



Universitat
Pompeu Fabra
Barcelona

Research Methodology

Meta-Research Assignment

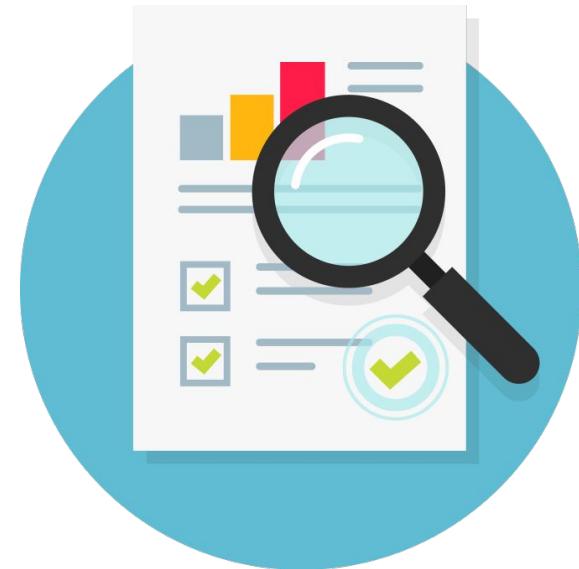
Davinia Hernández-Leo & Ishari Amarasinghe

- Who supervises the work of researchers?
- Who evaluates the quality of research and its impact on society?
- What's the impact of research practice in research?
- To what extent can AI tools contribute to or obstruct researchers' work?



What is Meta-Research?

- Research on **research**
- The study of research itself:
methods, reporting,
reproducibility, evaluation,
incentives (Ioannidis, 2018)
- How is research done and
where can we **improve** it?



What is **NOT** Meta-Research?

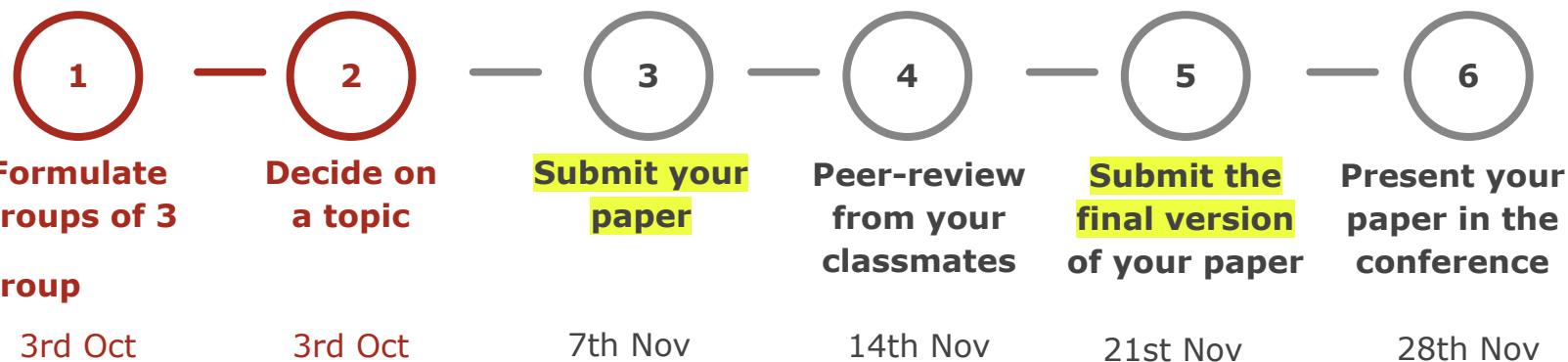
- **Meta-analysis:** set of techniques used to quantitatively combine results from different studies into a single report (Ferrer, 1998)
- **Systematic review:** process to define a research question, search for studies, assess their quality and synthesize findings qualitatively or quantitatively (Armstrong et al., 2011)

Challenge: Write a meta-research paper in groups

Goal

Practice the different concepts of the course covered each week by writing a meta-research paper

Process

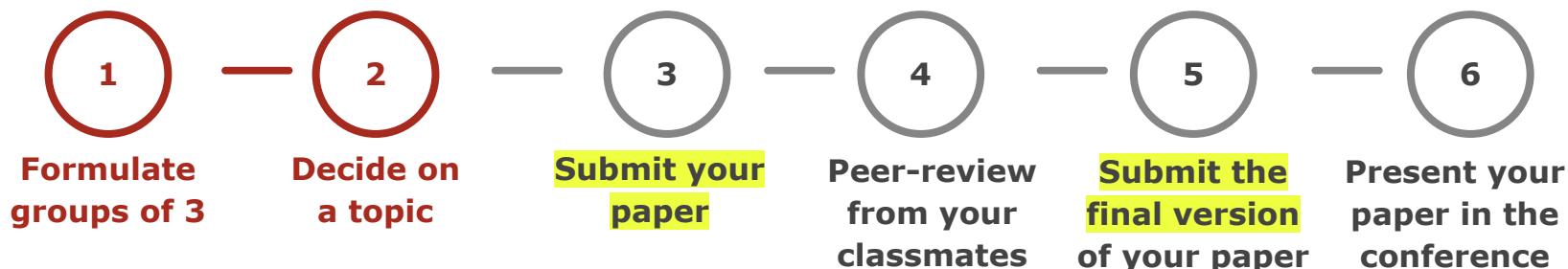


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Goal

Practice the different concepts of the course covered each week by writing a meta-research paper

Process



Tuesday Group

7th Oct

7th Oct

4th Nov

11th Nov

18th Nov

25th Nov

Topics for your Meta-Research Assignment

To what extent can AI tools contribute to or obstruct researchers' work?

