



Using APA style for scientific communication (Session 2)

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(upgrading slides by Sieghard Beller, Marco Hirnstein, and others)



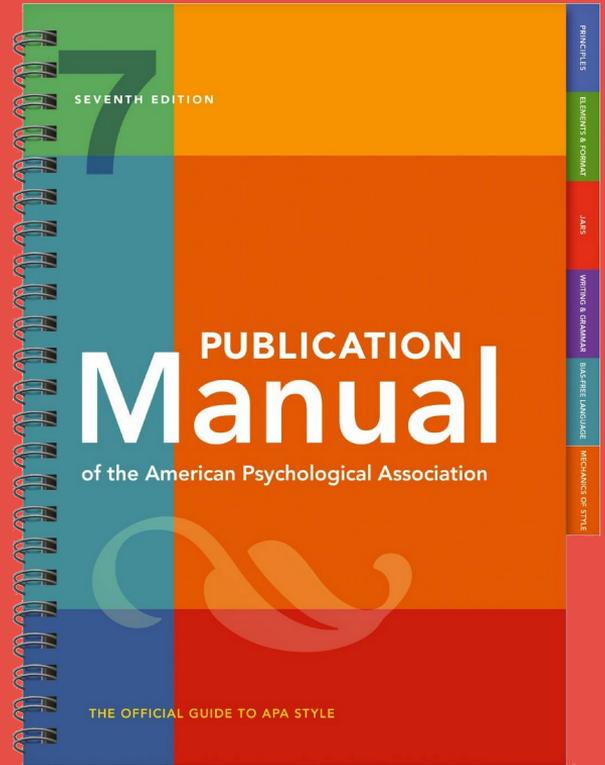


Overview

- 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 7*





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: General rules

Table/Figure 1

Table/Figure Title

here comes the
actual table / figure

Note. General note for the Table/Figure

^a Specific note (applies to specific conditions)

* Significance note (only if required)

Table/Figure Number – bold
(Table/Figure start with capital)

Table/Figure Title – italic,
using Title Case Heading

Table/Figure Notes – regular





Displaying results: General rules

table number → Table 1

table title → Numbers of Children With and Without Proof of Parental Citizenship

stub heading: heading that describes the leftmost column

column spanner: heading that describes the entries in two or more columns in the table body

decked heads: headings that are stacked, often to avoid repetition in column heads

table spanner: heading that covers the entire width of the table body, allowing for further divisions

stub column or stub: leftmost column of the table; usually lists the major independent or predictor variables

column heading: heading that identifies the entries in just one column in the table body

cell: point of intersection between a row and a column

table body: rows and columns of cells containing the primary data of the table

table notes: explanations to supplement or clarify information in the table body

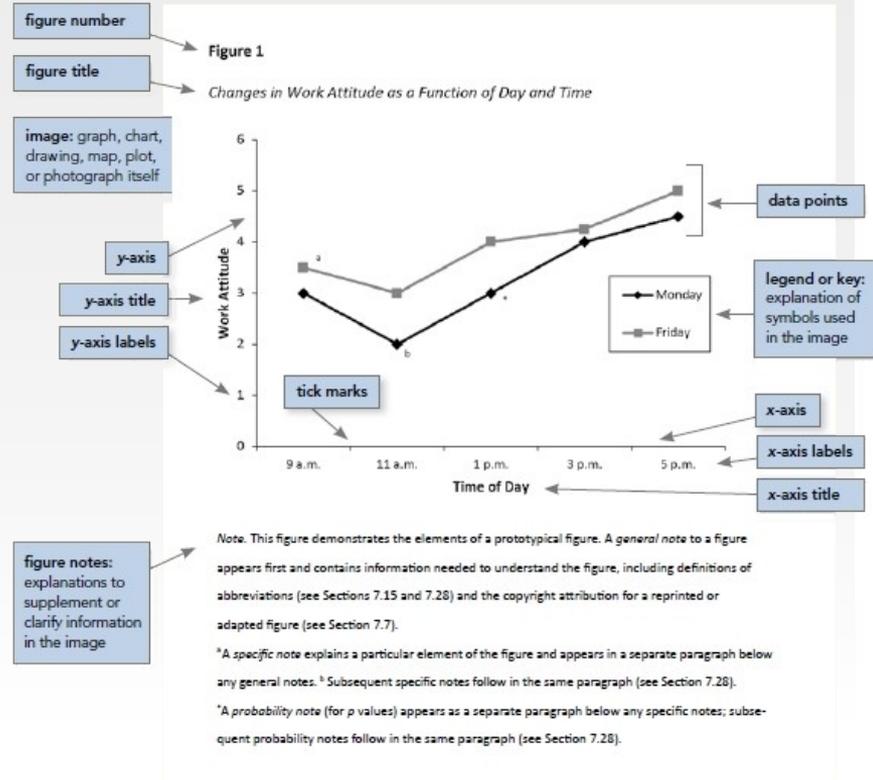
Grade	Girls		Boys	
	With	Without	With	Without
Wave 1				
3	280 ^a	240 ^b	281	232
4	297	251	290	264
5	301	260	306	221
Total	878	751	877	717
Wave 2				
3	201	189	210	199
4	214	194	236	210
5	221	216	239	213
Total	636	599	685 ^a	622

