



Empirical Research Methods 1

Quality criteria, structure and content of scientific texts

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Before we start 1/3: Today we will be using

- ◇ This session may not be very interactive because today we're covering 2 topics
- ◇ Voting and commenting on MS Teams: Remember to write any questions anytime in the chat
- ◇ Word online; if there's enough time

Before we start 2/3: SPSS

Have you got already SPSS working on your PC/ laptop?

We will need it for **next week's** topic!

In case not: ask the tutors and/or your fellow students (Team or private) for help. **DON'T LEAVE IT FOR THE LAST MINUTE!**

Before we start 3/4: Other announcements

Exercise sheets deadlines: should be now visible. You have 2 submissions for today!

The screenshot displays two overlapping screenshots of the LMS interface for 'Empirical Research Methods I' at the University of Saarland. The top screenshot shows the course page for 'Exercise sheet 3.1'. It includes a navigation bar with 'Home', 'Dashboard', 'Events', 'My Courses', and 'This course'. Below the navigation, there is a breadcrumb trail: 'My courses > Empirical Research Methods I > 3.1 Quality criteria, structure, a'. The main content area contains instructions for downloading a .docx file, answering it, and uploading it back. It also includes important notes about the submission deadline and the need to click the 'Submit' button. A file attachment is shown: '2020 - Exercise sheet 3.1 Quality criteria, structure and content of scie'. Below the instructions is a 'Submission status' table and an 'Add submission' button.

Submission status

Submission status	No attempt
Grading status	Not graded
Due date	Monday, 16 November 2020, 11:59 PM
Time remaining	3 days 7 hours
Last modified	-
Submission comments	Comments (0)

Add submission

The bottom screenshot shows the course page for 'Exercise sheet 3.2'. It includes a navigation bar with 'Home', 'Dashboard', 'Events', 'Meine Kurse', 'Dieser Kurs', and 'Hilfe & Kontakt'. Below the navigation, there is a breadcrumb trail: 'Meine Kurse > Empirical Research Methods I > 3.1 Quality criteria, structure, and content of sc... > Exercise sheet 3.2'. The main content area contains instructions for downloading a .docx file, answering it, and uploading it back either as a docx or pdf file. It also includes important notes about the submission deadline and the need to click the 'Submit' button and accept the submission statement. A file attachment is shown: '2020 - Exercise sheet 3.2 Standardized questionnaires and construction of a new questionnaire.docx'. Below the instructions is an 'Abgabestatus' table and an 'Abgabe hinzufügen' button.

Abgabestatus

Abgabestatus	Kein Versuch
Bewertungsstatus	Nicht bewertet
Fälligkeitsdatum	Montag, 16. November 2020, 23:59
Verbleibende Zeit	3 Tage 7 Stunden
Zuletzt geändert	-
Abgabekommentare	Kommentare (0)

Abgabe hinzufügen

Before we start 4/4: Other announcements

The screenshot shows the Microsoft Teams interface. On the left, there's a sidebar with navigation icons for Activity, Chat, Calls, Teams, Assignments, Calendar, Files, and Uds Config. The main area displays a 'Class Notebook' announcement for 'Empirical Research Methods 1 WISE 20-21'. The announcement is titled 'Here's what you will get in your Empirical Research Methods 1 WISE 20-21 Notebook:' and lists four sections:

- Collaboration Space**: Team notes are stored here for everyone to see. All channels will have sections here. Permissions: Teacher can edit the content, Student can edit the content.
- Content Library**: Publish course materials to students. Permissions: Teacher can edit the content, Student can only view the content.
- Teacher-Only Section**: A private space for teachers. Permissions: Teacher can edit the content, Student cannot view the content.
- Student Notebooks**: A private space for each student. Permissions: Teacher can edit the content, Student can edit his or her own content and can't view others' notebooks.

At the bottom of the announcement, there are 'Discard' and 'Next' buttons.

The screenshot shows the OneNote Class Notebook interface. The top bar includes 'General', 'Posts', 'Files', 'Class Notebook', 'Assignments', and 'Grades'. The main content area displays a 'Welcome to Class Notebook' message. The message explains that a OneNote Class Notebook is a digital notebook for the whole class to store text, images, handwritten notes, attachments, links, voice, video, and more. It states that each notebook is organized into three parts:

- Student Notebooks** – A private space shared between the teacher and each individual student. Teachers can access every student notebook, while students can only see their own.
- Content Library** – A read-only space where teachers can share handouts with students.
- Collaboration Space** – A space where everyone in your class can share, organize, and collaborate.

