

# Research Methodology

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# Why we do a “Research”?

- The need to go beyond current knowledge, experience, and to understand a particular phenomenon.
- More specifically, we need to conduct a research to:
- Explore an idea
- Investigate an issue
- Find a solution for a problem
- Obtain rigorous and comprehensive information concerning a particular phenomenon
- -...what else?

# What is a “Research”

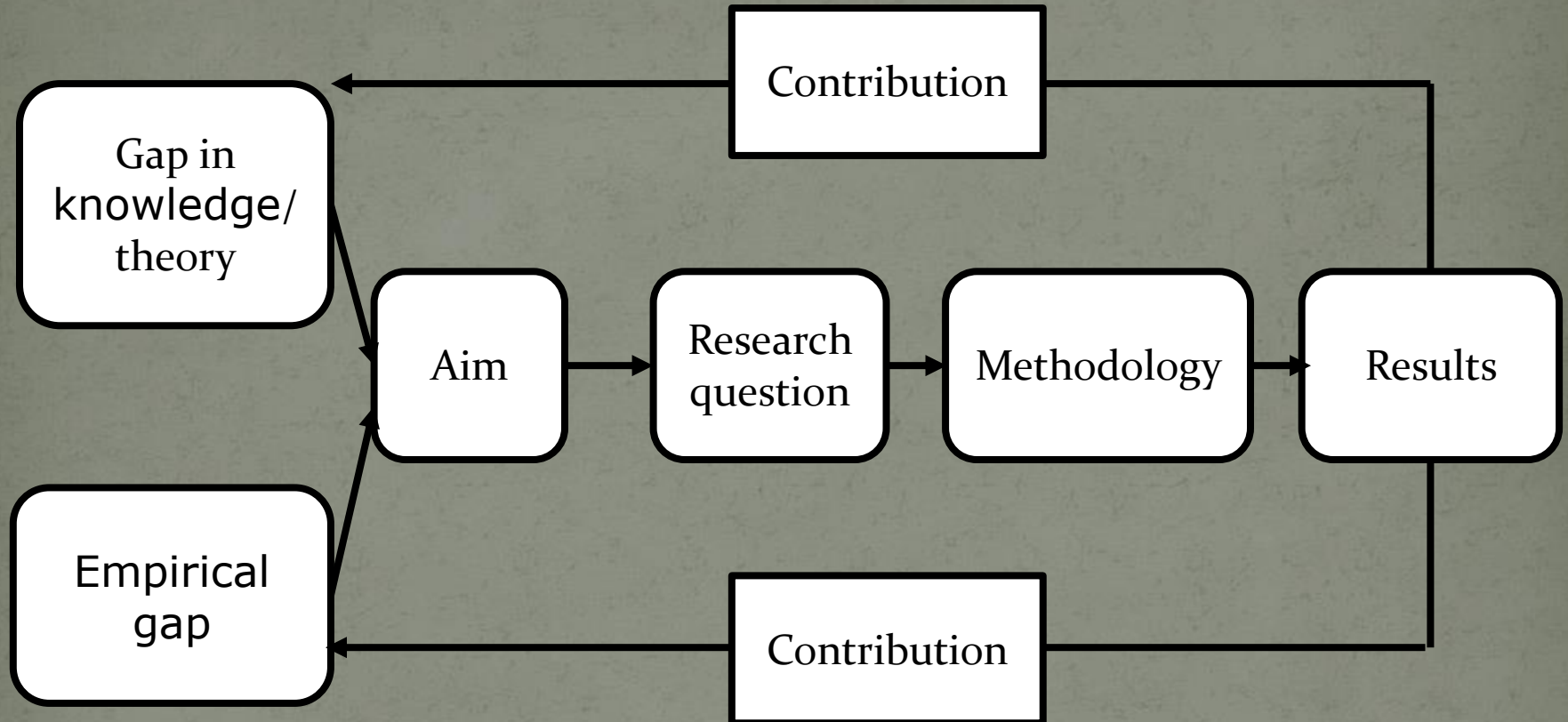
- Research is a careful consideration of study regarding a particular concern or problem using scientific methods.



# The output of the “Research”

- The process of doing research should result in various outputs, including: reports, papers, theses, presentations, which all should help us in:
- Doing better in decision-making process as this process will be informed by research output.
- Devise better solution to address existing problems
- Cumulating our Knowledge which is essential for humanity development.

# Research life cycle



# Types of research? The nature of researching

## **Primary research (PR)**

study of subject through first hand observation and investigation (e.g., conduct experiment or case study)

