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An Introduction of Research Methodology

Arya Adiningrat, drg., Ph.D

Research Division
Dental School of Medicine and Health Science Faculty
Universitas Muhammadiyah Yogyakarta

General concept of study type

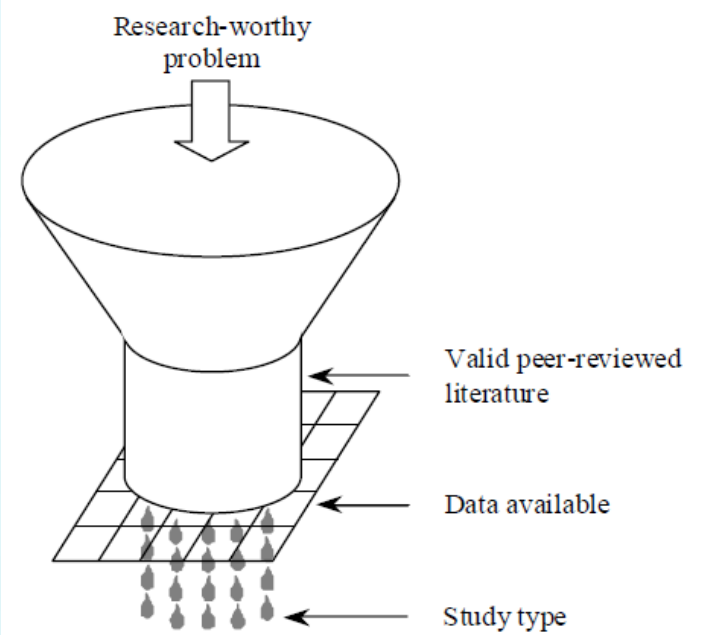
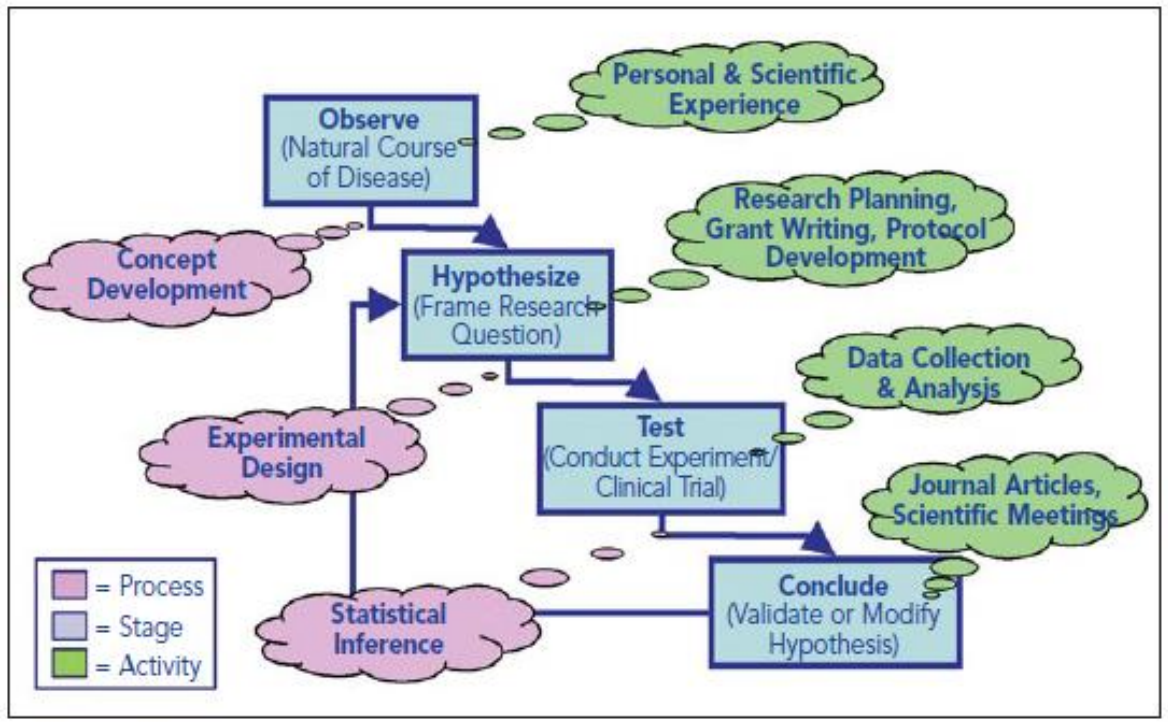