Below the list, there is an illustration of a tablet displaying a notebook page. The message concludes with 'How to make the most of Class Notebook in your Class Team:' and provides instructions on adding materials or collaborating, and working in groups.

Now let's start...

Agenda

- Independent and dependent measures (clarifications)
- Blind and double-blind study designs
- Quality criteria: Objectivity, Reliability, Validity
- Parts of a scientific paper
- Plagiarism and the importance of citations
- The fantastic world of APA style
- Q&A

Independent and dependent (repeated) measures: Corrections. I was wrong

- Independent measures = between groups = 1 participant, 1 variable/condition
- Repeated measures = within subjects = 1 participant, all the variables/conditions

<https://www.simplypsychology.org/experimental-designs.html>

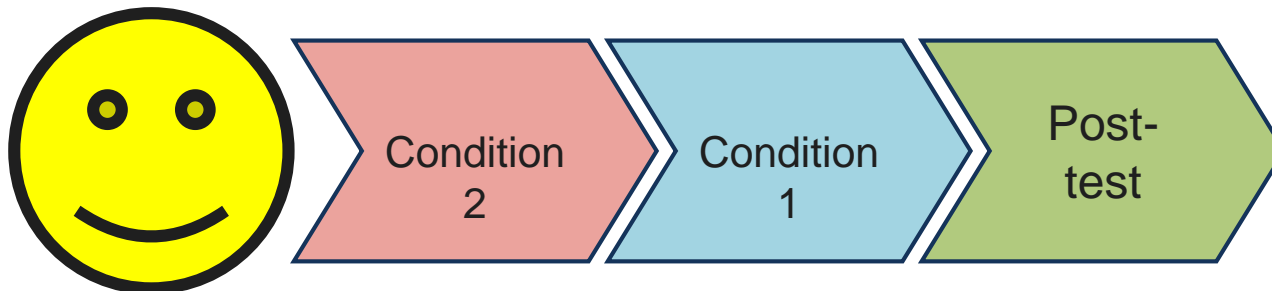
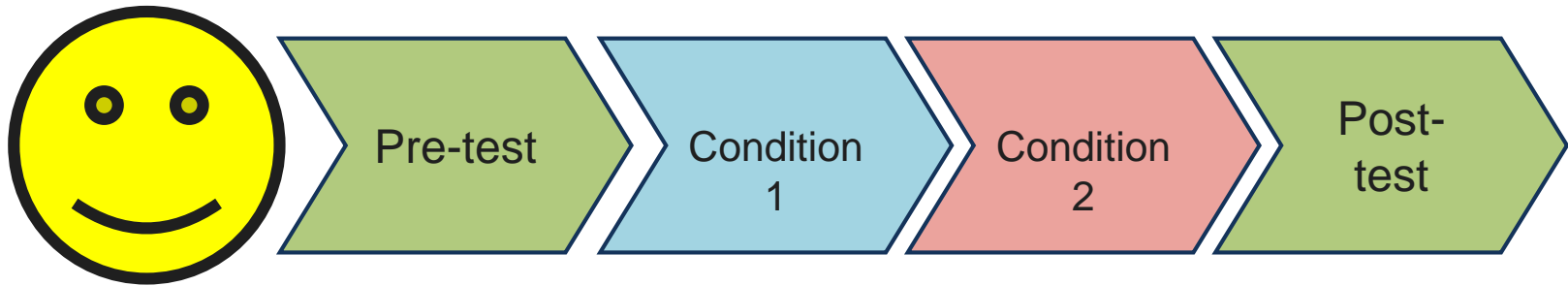
Resource only about within-subjects research: <https://www.verywellmind.com/what-is-a-within-subjects-design-2796014>

Independent and dependent (repeated) measures: Corrections. I was wrong

Variable = condition = IV =
independent variable = factor
(level)