Note. This table demonstrates the elements of a prototypical table. A *general note* to a table appears first and contains information needed to understand the table, including definitions of abbreviations (see Sections 7.14–7.15) and the copyright attribution for a reprinted or adapted table (see Section 7.7).

^a A *specific note* appears in a separate paragraph below the general note.

^b Subsequent specific notes follow in the same paragraph (see Section 7.14).

^{*} A *probability note* (for *p* values) appears as a separate paragraph below any specific notes; subsequent probability notes follow in the same paragraph (see Section 7.14).





Displaying results: 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 IQ Scores of Students With Different College Majors





Displaying results: 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: 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)





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

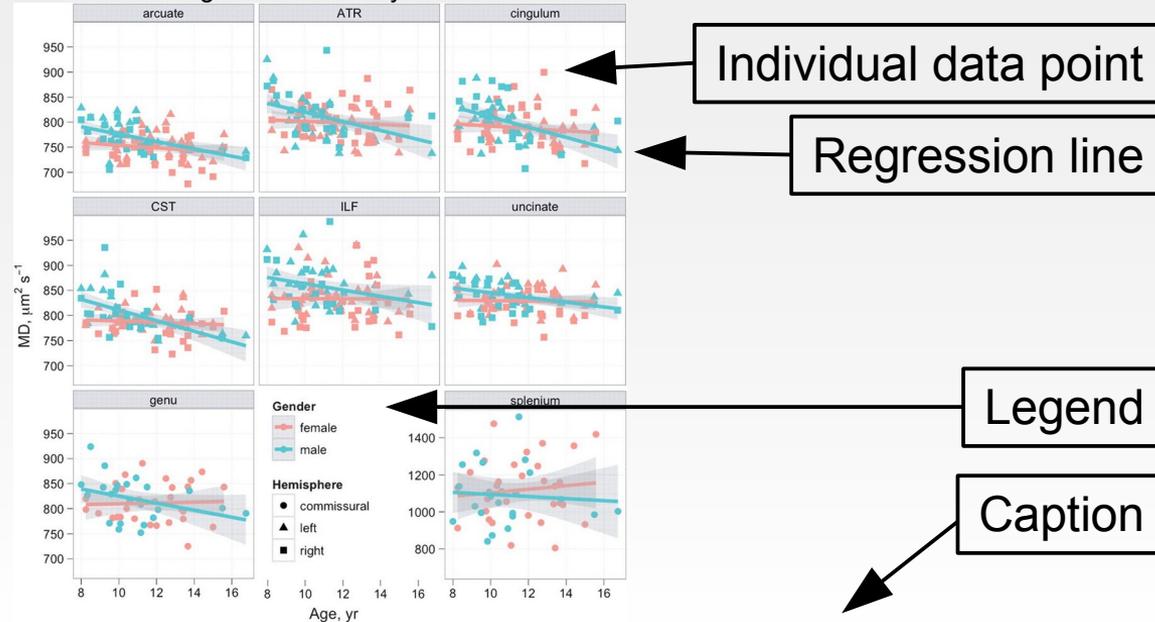
- graphs: relationship between quantitative variables
- charts: process information (flow charts)
- maps: spatial information
- drawings: pictorial information
- photographs: direct visual representation





Displaying results: Figures

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.