Figure 1. The PLD Model for Deriving Study Type

Ellis & Levi, 2009

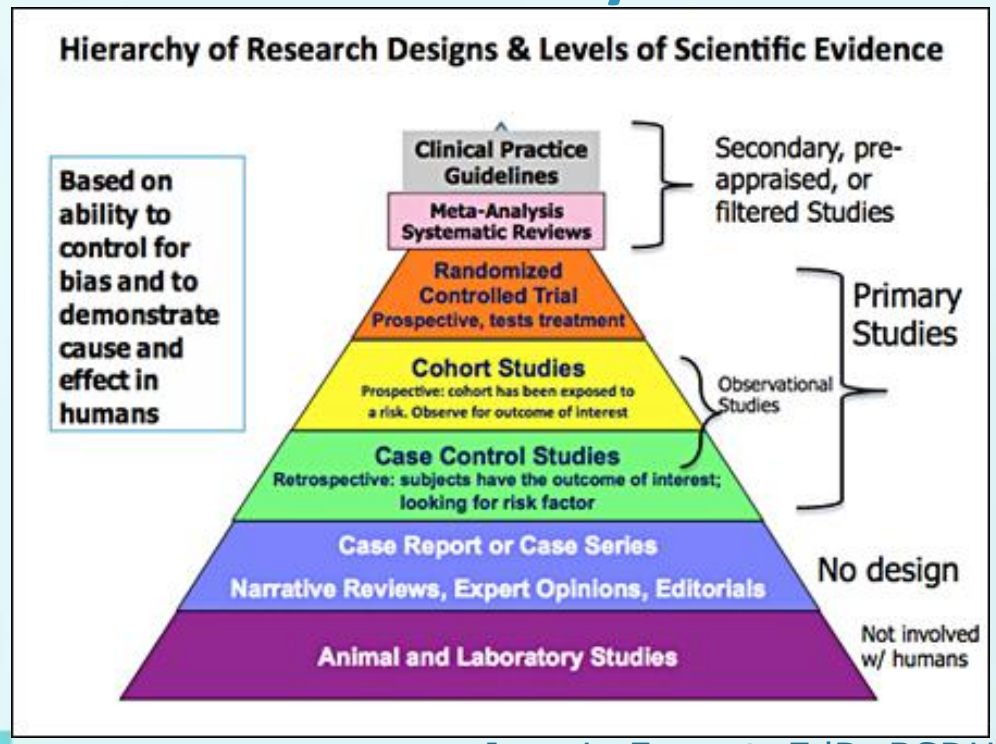
- " It is clear that some research domains are sufficiently narrow that they allow that they allow the use of only limited methodologies." *Nunamaker, Chen, and Purdin (1991)*
- The best design cannot provide meaning to research and answer the question '**why was the study conducted**', if there is not the anchor of a clearly identified research problem

Scientific approach



Jane Perlmutter, 2015

Research hierarchy



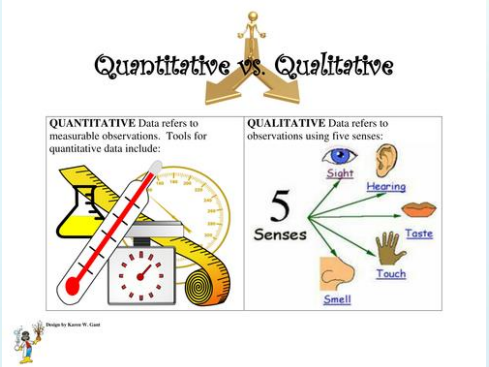
Jane L. Forrest, EdD, BSDH

Modified Evidence Pyramid. Copyright permission granted by SUNY Downstate Medical Center, Medical Research Library at Brooklyn