Use

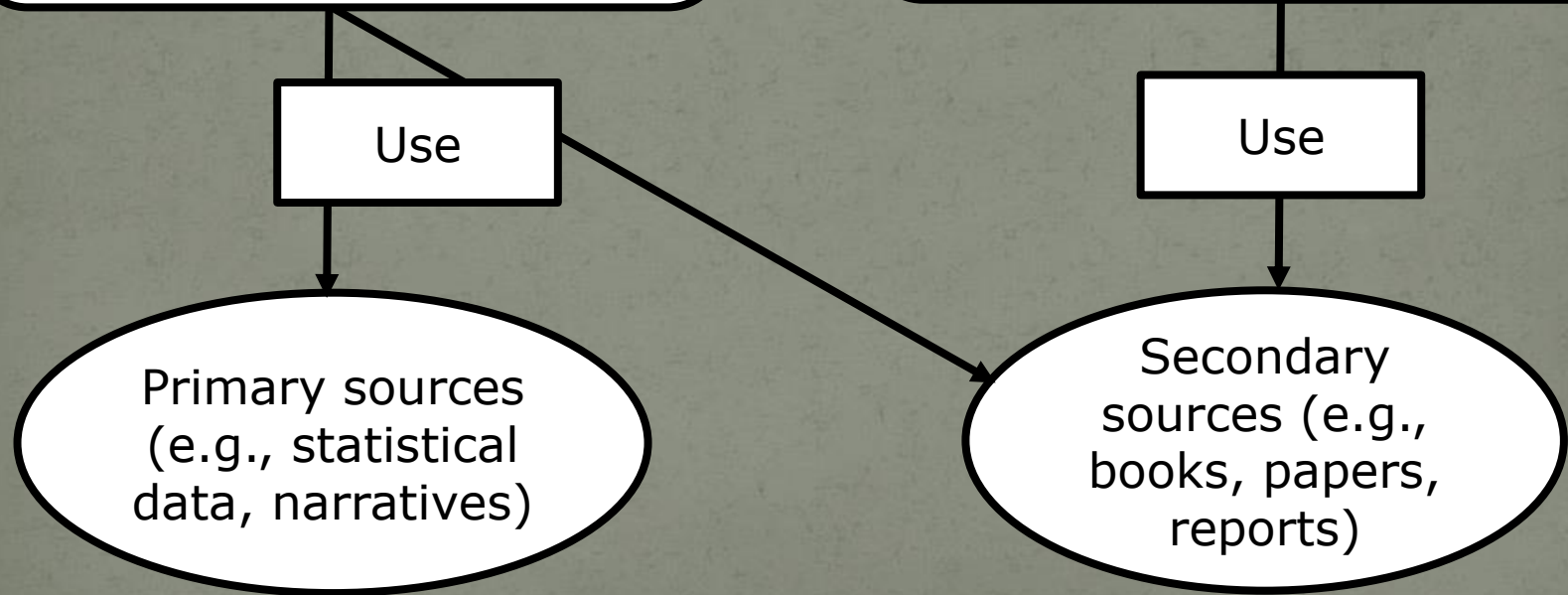
Primary sources  
(e.g., statistical data, narratives)

## **Secondary research (SR)**

Examination of studies of other researchers (e.g., literature review and conceptual papers)