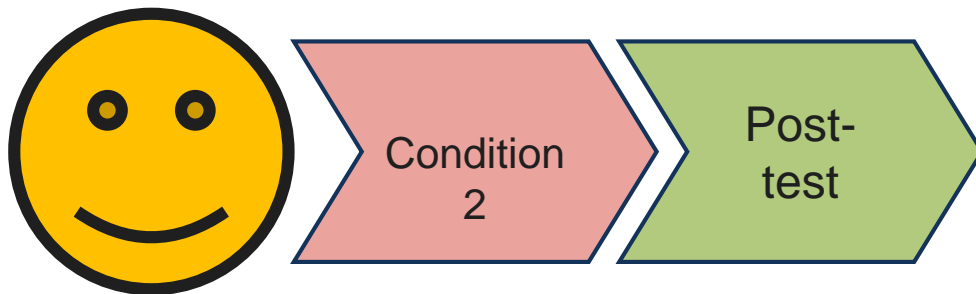
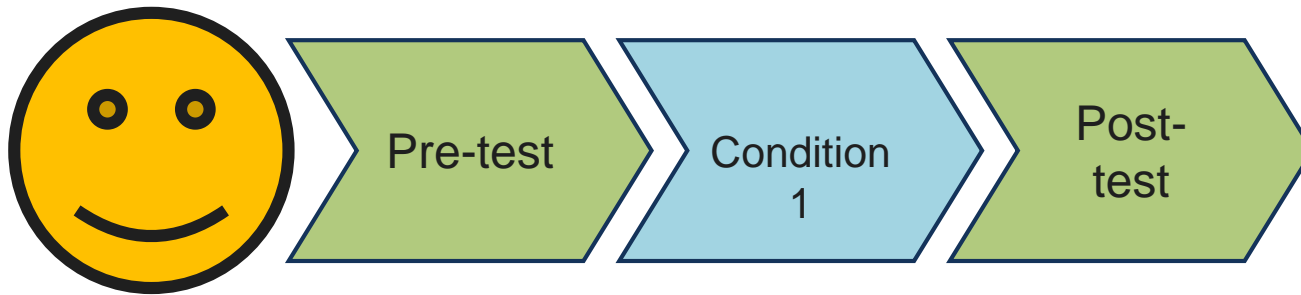
Corrections. I was wrong

Repeated (or dependent) measures examples:



Corrections. I was wrong

Independent measures examples:



Control group

“...a group separated from the rest of the experiment such that the independent variable being tested cannot influence the results.”

<https://www.thoughtco.com/control-and-experimental-group-differences-606113>

		Factor 1: Prompt A	
		Prompt A: on	Prompt A: off
Factor 2: Prompt B	Prompt B: on	A-B	B
	Prompt B: off	A	Control Group

Control group

- ◇ Not all experiments have a control group
- ◇ Experiments with a control group can be called “controlled experiments”

Blind and double-blind experimental designs

- For preventing biases on our research study
- Blind study: the participant doesn't know to which condition they were assigned to, but the experimenter knows ;-)
- Double blind: neither the experimenter nor the participant know the condition to which the participant was assigned

From last week...