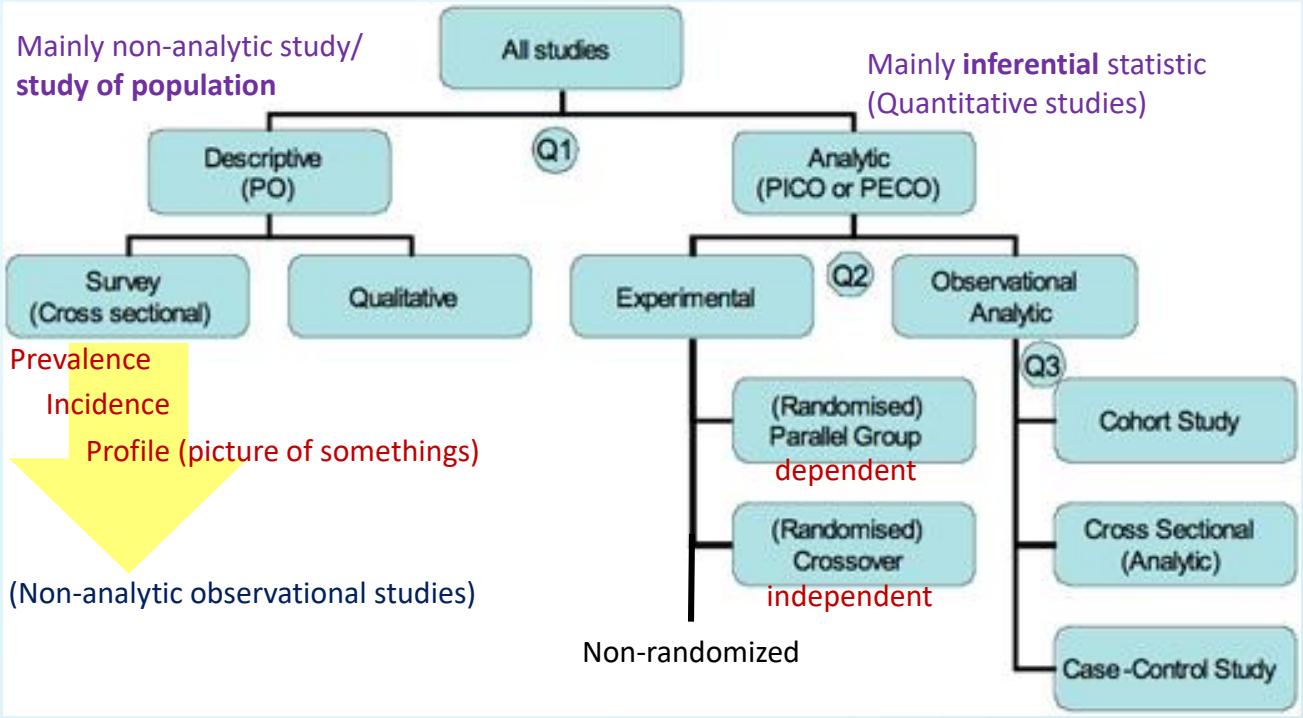
Quantitative and Qualitative studies

Qualitative	Quantitative
• Understanding • Interview/observation • Discovering frameworks • Textual (words) • Theory generating • Quality of informant more important than sample size • Subjective • Embedded knowledge • Models of analysis: fidelity to text or words of interviewees	• Prediction • Survey/questionnaires • Existing frameworks • Numerical • Theory testing (experimental) • Sample size core issue in reliability of data • Objective • Public • Model of analysis: parametric, non-parametric

Jeremy Howick, 2016 (CEBM)