- **Searching information**
- **Formulating research**
- **Data Analysis**
- **Reporting Results**



→ Searching Information

- ◆ Kudiabor, Helena. "How AI-powered science search engines can speed up your research." *Nature* (2024).

→ Formulation Research

- ◆ van Dijk, S. H., Brusse-Keizer, M. G., Bucsán, C. C., van der Palen, J., Doggen, C. J., & Lenferink, A. (2023). Artificial intelligence in systematic reviews: promising when appropriately used. *BMJ open*, 13(7), e072254. <http://dx.doi.org/10.1136/bmjopen-2023-072254>

Topics for your Meta-Research Assignment

Data Analysis

- Malik, Aqdas, M. Laeeq Khan, and Khalid Hussain. "How is ChatGPT transforming academia? Examining its impact on teaching, research, assessment, and learning." Examining its Impact on Teaching, Research, Assessment, and Learning (April 9, 2023) (2023). <http://dx.doi.org/10.2139/ssrn.4413516>
- Lopezosa, Carlos, Lluís Codina, and Juan José Boté-Vercad. "Testeando ATLAS. ti con OpenAI: hacia un nuevo paradigma para el análisis cualitativo de entrevistas con inteligencia artificial." (2023). <https://repositori.upf.edu/handle/10230/56449>

Reporting results

- Chen, Tzeng-Ji. "ChatGPT and other artificial intelligence applications speed up scientific writing." Journal of the Chinese Medical Association 86.4 (2023): 351-353. <https://pubmed.ncbi.nlm.nih.gov/36791246/>
- Esplugas, M. (2023). The use of artificial intelligence (AI) to enhance academic communication, education and research: a balanced approach. Journal of Hand Surgery (European Volume), 48(8), 819-822. <https://doi.org/10.1177/17531934231185>
- Nova, M. (2018). Utilizing Grammarly in evaluating academic writing: A narrative research on EFL students' experience. Premise: Journal of English Education and Applied Linguistics, 7(1), 80-96. <https://garuda.kemdikbud.go.id/documents/detail/2173276>

Possible topics (some ideas)

Searching Information

- Exploration and evaluation of AI tools
- Management of information sources
- Opportunities and/or limitations of tools to manage information
- Quality of the tools: Benchmarking different tools
- Approaches and benefits to take advantage of AI tools

Formulating Research

- AI research tools and practices in the formulation of research projects
- Quality & impact of AI research in exploring and formulating research problems
- AI and ethics in the formulation of problems and questions.
- AI and Literature reviews, meta-analysis, systematic reviews.

Possible themes for discussion

Data Analysis

- AI applied to research methods
- Uses and benefits of AI tools in the work of the researchers
- Impact and quality of AI tools for data analysis
- Assessment of AI tools in data processing and information management.
- Human agency vs AI role in data processing.
- AI and data collection

Reporting Results

- Uses of AI to disseminate and communicate research reports
- AI and scientific writing
- AI tools and scientific impact
- AI, ethics and researchers' awareness.
- AI visual tools to reach scientific and non-scientific audiences.

How to write and submit your paper

- Meta-research template in Aula Global
- Examples of students' papers ([2020](#), [2021](#), [2022](#), [2023](#), [2024](#)) in UPF repository
- Recommended and found papers
- Submission through EasyChair system - MERE 2025



Groups and topics

- **Oct 3rd (Friday Group); Oct 7th (Tuesday Group):**
Decide on a group of 3 students, select a topic and [fill in the form](#)
- Feel free to use our AG forum to look for group members!



Tutoring Sessions

- **Save the date:** Book a tutoring session to discuss your progress, questions and main concerns.
- Book at [Doodle](#)
- Raise your questions the the class virtual forum



References

- Armstrong R, Hall BJ, Doyle J, Waters E (2011). "Cochrane Update. 'Scoping the scope' of a cochrane review". Journal of Public Health. 33 (1): 147–50. doi:10.1093/pubmed/fdr015 Retrieved from <https://academic.oup.com/jpubhealth/article/33/1/147/1549781>
- Ferrer, R. L. (1998). Graphical methods for detecting bias in meta-analysis. Family medicine -Kansas City-, 30, 579-583. Retrieved from https://www.researchgate.net/profile/Robert_Ferrer/publication/13513488_Graphical_methods_for_detecting_bias_in_meta-analysis/links/0046352cab5be98874000000/Graphical-methods-for-detecting-bias-in-meta-analysis.pdf
- Ioannidis, J. P. (2018). Meta-research: Why research on research matters. PLoS biology, 16(3), e2005468. Retrieved from <https://journals.plos.org/plosbiology/article?id=10.1371/journal.pbio.2005468>