Research question – the basics

Prof. Dr. Eva Grill, MPH

Institute of Medical Information Processing, Biometry and Epidemiology and

German Center for Vertigo and Balance Disorders

Ludwig-Maximilians Universität München
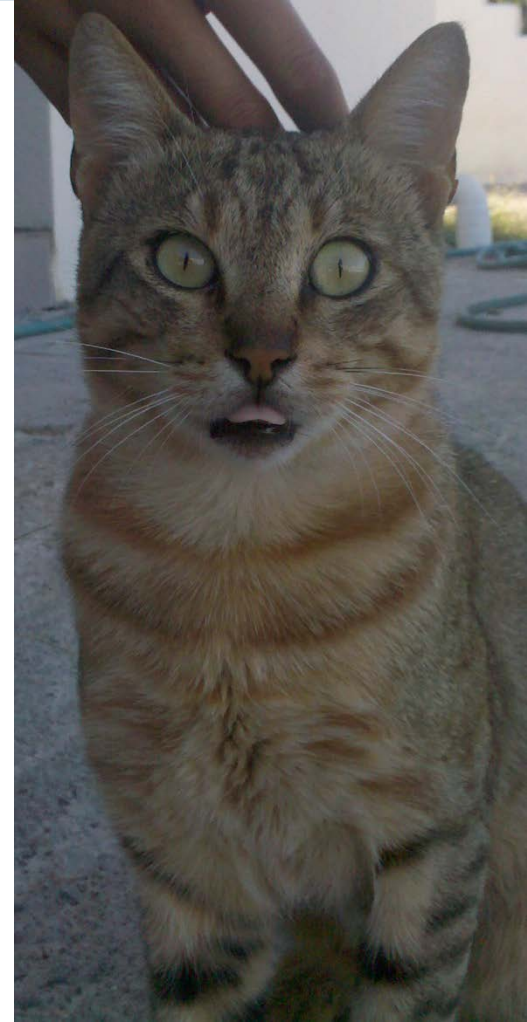
What makes a good research project?

▸ Share your answer with the person sitting next to you

DSGZ
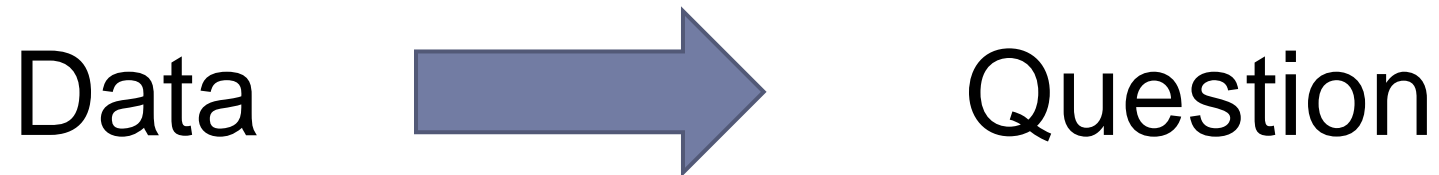
What makes a good research project?

▸ Share out what you heard from your neighbor and comment

▸ E.g. Eva's idea was … , I agree because, I disagree because
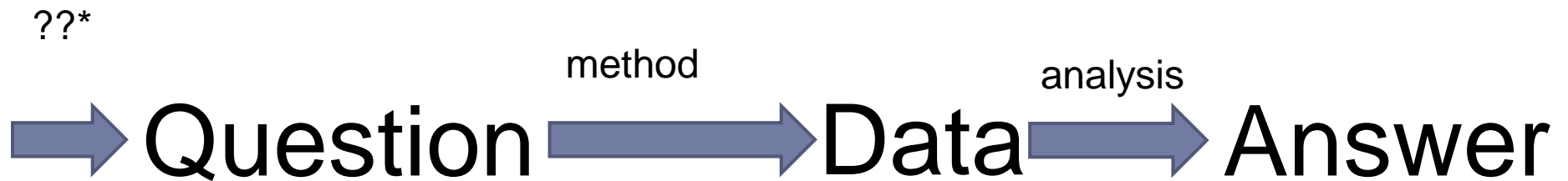
DSGZ

What is a research question?

▸ Why did the cat cross the road?

▸ How many cats crossed Marchioninistrasse on May 26, 2015?

▸ What are the environmental factors that occurred in May 2015 that would cause cats to cross Marchioninistrasse?

▸ Is there an association between the establishment of a construction site at Marchioninistrasse and the increase of cat mortality in that area?
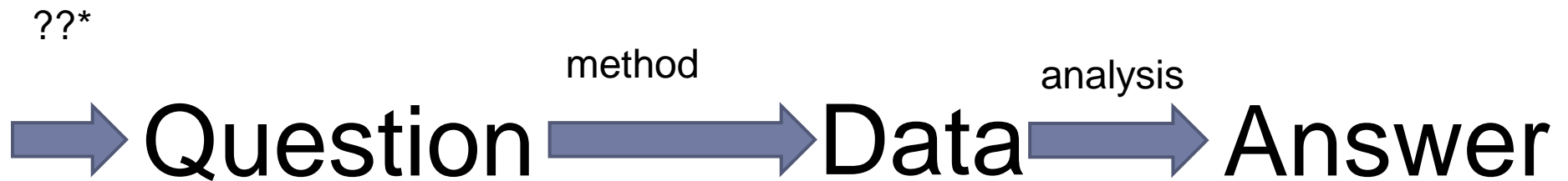
DSGZ

Data → Question

DSGZ

??*

method

analysis

Question ➡ Data ➡ Answer

DSGZ

??*

method

analysis

Question ➡ Data ➡ Answer

*Personal interest and experience
*Literature and theory

DSGZ

Finding a topic of research

- Do I know the field and its literature well?

- What are the important research questions in my field? What areas need further exploration?

- Could my study fill a gap? Has a great deal of research already been conducted in this topic area?

- Has this study been done before? If so, is there room for improvement?

- Is the timing right for this question to be answered? Is it a hot topic, or is it becoming obsolete?

- Would funding sources be interested?

- Will my study have a (significant) impact on the field?

DSGZ

Impact

▸ Is it important? (to whom?)

▸ Burden of illness

▸ The research community

▸ Costs of research vs. Benefits

▸ Research fashion

DSGZ

The process from interest to research question

▸ Find a topic that is specific enough

▸ Ask questions about this until you find one that interests you

▸ What kind of evidence do you need to answer this question?

▸ Which sources do you need for this data?

▸ Try mind mapping …

DSGZ

Hypotheses - objectives

▸ Specific predictions about the relationship between two variables

The latent prevalence pool of prostate cancer is underestimated in studies modelling effectiveness of screening …

"Our objective was to investigate how predicted harms and benefits of prostate cancer screening are affected by the size of the latent prevalence pool" Mühlberger Med Decis Mak 2015

DSGZ

Do you want to accomplish one of these goals …

▸ Define or measure a specific fact or gather facts about a specific phenomenon.

▸ Match facts and theory.

▸ Evaluate and compare two theories, models, or hypotheses.

▸ Prove that a certain method is more effective than other methods

DSGZ

Try it yourself …

▸ Are men more physically active than women?

10 minutes morning run: oxygenates skin and lungs, perfuses muscles, activates gut and metabolism, what a gain for the day!

DSGZ