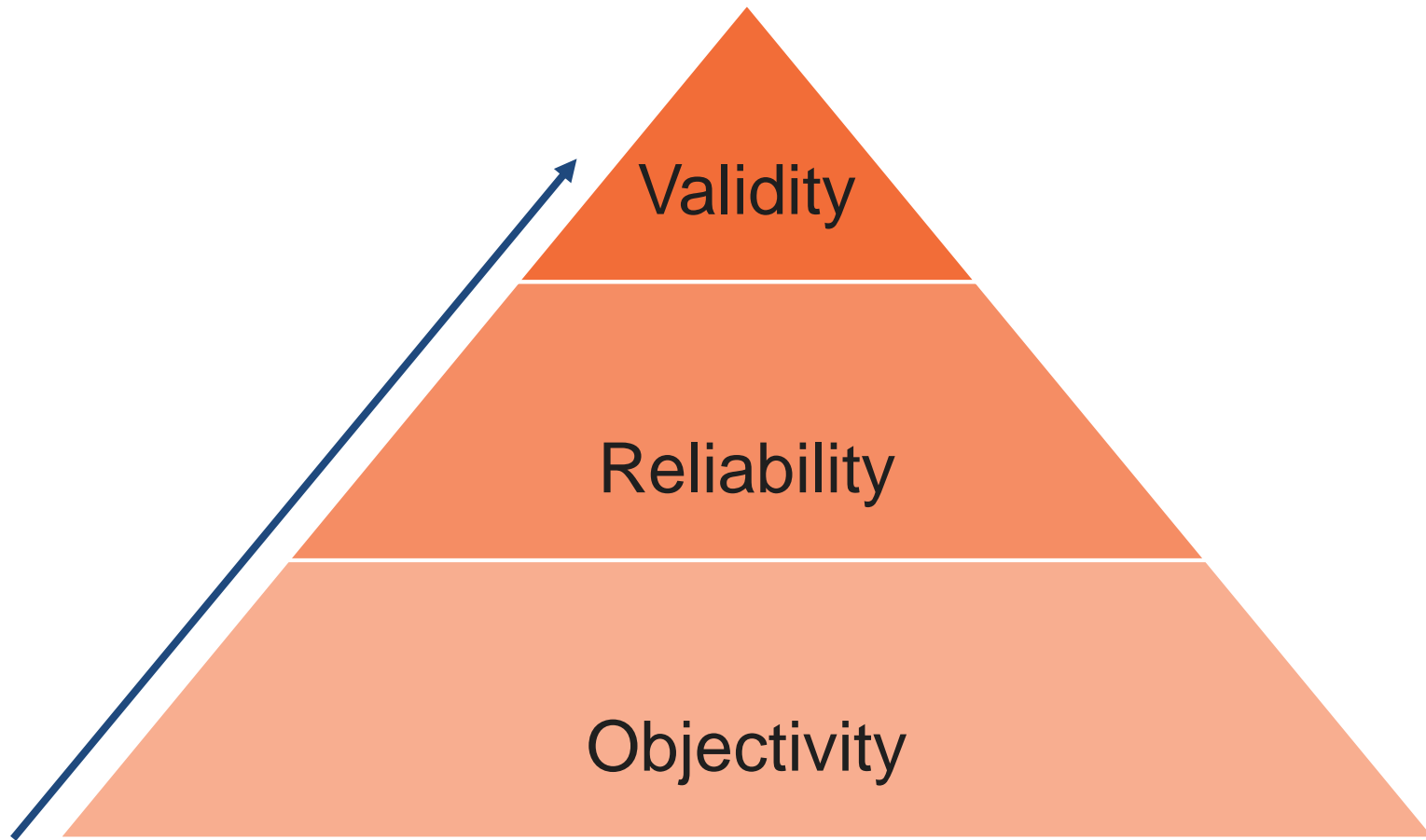
- ◇ **Experimental design:** How you set up your experiment:
 - ◇ Between groups vs. within subject?
 - ◇ Assignment of participants (e.g., randomization)?
 - ◇ Inclusion of control variables? Which ones?
 - ◇ Sample size (n)?
 - ◇ (...)
 - ◇ **Factorial design:** part of the experimental design
 - ◇ Definition of factors and factor levels (e.g., 2 x 3)
 - ◇ Having more than one factor / IV allows you to determine possible interactions between factors

Resources:

<http://support.sas.com/resources/papers/sixsigma1.pdf>

https://en.wikipedia.org/wiki/Design_of_experiments#Discussion_topics_when_setting_up_an_experimental_design