Example figure, showing **graphs**

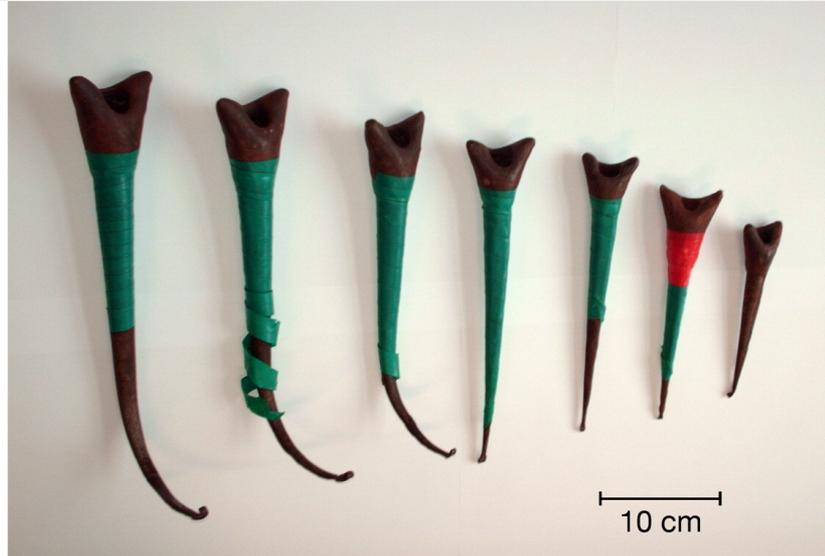
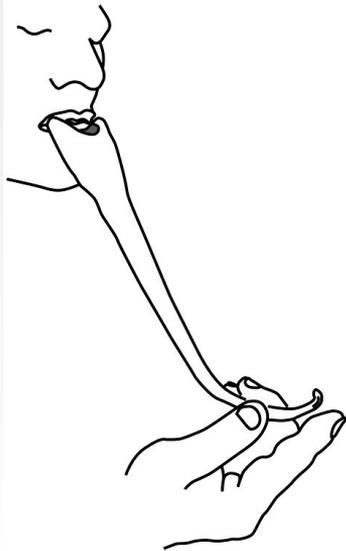
Clayden, J. D., Jentschke, S., Muñoz, M., Cooper, J. M., Chadwick, M. J., Banks, T., Clark, C. A., & Vargha-Khadem, F. (2012). Normative development of white matter tracts: Similarities and differences in relation to age, gender, and intelligence. *Cerebral Cortex*, 22(8), 1738–1747.
<https://doi.org/10.1093/cercor/bhr243>





Displaying results: Figures

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.

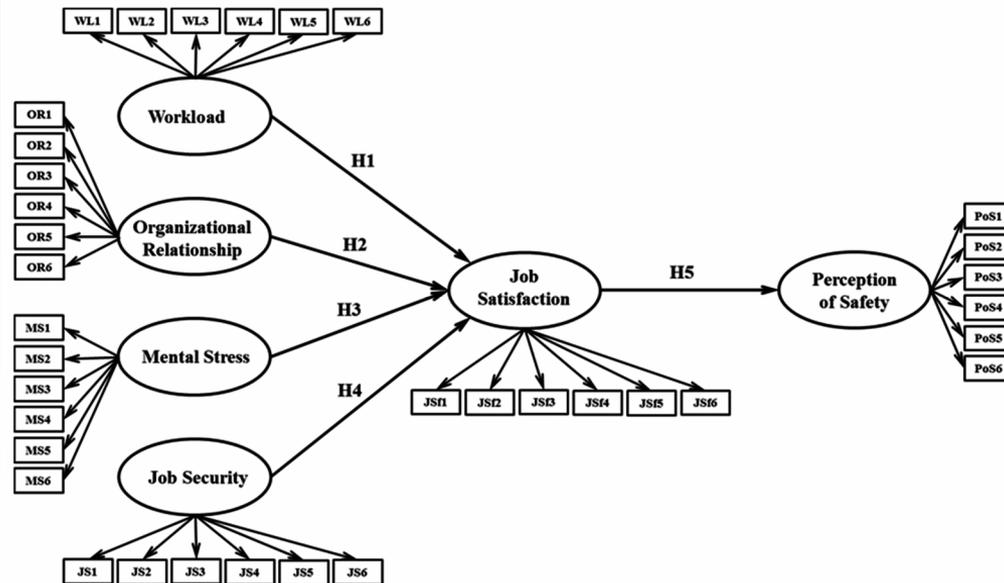


Example figure, combining a drawing (left) and a photograph (right)



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

in the APA manual:

- **checklists to ensure completeness (Chapter 3)**
<https://apastyle.apa.org/jars/>
- **checklists and example tables and figures (Ch. 7)**
<https://apastyle.apa.org/style-grammar-guidelines/tables-figures/sample-tables>
<https://apastyle.apa.org/style-grammar-guidelines/tables-figures/sample-figures>
- **some general instructions into graphics**
<http://vita.had.co.nz/papers/layered-grammar.pdf>
<https://r4ds.had.co.nz/> (chapter 3 and 28)
<https://www.r-graph-gallery.com/>