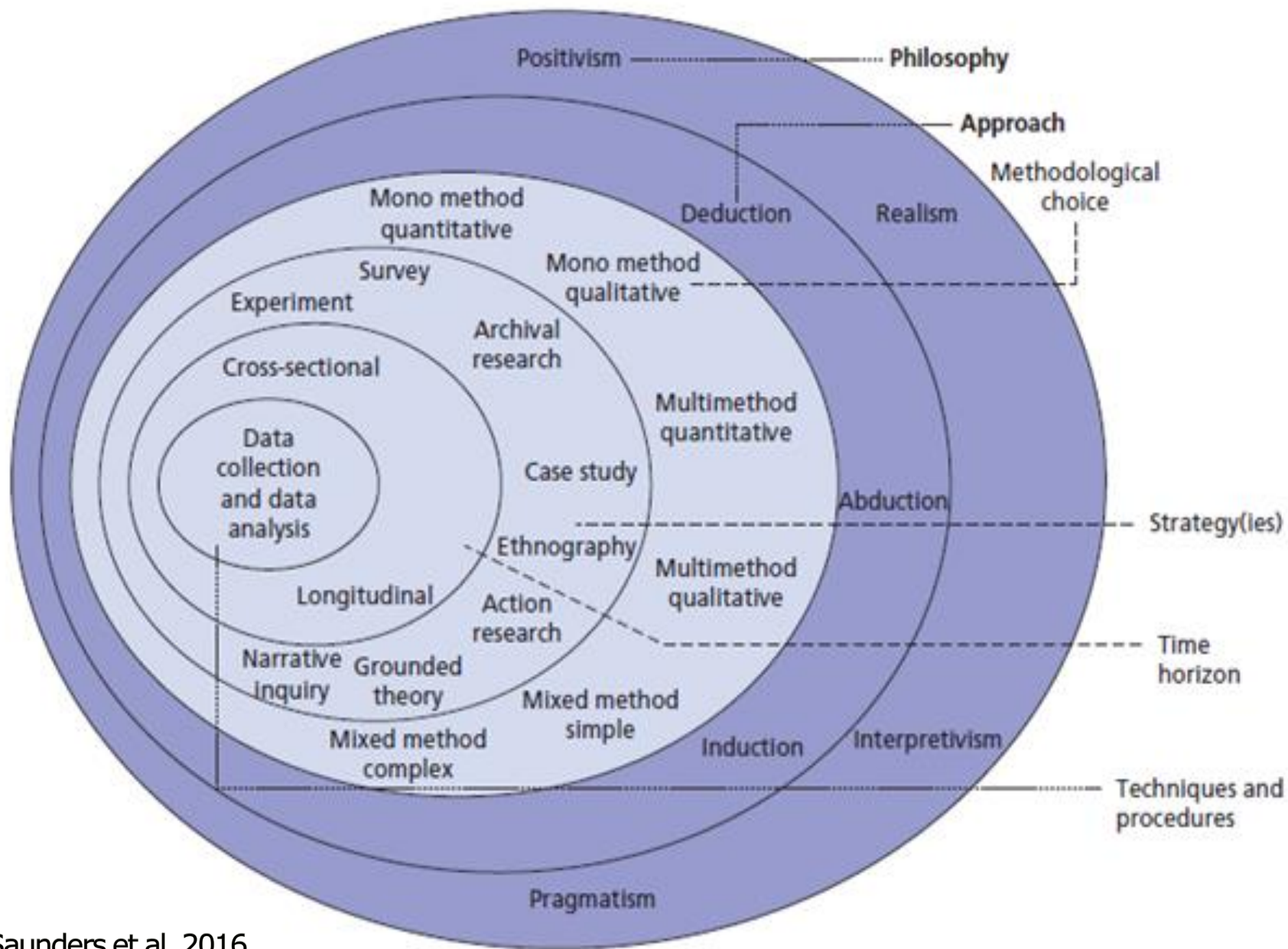
Use

Secondary sources (e.g., books, papers, reports)





# **Overview of Research layers**





# Layer 1: Philosophies

- Philosophy addresses very general and abstract issues
- Presupposed in all our activities including our research
- Research paradigm (or philosophy/worldview) concerns the basic set of beliefs that guides actions which are necessary to carry out a research project (i.e., determine what is real and valid)

# Layer 1: Philosophies

- **Why do I need to bother about selecting and understanding a specific philosophy to underpin my research?**

# Layer 1: Philosophies

- The philosophy is defined as “the use of abstract ideas and beliefs that inform our research” (Creswell, 2013, p. 16).
- Understanding the research paradigm is important, since it suggests the characteristics of the study such as the methods, validity and generalization measures.
- However, you should first rationalize the adoption of particular paradigm (Bryman, 2008).



# Layer 1: Philosophies

- Most debates concerns matters of:
- **Ontology**: Assumption about the nature of reality
- **Epistemology**: General set of assumptions about ways of inquiry into the nature of the world
- **Methodology**: A combination of techniques used to inquire into specific situation (maybe seen as research strategy)
- **Methods and techniques**: individual techniques for data collection and analysis (e.g., panel data analysis)

# Layer 1: Ontology

- Realism, which considers the world to have an external existence, in which science can be investigated through observing the phenomena.
- Relativism, which is interested in people's behaviour and the facts that are created by humans.

(Easterby-Smith et al.,2012)

# Layer 1: Epistemology

- Positivism refers to the social reality that exists externally, in which objective methods are required to measure it.
- Social constructionism (interpretivism) assumes that social reality is affected by researchers' perceptions and actions.

(Easterby-Smith et al., 2012; Saunders et al., 2016)



# Layer 1: Epistemology

- Positivism is a type of realism philosophy. The truth is the result of a group of facts and their independent logical implementation.
- The main assumptions of positivism are summarised by Lincoln and Guba (1985) as follows: i) the single reality assumption, ii) a separation between observer and observation, iii) what is true in a certain place and time might be true at another place and time, iv) a linear causality assumption, and v) it confirms that there is no bias (Creswell, 2013)

# Layer 1: Epistemology

- Post-positivism does not reject the positivism philosophy, instead, it takes the reality discussion further to assume that reality is not natural, but is socially constructed.
- This philosophy acknowledges the impact of a researcher's experience and background on the observation at hand (Saunders et al., 2016).

# Layer 1: Epistemology

- Critical realism was developed by Roy Bhaskar, who argued that the real structures of a phenomenon exist independently of the actual events, patterns and that researchers can generate and impact reality (Bhaskar, 1978).
- Critical realism has both ontological and epistemological structures, since it combines realism with ontology and social-constructionism with epistemology (Bergin, Wells, & Owen, 2008).



# Layer 1: Epistemology

- Bhaskar (1978) classified reality into three different domains, namely; the real, the actual, and the empirical.
- The real is provided by the generative mechanisms of nature, regardless if anyone knows about them or not.
- The actual is the events that took place because of the generative mechanism by the (real) the events, which may or may not be observed.
- The empirical refers to the events that are observed or experienced (Saunders et al., 2016).

# Layer 1: Epistemology

- Both philosophies follow realism, post-positivism refers to the direct realism, which assumes that reality is what a research sees, whereas critical realism goes beyond that and assumes what a researcher's expertise depends on the senses as well as their perception of things in the real world, rather than observing things directly (Saunders et al., 2016).

# Layer 1: Epistemology

- There are two steps in critical realism. The first one is the sensations about the things at hand, the second one is the mental interpretation, wherein the sensation aligns with the researcher's sense, direct realism is concerned with only the first step (Saunders et al., 2009).



# Layer 1: Epistemology

- **Social-Constructionism:** in constructionism researchers take part in the research, with a view to understand reality from their viewpoint; accordingly, the researchers' sense and interpretation of the world affects the results (Saunders et al., 2009).
- In social-constructionism the human mind is not independent from the surrounding environment.
- Reality is based on the social actors and the researchers' perceptions, such as the impact of the researchers in collecting and analysing the salient data.