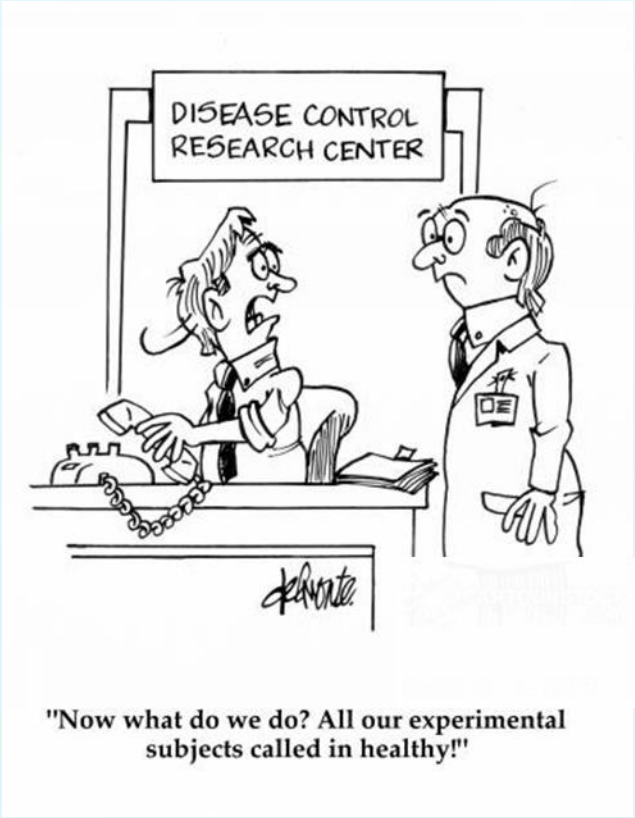


Overview of the design tree of study

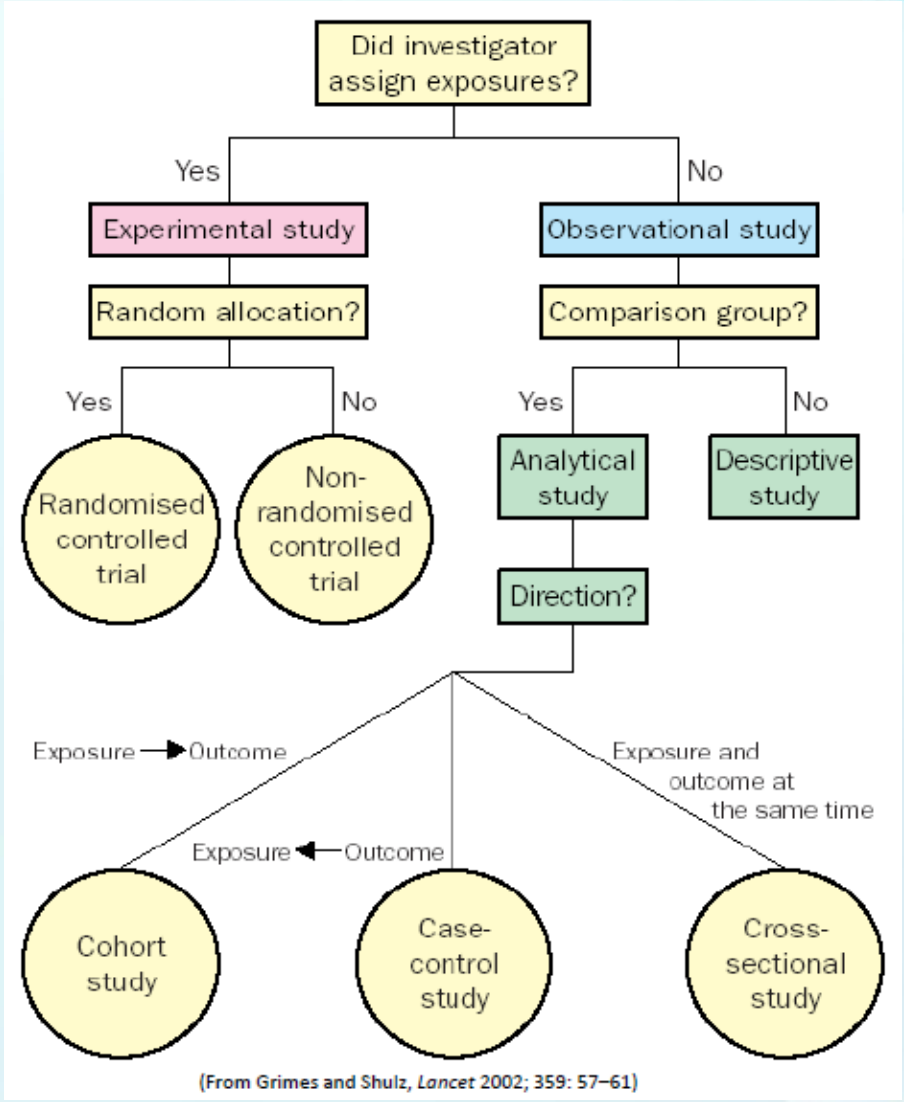


Modified from the Centre of Evidence-based Medicine, Oxford

