

Philosophy of Science

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HOSPICE CASA SPERANȚEI
MAKING EVERY MOMENT COUNT

OBJECTIVES OF THE SESSION

Cognitive

Define Key concepts for research philosophy – **ontology**, **epistemology**, **axiology**, **deductive approach**, **inductive approach**, **abduction**

Explain Major Philosophical Identities in research **positivism**, **interpretivism**, **pragmatism**

Understand the impact of the **research paradigm** on research **methodology**, **data collection methods**

Ability

- Self-assess **own research philosophy**

Attitude

Recognize and address the **challenges / misconceptions** about various research paradigms

Philosophy of Science

- The study of the **foundation** (what is science), **methods** (how to build scientific knowledge) and **implication** (how does scientific knowledge work) of scientific knowledge



Science derived from Philosophy

	Philosophy	Science	Both
Goal	Thinking clearly	Know what to believe	Seek Truth
Methods	Reflection argumentation	Observation experimentation verification	Reasoning to conclusion
Evaluation	Principles of logic	Confirmation by peers	

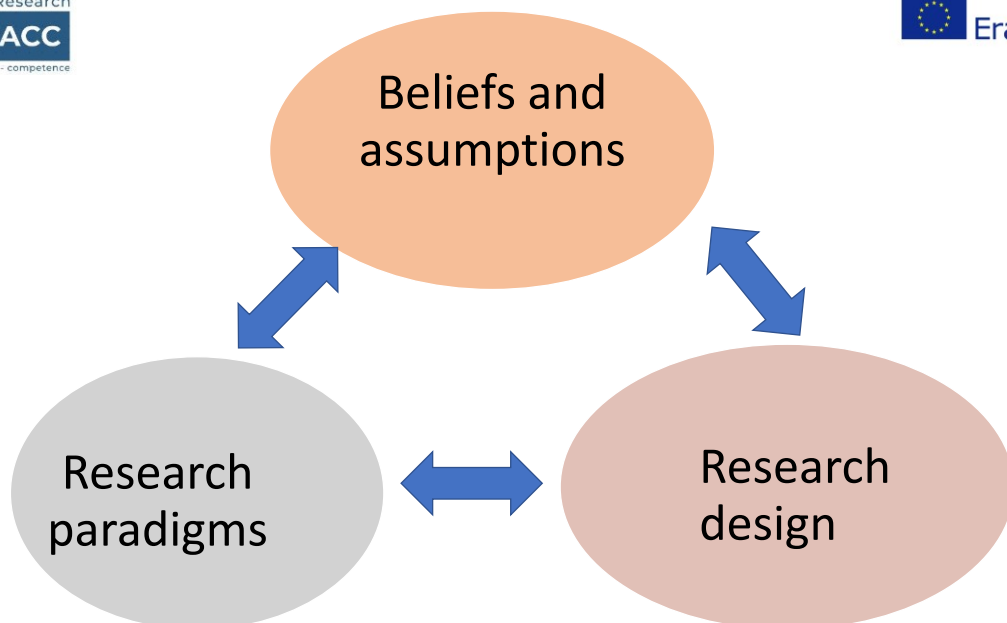
When you start your research project

- You think first about ...

How will I collect the data ??

My research participants ??

Your research question ??