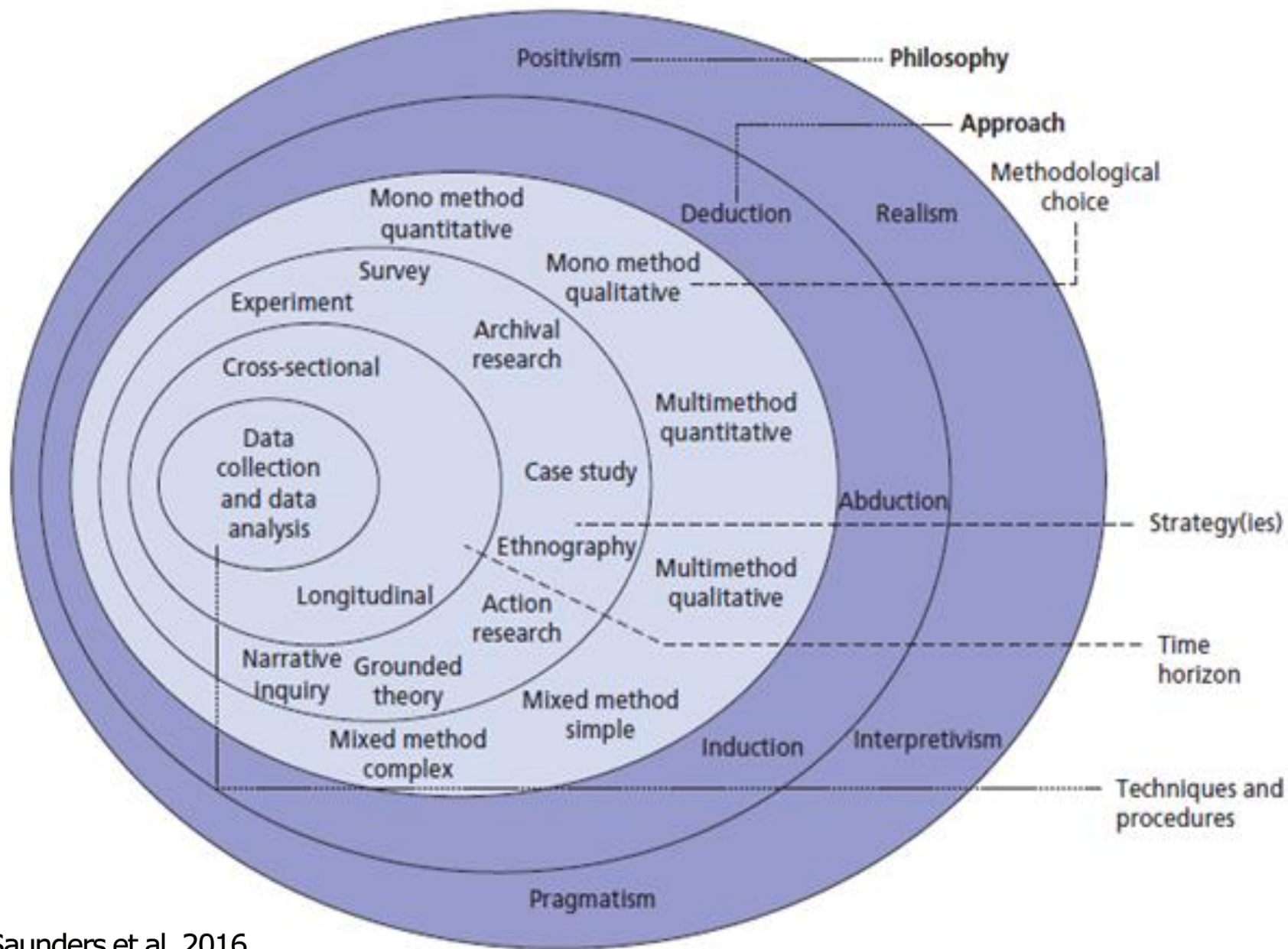
# Layer 1: Epistemology

- **Pragmatism:**
- The pragma is a Greek word, which means deed.
- Researcher's role is to generate knowledge, which exists between objectivism and subjectivism, whereby there is no one knowledge that can provide a deep knowledge for the world (Johnson & Onwuegbuzie, 2004).

# Layer 1: Epistemology

- **Pragmatism:**
- Different knowledge is generated based on the different methods of a researcher's engagement, which explains how knowledge in pragmatism is the consequence of different actions.
- The research question guides the researcher and determines the use of qualitative and quantitative methods (Teddlie & Tashakkori, 2009).