Main quality criteria: Hierarchical relationship



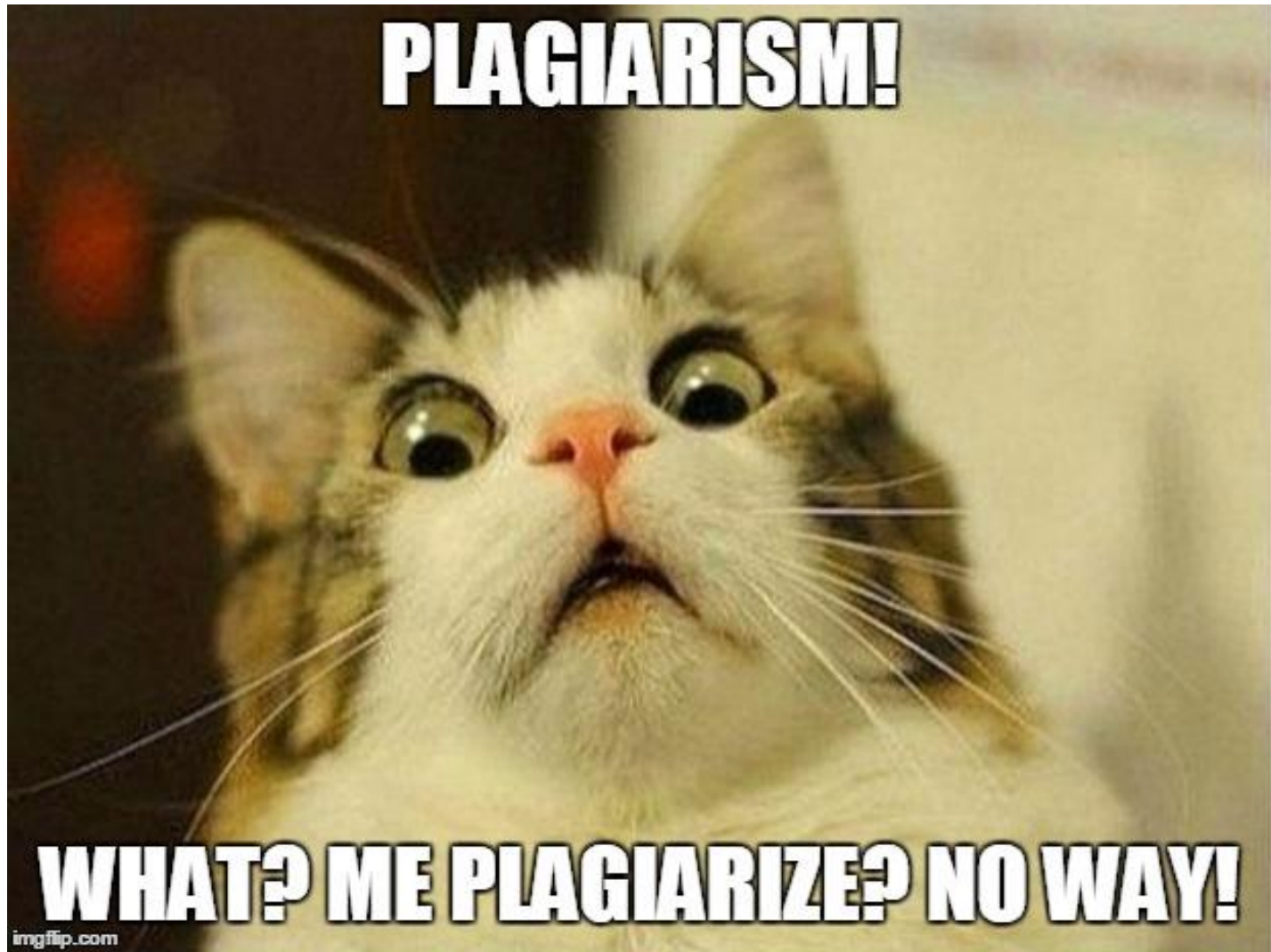
How to increase objectivity

- ◇ While conducting experiments:
 - ◇ Trained experimenters (experimenter guidelines)
 - ◇ Blind experimenters (blind to exp. conditions)
 - ◇ Standardization of the situation
- ◇ When analyzing data:
 - ◇ Standardize analysis procedures
 - ◇ For qualitative analysis: Inter-rater reliability
 - ◇ Blind analysis

