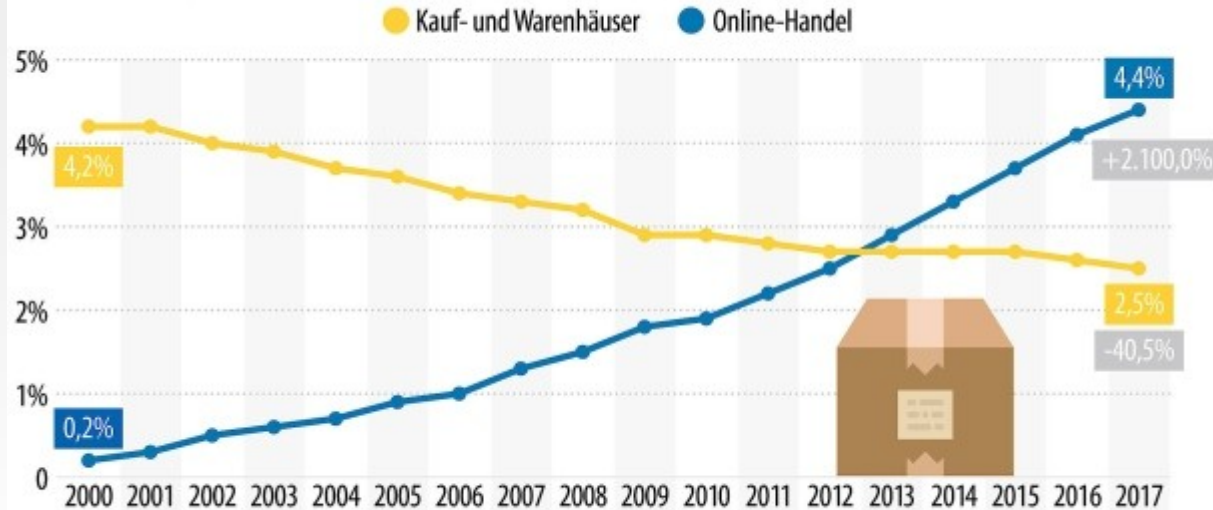




Some practical hints

Online-Handel kills the Kaufhaus-Star

Anteil des Umsatzes von Kauf- und Warenhäusern und des Online-Handels am gesamten Einzelhandelsumsatz in Deutschland



Quelle: IfH Köln

Frankfurter Allgemeine **statista**

The color coding is quite unfortunate. A yellow line should be used for the online stores (because it is similar to the parcel), whereas the department stores should have the blue line.

<http://www.faz.net/aktuell/wirtschaft/wirtschaft-in-zahlen/so-viel-fremdwaehrung-horten-die-deutschen-15782547/immer-nur-bergauf-15776403.html>

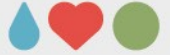




Some practical hints

- consider color / BW graphics (some journals, esp. those in print, charge for color figures); generally, is there an advantage of color (otherwise use BW)
- think about how to distinguish your groups / conditions (i.e., always use the same / similar colors / pattern for your experimental groups or conditions)
- are there «natural» colors for groups / conditions?
- be consistent with your color scheme / use of pattern





Displaying results

- use the same scaling for axes to make them comparable (Excel / Calc / SPSS automatically adapt to the value range)
- be consistent with how you denote your experimental groups / conditions (at all references in text, labels, etc.)





Summary

- why scientific findings should be published and why there are standards for scientific presentation
- how a scientific report in psychology should look like
- how to write in a scientific style
- **how to present your results – some practical hints**
- how to refer appropriately to the work of others
- how to write your own papers and theses
- how the publication process works and how to deal with ethical issues (authorship, plagiarism, etc.)





Literature

American Psychological Association (2010): Publication Manual of the American Psychological Association (6th ed.). Washington, DC: APA.
Chapters: 1 (pp. 9-20), 2 (pp. 21-60), 3 (pp. 61-86), and 6 (169-192) are mandatory. This book is a reference work and is relevant for term papers, theses, research, etc.

Sternberg, R. J. (Ed.) (2000). Guide to publishing in psychology journals.
Cambridge UK: Cambridge University Press. doi: 10.1017/CBO9780511807862
Many practical tips on how to write empirical papers and literature reviews.

Rosnow, R. L., & Rosnow, M. (2011). Writing papers in psychology (9th ed.).
Toronto, Canada: Thomson Wadsworth.
A good book for students writing term papers in APA-style.

Bem, D. J. (1995). Writing a review article for Psychological Bulletin.
Psychological Bulletin, 118, 172-177. doi: 10.1037/0033-2909.118.2.172
Excellent and entertaining introduction to the art of article writing





**Thank you very much
for your attention!**