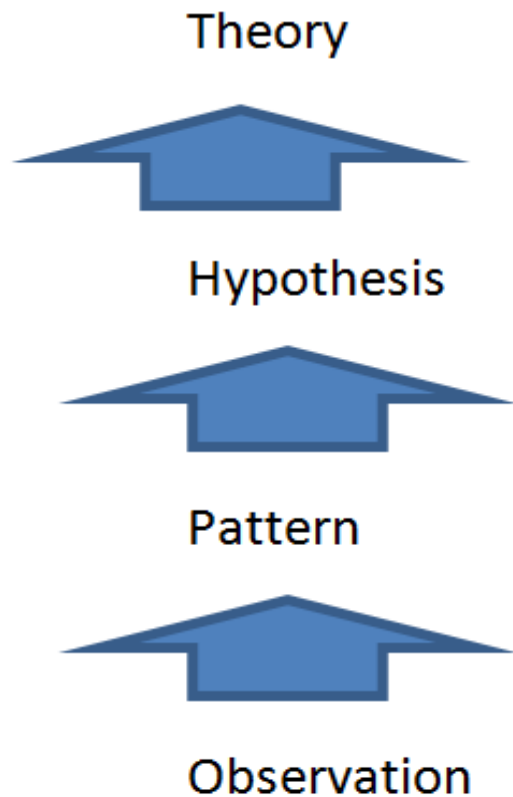




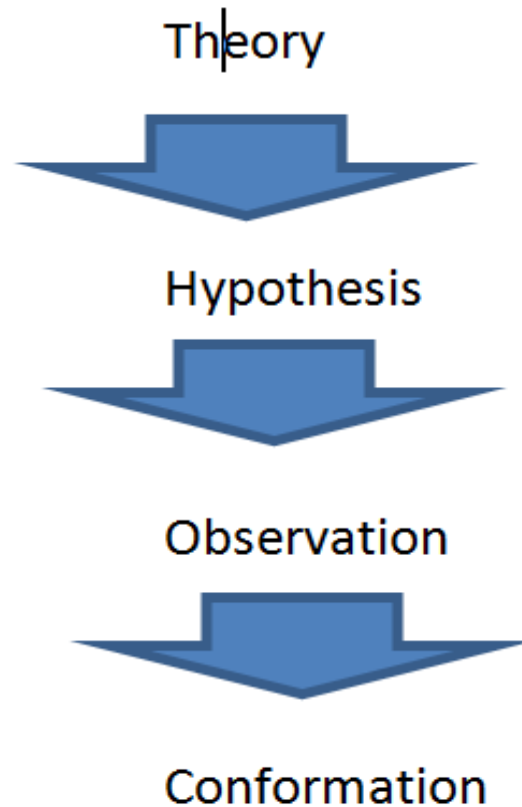
## Layer 2: Approach

- Qualitative and quantitative research form two classifications of the research approach, which directs social research (Bryman, 2015). Hence, there are two main clusters of research strategy: inductive and deductive.
- The inductive is “the part of the whole reasoning” while the deductive is based on previous assumptions and conclusions
- The inductive reasoning is a bottom-up approach, and includes working back and forth within the study themes to select the study’s final themes, whereas the deductive analysis is straight-forward.