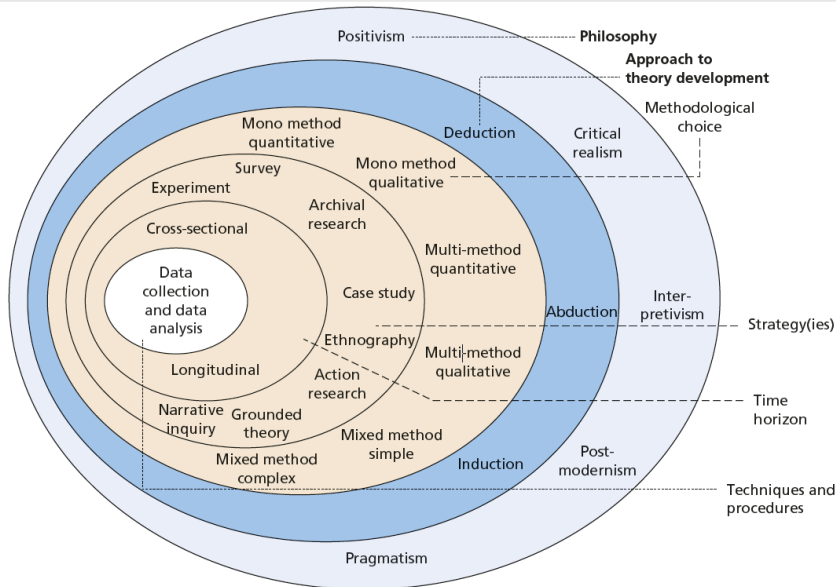
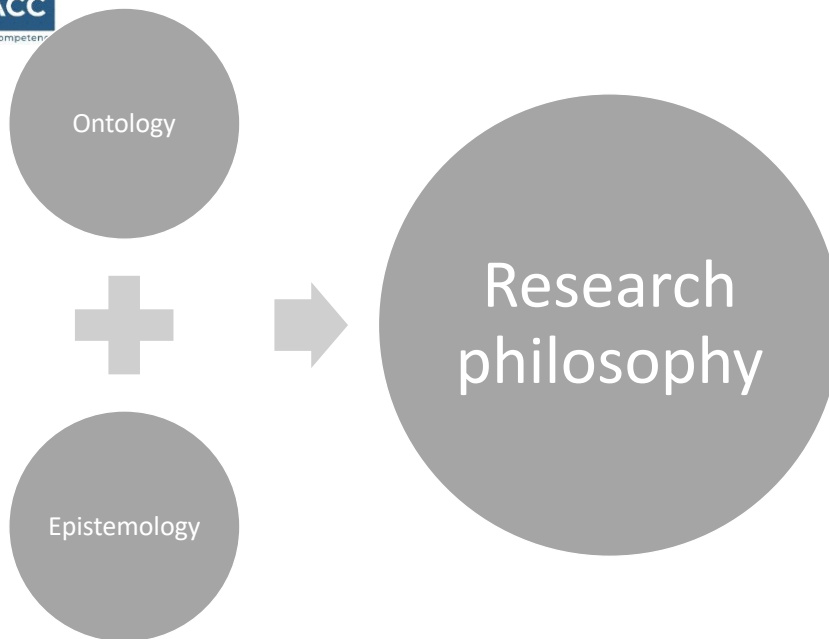


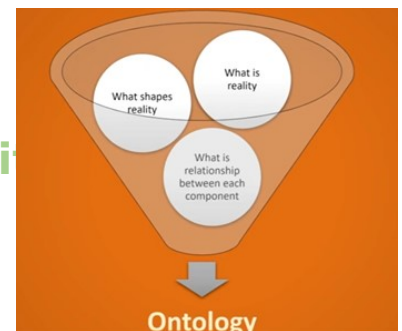
Figure 4.1 The research 'onion'
 Source: © 2015 Mark Saunders, Philip Lewis and Adrian Thornhill

Definitions -read and match the 2 columns

- | | |
|-----------------|--|
| 1. Ontology | a. Values |
| 2. Axiology | b. How can we know about reality |
| 3. Epistemology | c. The nature of reality |
| | d. What constitutes acceptable knowledge |



Ontology –the nature of reality

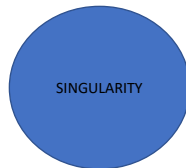


- ὄντος (óntos), which means 'being', 'entity' and λόγος (lógos), which translates to 'science',
- Ontology refers to assumptions about the nature of reality. Ontology is a system of belief that reflects an interpretation of an individual about what constitutes a fact. In simple terms, ontology is associated with what we consider as reality. Although this may seem abstract and far removed from our research project, our ontological assumptions shape the way in which we see and study our research objects/subjects/participants.