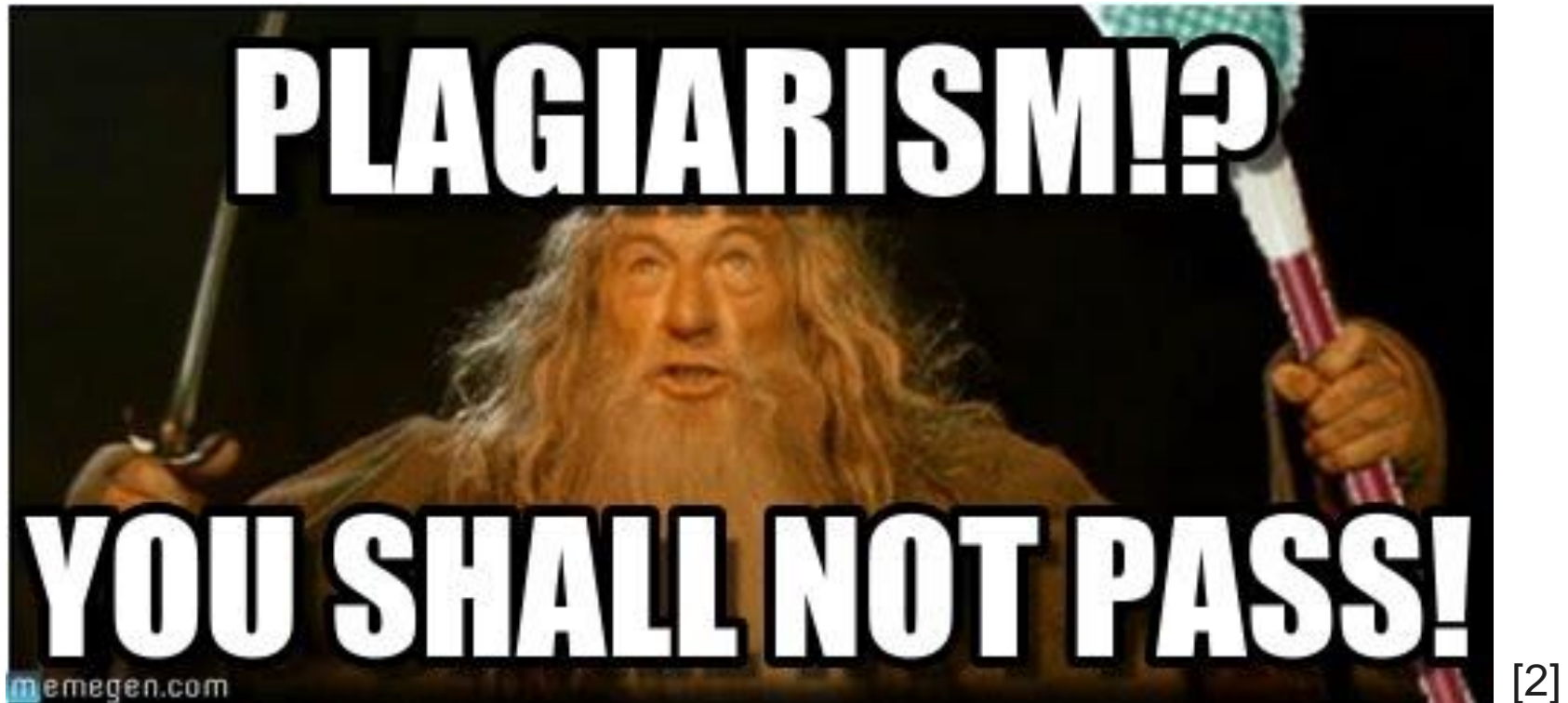
Typical parts of a scientific paper

- ◇ Parts
 - ◇ Title
 - ◇ Abstract
 - ◇ Introduction
 - ◇ Theoretical background
 - ◇ Research design & methods (sample, sampling technique, exp. procedure, data collection (incl. which DVs and how are they measured), ethical considerations, quality criteria and how to meet them, overview on analysis)
 - ◇ Results
 - ◇ Discussion
 - ◇ Limitations and future research
 - ◇ Conclusions
 - ◇ References
 - ◇ Acknowledgements
- ◇ What are their functions?

PLAGIARISM AND CORRECT CITATIONS



[1]



Consequences of plagiarism:

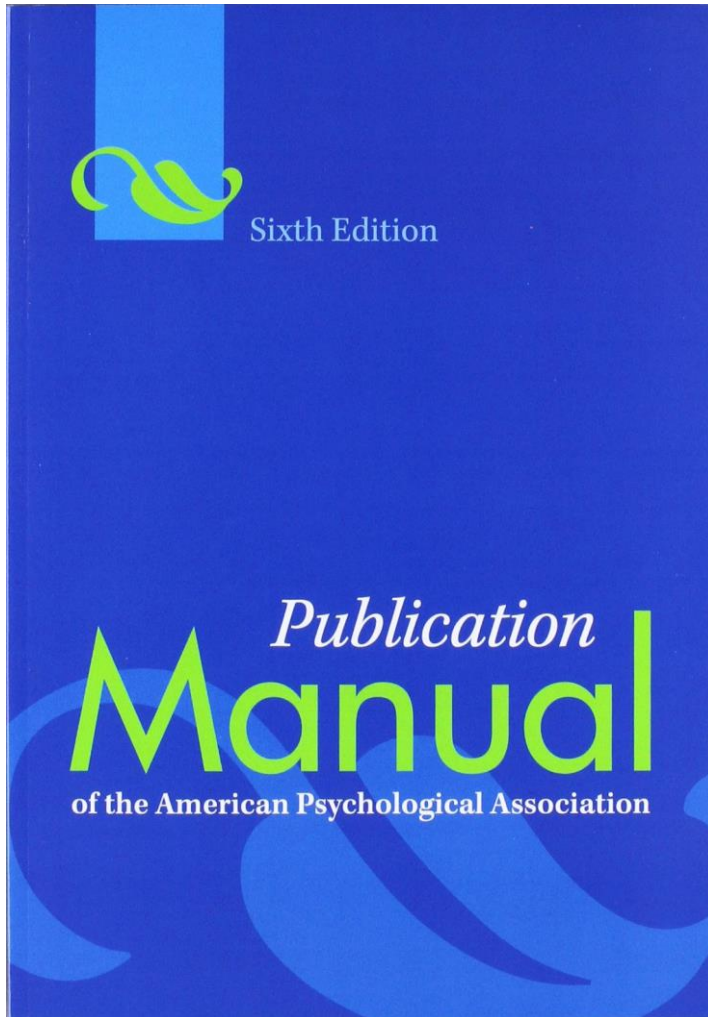
- Minor violations → worse grade
- Major violations → failing the class
- Serious or repeated violations → losing the right for examinations → failing the study program