## INDUCTIVE REASONING



## DEDUCTIVE REASONING





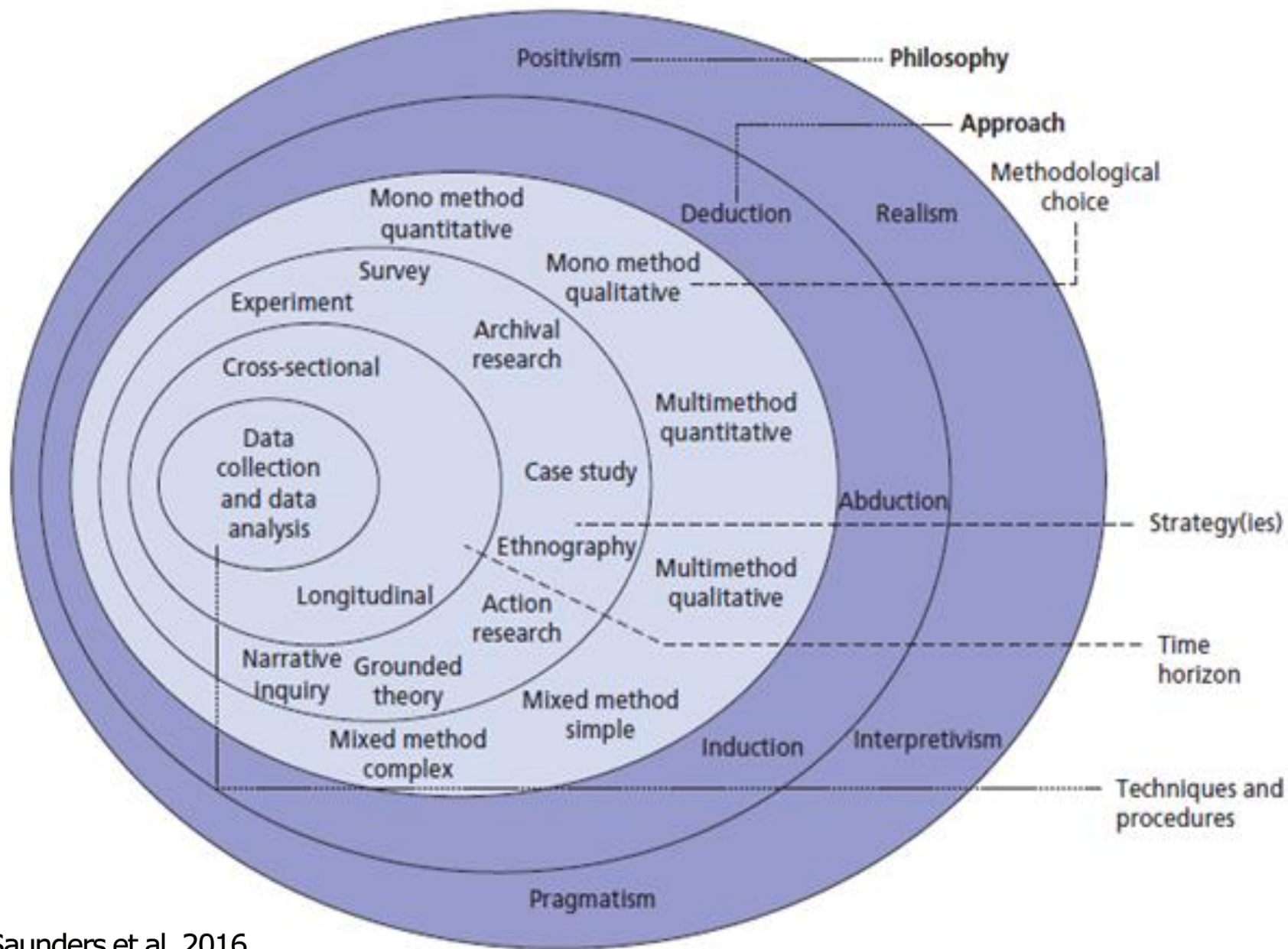
## Layer 2: Approach

- Researchers may use both inductive and deductive approaches in the same study, through, for example, collecting data to explore a phenomenon, determining the themes and patterns in order to amend an existing theory, or generate a new one, and then test it through additional data. This is called an abductive approach (Saunders et al., 2016).

	Deduction	Induction	Abduction
<b>Generalisability</b>	From the general to the specific.	From the specific to the general.	From the interactions between the specific and general.
<b>Use of data</b>	To evaluate hypothesis related to an existing theory.	To explore a phenomenon and create conceptual framework.	To explore a phenomenon, identify themes and patterns.
<b>Theory</b>	Theory verification.	Theory generation and building.	Theory generation or modification; incorporation existing theory to build new theory or modify existing theory.

<b>Worldview element</b>	<b>Postpositivism</b>	<b>Constructivism</b>	<b>Critical realism</b>	<b>Pragmatism</b>
<b>Ontology (what is the nature of the reality?)</b>	Singular reality	Multiple reality	External, independent reality generated by the action of the researcher	Singular and multiple
<b>Epistemology</b>	Distance and impartiality	Closeness	Construction (from the researcher own perspective and standpoint)	Practicality (researcher collect data by what works to address the research questions)
<b>What is the process of research?</b>	Deductive	Inductive	Retroductive	Combination





# Layer 3: Research designs and methodologies

- Research methods are the techniques used in conducting the research, which includes the techniques of collecting data, analysis, and evaluation .
- Two main types of methods are extensively used in empirical research; Qualitative and Quantitative.
- Qualitative methods are concerned with discovering and explaining the phenomena and the data, which is usually collected through, for example case studies, interviews, and ethnographic work.

# Layer 3: Research designs and methodologies

- The quantitative method focuses on objectivity, prediction and generalizability, by using instruments such as surveys to collect data and test hypotheses.
- Each method is based on a certain epistemology, for example, the quantitative approach is based on positivism, and the qualitative approach is based on constructionism (Bryman, 2015). .



# Layer 3: Research designs and methodologies

- The mixed methodology position falls somewhere in the middle, and respects the wisdom of both viewpoints as useful methodologies to address research questions.
- Mixed methodology uses different paradigms in order to enhance data accuracy, avoid bias, and provide a complete picture of the phenomena .
- Mixed methodology offers reliable and generalizable results, as well as it provides a deeper understanding of why things occur (Easterby-Smith et al., 2012).

# Layer 3: Research designs and methodologies

- Mixed methodology addresses different designs as follows :
  - i) Concurrent design involves the separate implementation of qualitative and quantitative methods in one phase of the data collection and analysis.
  - ii) Sequential mixed design involves the use of one methodology followed by the other in order to interpret and expand the initial findings; when it starts with qualitative it is called sequential exploratory, whereas when it starts with quantitative it is called sequential explanatory (Saunders et al., 2016)..

## **Layer 3: Research designs and methodologies**

iii) Multilevel mixed design is a multi-strand design wherein qualitative and quantitative data are collected at different levels of analysis in a concurrent or sequential manner.

iv) The embedded design, which combines qualitative and quantitative data collection and analysis before, during and/or after the implementation of either one method (Saunders et al., 2016)..