Ontological assumptions

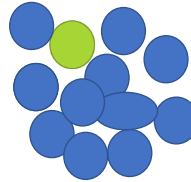
One Reality (realism)

- There is an objective reality out there that we can find
- Things exist independently of us
- There is one actual accurate description / explanation of reality

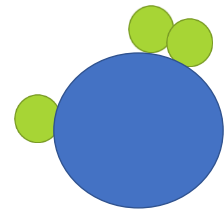


Multiple Realities (relativism)

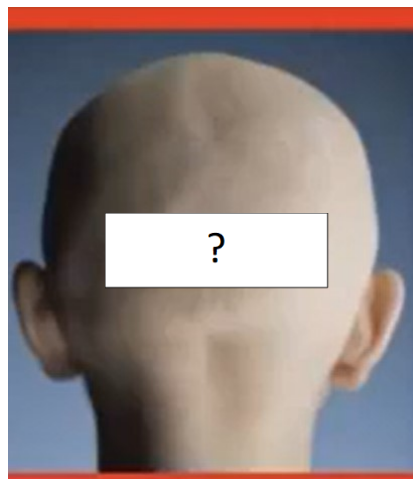
- There are multiple realities
- The world is not separable from our cognition (our thoughts)
- Social reality is a creation of our consciousness and interpretation



One or Many Realities



What reality do you see in the picture below



What reality do you see in the picture below



Epistemology- How can we know about reality/ get new knowledge/what is acceptable knowledge

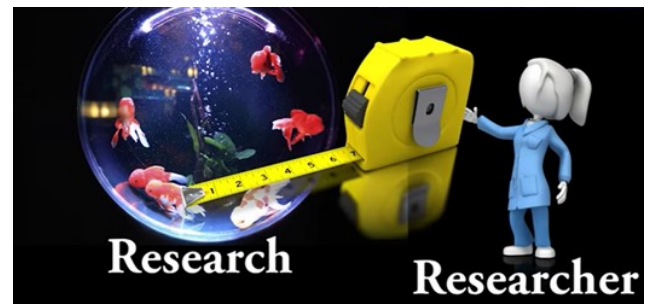
- Truth / Knowledge can be measured using any reliable tool

- Knowledge can be interpreted

- Truth / knowledge can be measured or interpreted

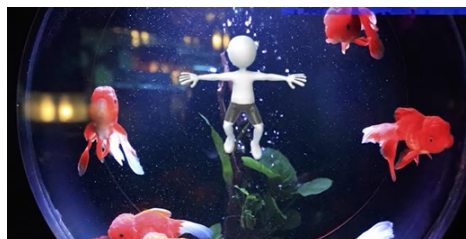


Epistemology assumptions - Objectivity



Epistemology assumptions - Subjectivity

- Truth is created by meaning giving by individuals
- Understand the context
- Talk to people
- Dig deep