[1] <https://imgflip.com/i/qert2>

[2] <https://shhs-southhadleyschools.libguides.com/incorporatingquotes>

[3] <http://memes.com/img/1093232>



- Comprehensive book; it is recommended to read about the respective topics once you need them
- You do not need to learn the rules by heart for the exam!
- However, it can be handy to master the most important rules without checking the book every single time

All ideas, results, analyses, etc. that you did not produce yourself, **need to be cited accordingly!**

APA: Frequently needed rules

APA:
Have you heard about that?

APA: quick intro

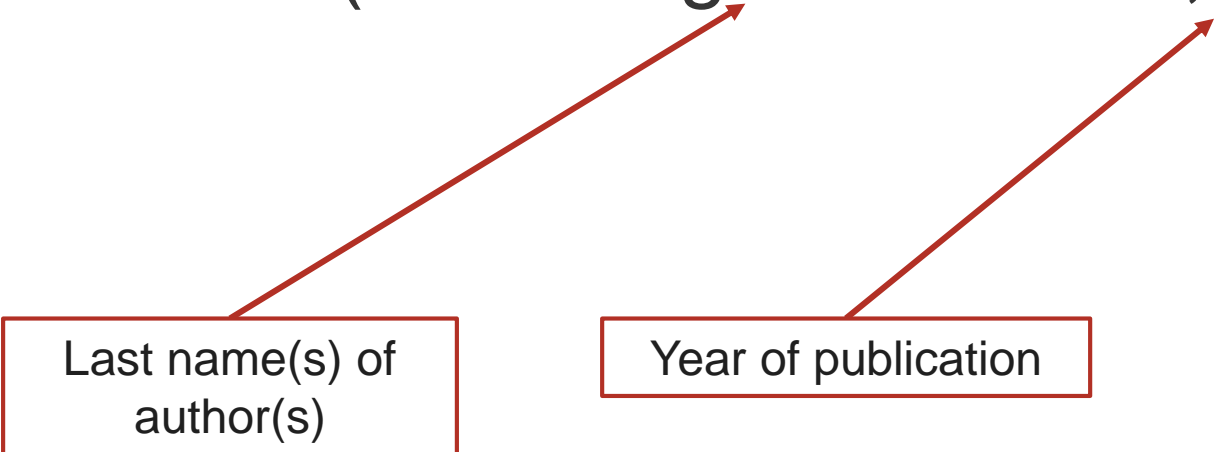
- ◇ American Psychological Association. Founded in 1892
- ◇ Very influential organization in the field of Psychology
- ◇ Created the APA style and Publication manual mentioned above which is not only used in Psychology but also in other fields. You will need to use APA style for most, if not all, of your classes → Today we will only talk about this

In-text: Referring to others' work

- ◇ You refer to results / ideas / argumentation of someone else, describing in your **own words** what they have stated before
- ◇ Format:

...text text text (Weinberger & Fischer, 2006)

Last name(s) of
author(s)



Year of publication

In-text: Direct quotation

- ◇ **Word-for-word** reproduction of text
- ◇ Rarely needed; try to avoid using direct quotations as much as possible
- ◇ “Basic” format:

“text text text” (Weinberger, 2014, p. 840)



In-text: Authors

- ◇ When the reference is mentioned the **first time**: list all authors (max. 5)
 - ◇ text text text (Tsovaltzi, Judele, Puhl, & Weinberger, 2015)
- ◇ In **subsequent citations**: Only list first author + “et al.”
 - ◇ text text text (Tsovaltzi et al., 2015)
- ◇ If there are in total **two authors**, always mention both:
 - ◇ text text text (Weinberger & Fischer, 2006)

APA: Reference list

◇ Journal article

- ◇ Tsovaltzi, D., Judele, R., Puhl, T., & Weinberger, A. (2015). Scripts, individual preparation and group awareness support in the service of learning in Facebook: How does CSCL compare to social networking sites? *Computers in Human Behavior*, 53, 577-592. doi: 10.1016/j.chb.2015.04.067

◇ Book

- ◇ Ladel, S., Knopf, J., & Weinberger, A. (Ed.). (2017). *Digitalisierung und Bildung*. Wiesbaden: Springer Fachmedien.