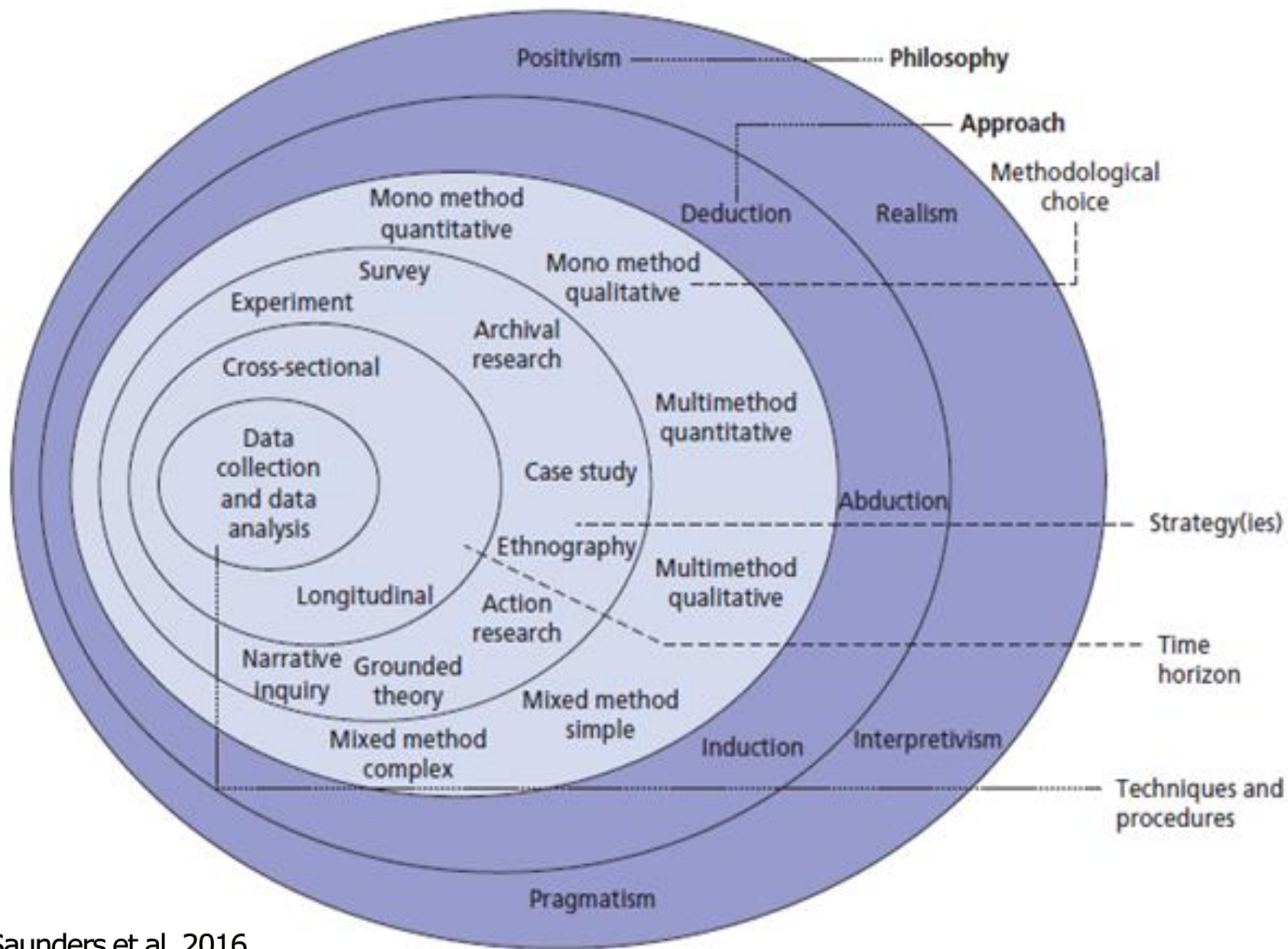


# Framing Research Questions

- Learning the Language: Qualitative Research Vocabulary
  - Quantitative researchers
    - What variables?
    - Look for variables that predict patterns
    - What?
  - Qualitative researchers
    - What meanings do people attach to these factors (variables)?
    - Look for patterns in processes within contexts
    - How?

# Tips for Formulating a Research Question

- Select a topic that interests you
- Read what others have written about this topic
- Identify a number of smaller questions
- Lean towards “how” questions
- Be clear about your choice of **units of analysis**
- Experiment with stating your ideas both as questions and as hypotheses
- Don't be overwhelmed by falsifiability
- Consider **bodies of theory** to which **the questions** can be **linked**





## Layer 4: Research strategy

- This concerns organising the research activity , including the collecting and analysis of data.
- i) Experiment design: is any research conducted with a scientific approach, where a set of variables are kept constant while the other set of variables are being measured as the subject of experiment.
- Experimental research should establish a cause and effect of a phenomenon, i.e. effects are observed from an experiment due to the cause

## Layer 4: Research strategy

- If a cardiology researcher conducts research to understand the effect of food on cholesterol and derives that most heart patients are non-vegetarians or have diabetes. They are aspects (causes) which can result in a heart attack (effect).

## Layer 4: Research strategy

- There are three primary types of experimental research design:
- Pre-experimental research design
- True experimental research design
- Quasi-experimental research design



## Layer 4: Research strategy

- **Pre-Experimental Research Design:** This is the simplest form of experimental research design. A group, or various groups, are kept under observation after factors are considered for cause and effect. It is usually conducted to understand whether further investigation needs to be carried out on the target group/s, due to which it is considered to be cost-effective (Saunders et al., 2016).

## Layer 4: Research strategy

- Pre-experimental designs are called such because they often happen before a true experiment is conducted. Researchers want to see if their interventions will have some effect on a small group of people before they seek funding and dedicate time to conduct a true experiment (Saunders et al., 2016).

## Layer 4: Research strategy

- **True Experimental Research Design:** True experimental research is the most accurate form of experimental research design as it relies on statistical analysis to prove or disprove a hypothesis. It is the only type of Experimental Design that can establish a cause-effect relationship within a group/s.