Quantitative studies

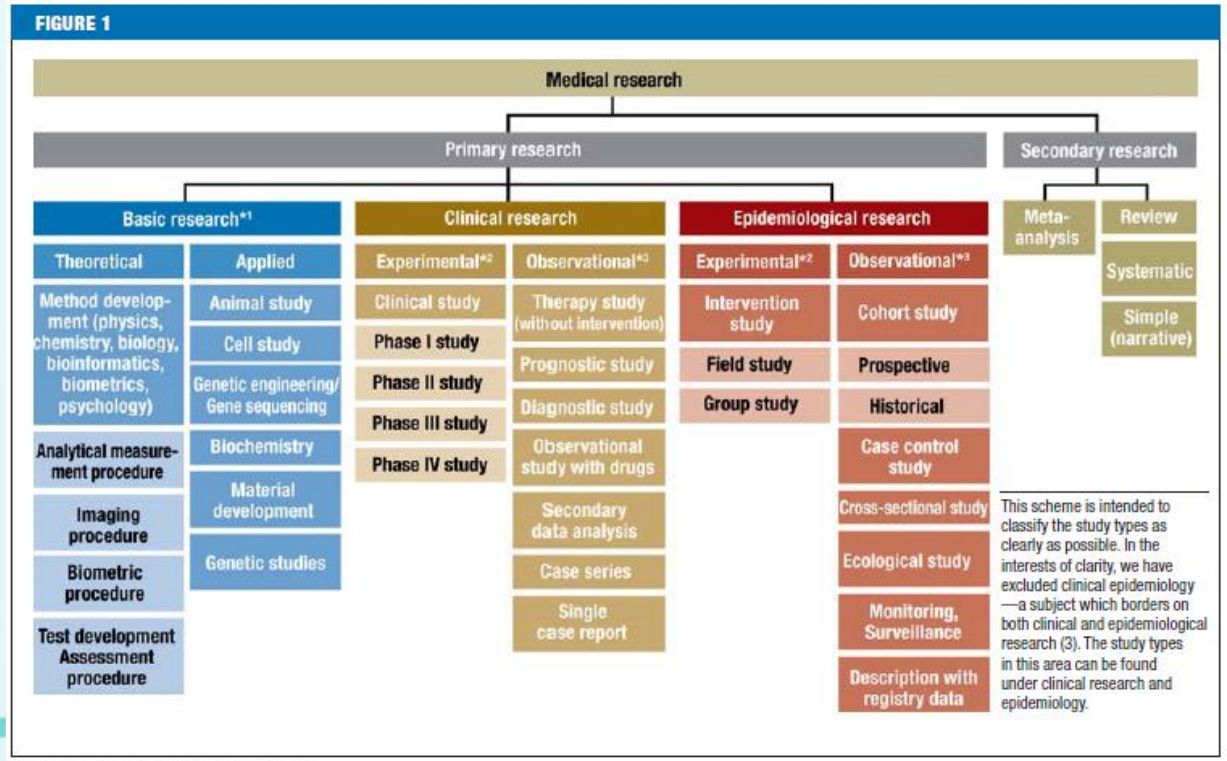


"Now what do we do? All our experimental subjects called in healthy!"



(From Grimes and Shulz, *Lancet* 2002; 359: 57–61)