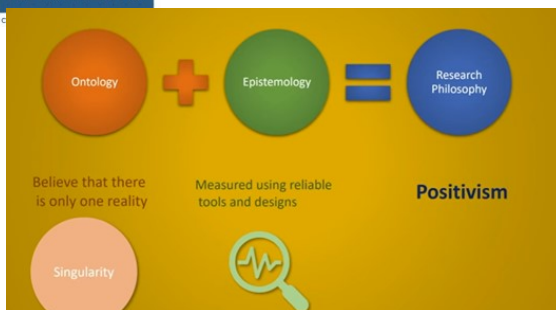
Epistemology assumptions III

- COMPLEXITY OF REALITY
- MIX methods
- Measures and Interpretation

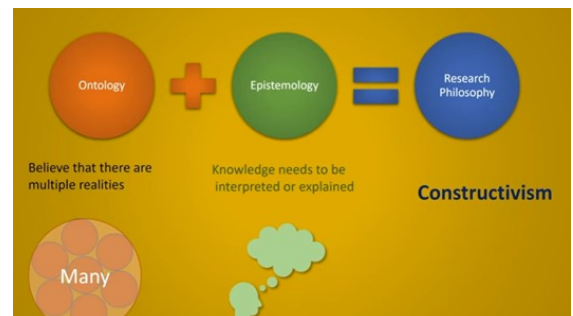
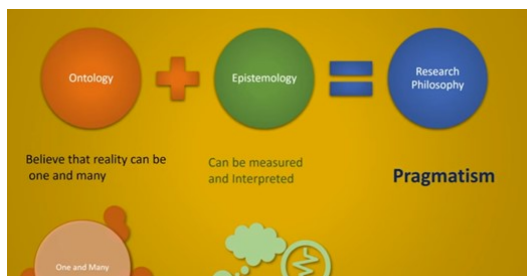
SCIENTIFIC REALISM /POSITIVISM

RESEARCH PHILOSOPHIES

INTERPRETIVIST / SOCIAL CONSTRUCTIVISM



PRAGMATISM



Critical Realism

- is a branch of philosophy that distinguishes between the 'real' world and the 'observable' world.
- The 'real' can not be observed and exists independent from human perceptions, theories, and constructions. The world as we know and understand it is constructed from our perspectives and experiences, through what is 'observable'.
- unobservable structures cause observable events and the social world can be understood only if people understand the structures that generate events.

Postmodernism

- Epistemology – How do I know the TRUTH –
 - Revealed by God
 - Discovered through reasoning and science
 - Postmodernist – doubt there is an ultimate TRUTH
- Skepticism

Other research philosophies

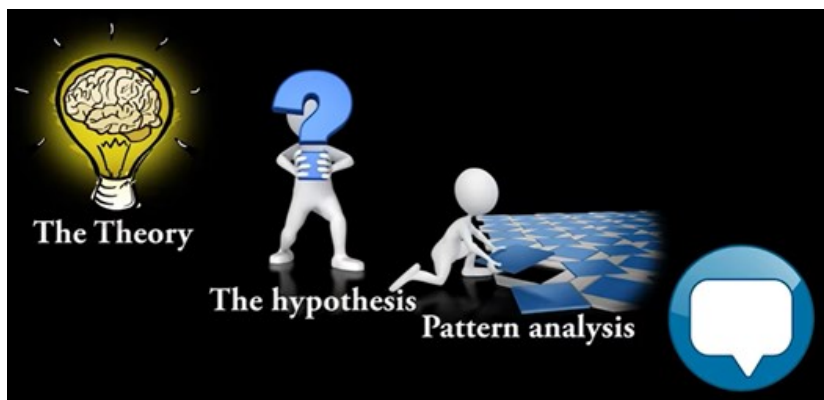
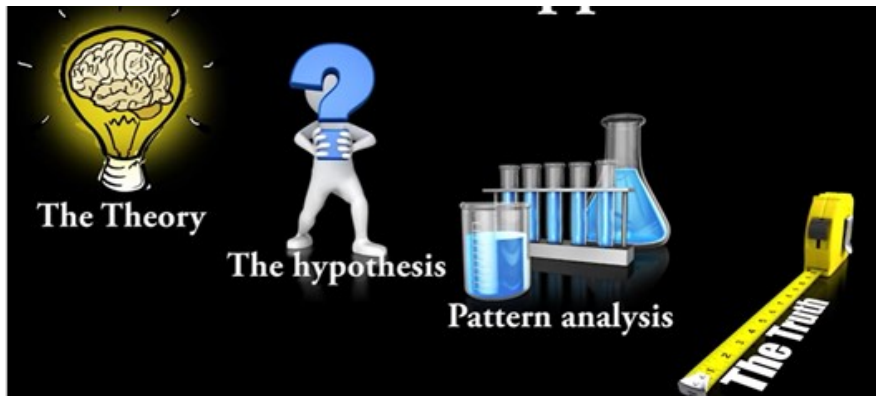


AXIOLOGY

Branch of philosophy that studies values

- What do we value?
- What values guide our research?
- What values will result from our research?
- Do our personal values shape how we do our research?