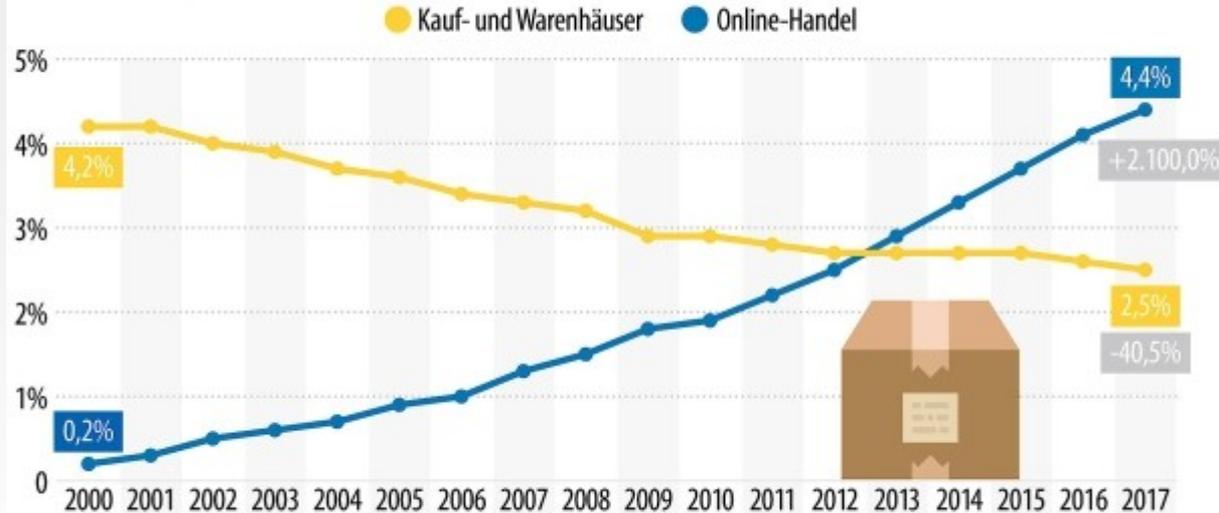




Some practical hints

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





Some practical hints

- SPSS vs. jamovi (jamovi.org)
exporting tables from SPSS
- Word / Writer vs. Latex (overleaf.com, papeeria.com)
- Inkscape (inkscape.org) and vector-based graphics
GIMP (gimp.org) and bitmap-based graphics
- EndNote vs. Zotero (www.zotero.org) or
Mendeley (www.mendeley.com)
- Quality of meta-data: PubMed





Some practical hints

- 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.)





How / where can you get help?

- <https://apastyle.apa.org/>; <https://apastyle.apa.org/jars>
- <https://www.unit.no/tjenester/norsk-apa-referansestil>
- examples in the **APA manual**
 - sample papers (pp. 50 – 67)
<https://apastyle.apa.org/style-grammar-guidelines/paper-format/sample-papers>
 - table checklist and examples (pp. 207; 210 – 223)**
<https://apastyle.apa.org/style-grammar-guidelines/tables-figures/sample-tables>
 - figure checklist and examples (pp. 232; 234 – 250)**
<https://apastyle.apa.org/style-grammar-guidelines/tables-figures/sample-figures>
 - reference overview and examples (pp. 313 – 352)
<https://apastyle.apa.org/style-grammar-guidelines/references/examples>





Literature

American Psychological Association (Ed.). (2020). *Publication manual of the American Psychological Association* (7th ed.). American Psychological Association. <https://doi.org/10.1037/0000165-000>

Chapters 1 (pp. 3-26), 2 (pp. 29-67), 3 (pp. 71-108), 4 (pp. 111-127), 8 (pp. 253-278), and 9 (pp. 281-309) are mandatory. This book is a reference work and is relevant for term papers, theses, research, etc.

Sternberg, R. J. (Ed., 2019). *Guide to publishing in psychology journals* (2nd ed.). Cambridge University Press. <https://doi.org/10.1017/9781108304443>
Many practical tips on how to write empirical papers and literature reviews.

Rosnow, R. L., & Rosnow, M. (2011). *Writing papers in psychology* (9th ed.). Cengage Learning.

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. <https://doi.org/10.1037/0033-2909.118.2.172>
Excellent and entertaining introduction to the art of article writing





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