Medical research approach



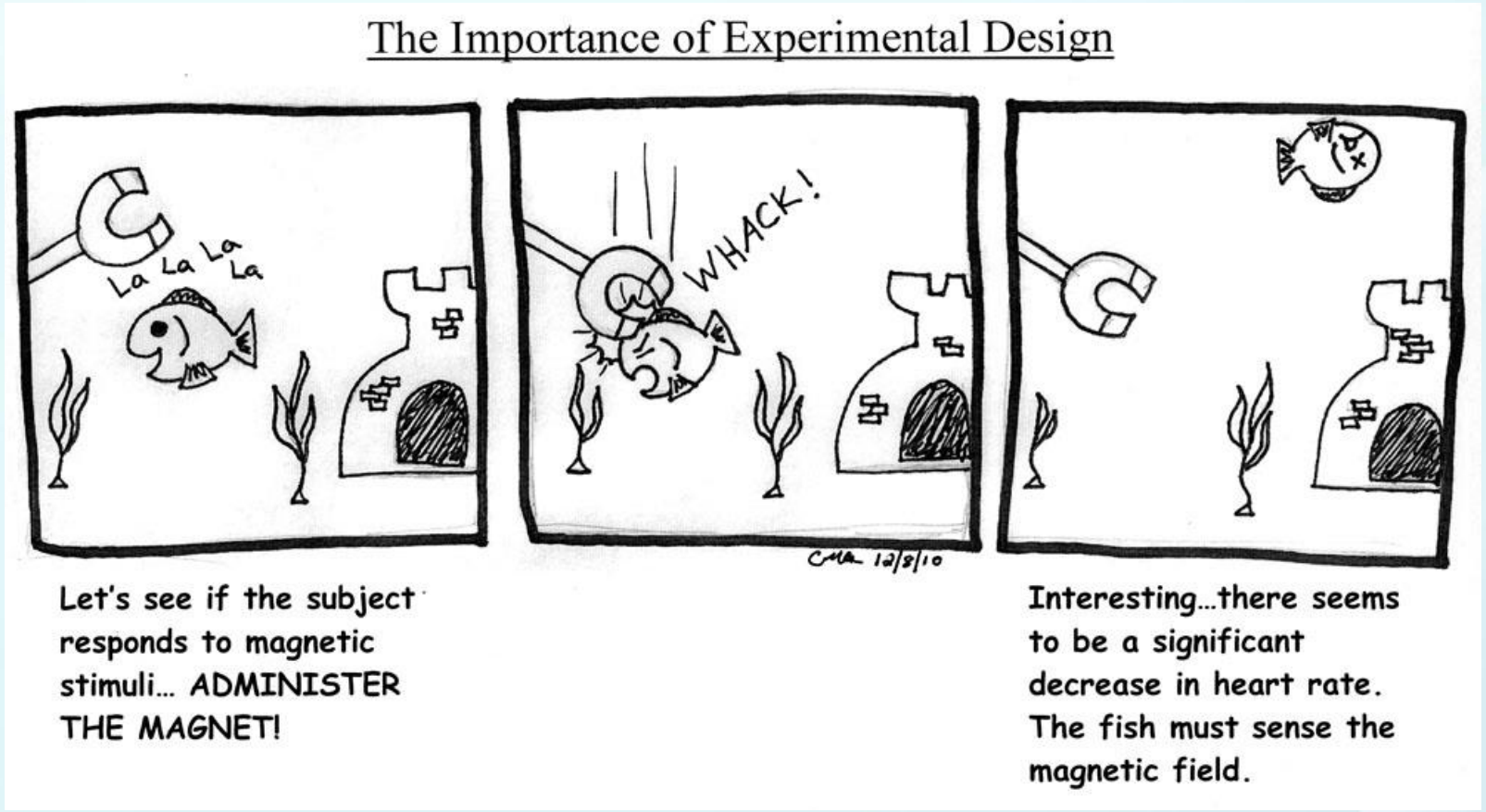
Classification of different study types

*1, sometimes known as experimental research; *2, analogous term: interventional; *3, analogous term: noninterventional or nonexperimental

Rohrig Bernd, et al., 2009

Constructing a research

- Define the research problem (after observing the phenomenon)
- Develop a hypotheses (logical supposition)
- Having logical assumptions or reasonable theory (through systematic literatures review)
- Acknowledge the limitation and delimitation (decide the design and type of study)
- Confirm the validity and reliability (reliability could be tested using Pearson's product moment for linear correlation and Eta for non-linear correlation, Cronbach α can replace Pearson r for internal consistency test)
- Data analysis (statistical analysis for quantitative research)
- Assessment and discussion (Evaluation)



"Thank you for your attention,
good luck and enjoy in your research activity"