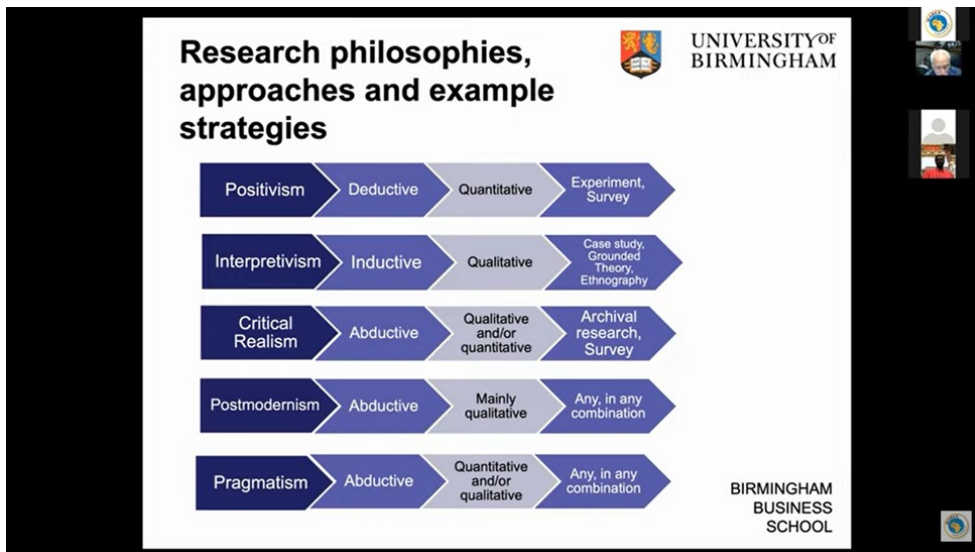
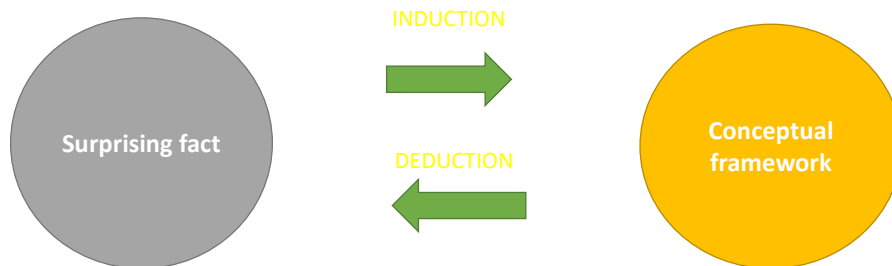
Deductive approach = Theory testing



Inductive reasoning = Theory building

ABDUCTION = theory generation and modification

- Combines deduction and induction
- Fit for a range of methods



Group work 30 min

15 Minutes

- in groups of 4-5 present your predominant research philosophy according to the HARP test
- With what research philosophy do you disagree most ?
- Discuss together if and how your individual ontology, epistemology (worldview) influences your team work