◇ Book chapter

- ◇ Weinberger, A. (2017). Orchestrierungsmodelle und –szenarien technologieunterstützten Lernens. In S. Ladel, J. Knopf, & A. Weinberger (Hrsg.), *Digitalisierung und Bildung* (S. 117-139). Wiesbaden: Springer Fachmedien.

◇ Conference papers

- ◇ Schmitt, L., & Weinberger, A. (2016, August). *Dyadic argumentation of elementary school children with a reflective tool*. Presentation at EARLI SIG26 meeting, Ghent, Belgium.

APA exercises

Go to:

<https://unisaarlandde.sharepoint.com/:w:/s/123827EmpiricalResearchMethodsII/EfhPBX7aH8dDvAtDcQQIR4kBCFtULIipmyvbqK4Vnz79Bg?e=i117AS>

Write down the correct APA citation

APA exercises

- ◇ Title: A lifespan perspective on embodied cognition
- ◇ Type: Journal article (Frontiers in Psychology)
- ◇ Authors:
 - ◇ Loeffler, Jonna
 - ◇ Raab, Markus
 - ◇ Cañal-Bruland, Rouwen
- ◇ Year: 2016
- ◇ Volume: 7
- ◇ Pages: 1-6
- ◇ Doi: 10.3389/fpsyg.2016.00845
- ◇ Keywords: Cognition; Developmental; Elderly; Embodiment; Lifespan; Sensorimotor

Loeffler, J., Raab, M., & Cañal-Bruland, R. (2016). A lifespan perspective on embodied cognition. *Frontiers in Psychology*, 7, 1–6. doi: 10.3389/fpsyg.2016.00845

APA exercises

- ◇ Title: Content Analysis: An Introduction To Its Methodology
- ◇ Type: Book
- ◇ Authors: Klaus Krippendorff
- ◇ Year: 2012
- ◇ ISBN: 1483307034
- ◇ Publisher: Sage
- ◇ 456 pages
- ◇ Location: Thousand Oaks, California

Krippendorff, K. (2012). *Content analysis: An introduction to its methodology*. Thousand Oaks, CA: Sage.

- Bransford, J. D., & Schwartz, D. L. (1999). Rethinking transfer: A simple proposal with multiple implications. *Review of Research in Education*, 24, 61–100. **Journal article**
- Clark, H. H. (1985). Language use and language users. In G. Lindzey & E. Aronson (Eds.), *Handbook of social psychology* (3rd ed., pp. 179–231). New York: Harper and Row. **Book chapter**
- Clark, H. H., & Wilkes-Gibbs, D. (1986). Referring as a collaborative process. *Cognition*, 22(1), 1–39. **Journal article**
- D'Angelo, S., & Begel, A. (2017, May). Improving communication between pair programmers using shared gaze awareness. In *Proceedings of the 2017 CHI Conference on Human Factors in Computing Systems* (pp. 6245–6290). New York: ACM. **Conference proceedings**
- Dillenbourg, P., Lemaignan, S., Sangin, M., Nova, N., & Molinari, G. (2016). The symmetry of partner modelling. *International Journal of Computer-Supported Collaborative Learning*, 11(2), 227–253. **Journal article**
- Gergle, D., & Clark, A. T. (2011). See what i'm saying?: Using dyadic mobile eye tracking to study collaborative reference. In *Proceedings of the ACM 2011 conference on Computer supported cooperative work* (pp. 435–444). ACM. **Conference proceedings**
- Hayes, A. F., & Krippendorff, K. (2007). Answering the call for a standard reliability measure for coding data. *Communication methods and measures*, 1(1), 77–89. **Journal article**
- Jermann, P., Mullins, D., Nüssli, M.-A., & Dillenbourg, P. (2011). Collaborative gaze footprints: Correlates of interaction quality. *CSCL2011 Conference Proceedings. Volume I - Long Papers*, 184–191. **Conference proceedings**
- Mason, L., Pluchino, P., & Tornatora, M. C. (2015). Eye-movement modeling of text and picture integration during reading: Effects on processing and learning. *Contemporary Educational Psychology*, 14, 172–187. **Journal article**

What type of publications are these?

Q&A:
TODAY'S TOPIC; ERM1 IN GENERAL