1-2 min

Choose a reporter to summarize the discussions in your group in

METHODOLOGY versus METHOD

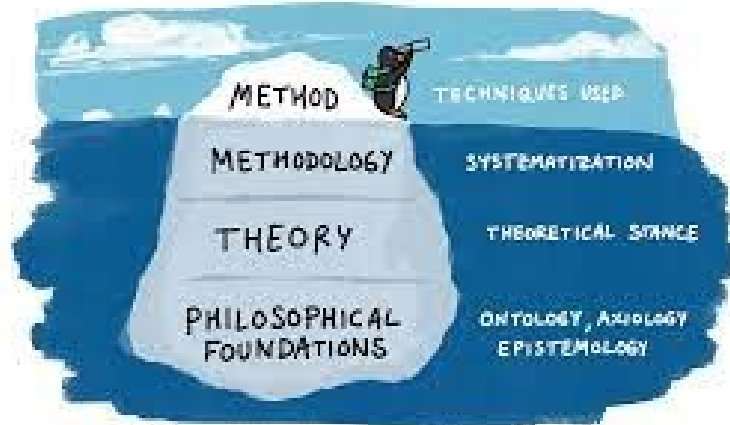
Methodology

- The overall approach to gaining knowledge which takes account of the nature of reality and how the world is known
- Examples
 - Experimental methodology (cause effect, objective, exclude bias, generalization)
 - Phenomenology (lived experiences, meaning)

Method

- The systematic procedures used to undertake research
- Examples
 - Interviews
 - Direct observation
 - Surveys

ICEBERG OF RESEARCH -10-12% visible



Qualitative research methods

- **Phenomenology**
 - Refers to a number philosophical approaches to understanding qualitative accounts
 - Meaning in lived experiences
 - In-depth conversations
 - Findings presented in various formats essay, narratives and so on
- **Grounded Theory**
 - Theory development to explain social process grounded in data
- **Ethnography**
 - Understand culture /worldview
 - Conducted in natural settings
 - Data collection through participant observation , interviews, diary, documents reviews, field notes
 - Findings presented in frameworks or classification systems

Quantitative Research

- **EXPERIMENTAL**
 - Randomized controlled trials
 - Randomized sample
 - Control group
 - Intervention
 - Quasi experimental
- **Non-experimental designs**
 - Surveys
 - Case control studies
 - Cohort studies

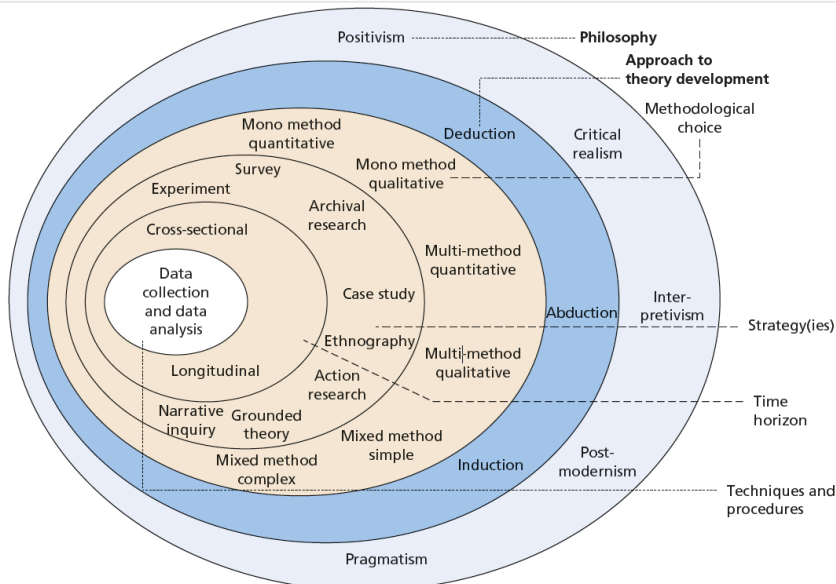


Figure 4.1 The research 'onion'
 Source: © 2015 Mark Saunders, Philip Lewis and Adrian Thornhill

CONCLUSION

Our beliefs and assumptions can have an important impact on the research we decide to pursue and the methodology and methods we use

References

- [Philosophy and Paradigm of Scientific Research | IntechOpen](#)
- [\(7\) \(PDF\) Understanding research philosophies and approaches \(researchgate.net\)](#)
 (https://www.researchgate.net/publication/309102603_Understanding_research_philosophies_and_approaches)

This project has been funded with support from the European Commission.
This publication reflects the views only of the author, and the Commission
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information contained therein.

Research for all palliative care clinicians 2020-1-RO01-KA202-080128

June 2021