## Layer 4: Research strategy

- In a true experiment, there are three factors which need to be satisfied:
  1. Control Group (Group of participants for research that are familiar to the Experimental group but experimental research rules do not apply to them.) and Experimental Group (Research participants on whom experimental research rules do apply.)
  2. Variable which can be manipulated by the researcher
  3. Random distribution

## Layer 4: Research strategy

- **Quasi-Experimental Research Design:** A quasi-experimental research design is similar to experimental research. In this research design, the participants of a group are not randomly assigned as per conditions.

# Layer 4: Did the researcher do something to the participant?

Intervention= YES	Intervention= NO
Education	Observation
Treatment	Exploratory
Support	Survey /Case
<b>Either Experimental or Quasi Experimental</b>	<b>Descriptive Non-Experimental</b>



# Layer 4: Is the study is a randomized control trial?

YES	NO
Intervention	No Intervention= <b>Descriptive Non-Experimental</b>
Control group	No Control group= <b>Quasi Experiment</b>
Random sample	No Random sample = <b>Quasi Experiment</b>
<b>Experimental study</b>	

## Layer 4: Survey research design

- Based on the assumption that there is a regular pattern in human and organisational behaviour.
- Therefore, these patterns are conceptualized as factors and potential relationships between them.
- Accordingly, survey research relies on cross-sectional design with large sample to examine the actual impact of these factors and their relationships (Saunders et al., 2016).

# Layer 4: Survey research design

Survey Types		Purpose	Example
3 common types of surveys	Factual	Collecting 'factual' data from different groups.	Survey feedback
	Inferential	Aimed at establishing and testing relationships between variables. It seeks to find out what appears to cause what.	To what extent the factors F1, F2, F3...affect staff motivation?
	Exploratory	Aims to discover the significant factors/trends in the phenomenon under examination.	What are the characteristics of international students learning?



## Layer 4: Case study

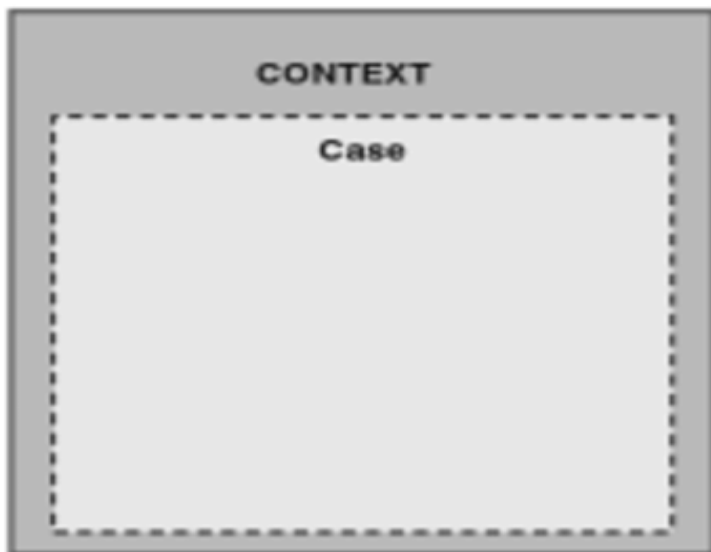
- Case study is an empirical research that primarily uses contextually rich data from bounded real-world settings to investigate a focused phenomenon.
- The case study allows researchers to understand the phenomena from a different lens, and allows for more than one fact to be discussed (Yin,2014).

## Layer 4: Case study

- The need for using the case study increases as the questions try to answer the how and the why of the phenomena, in which it enables the researcher to get a complete view of a certain phenomenon(Yin, 2014).

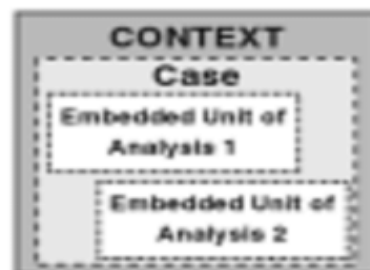
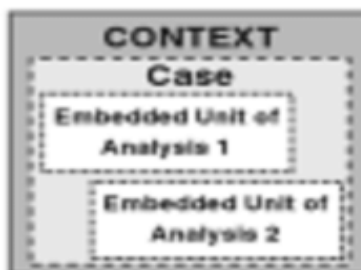
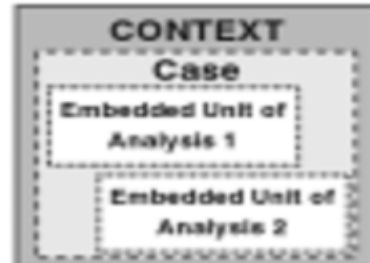
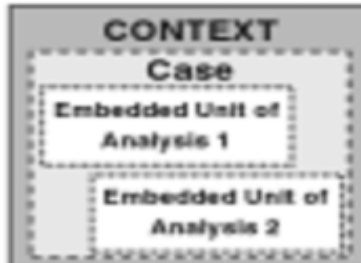
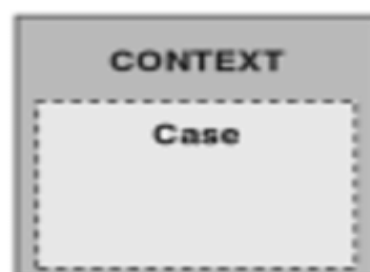
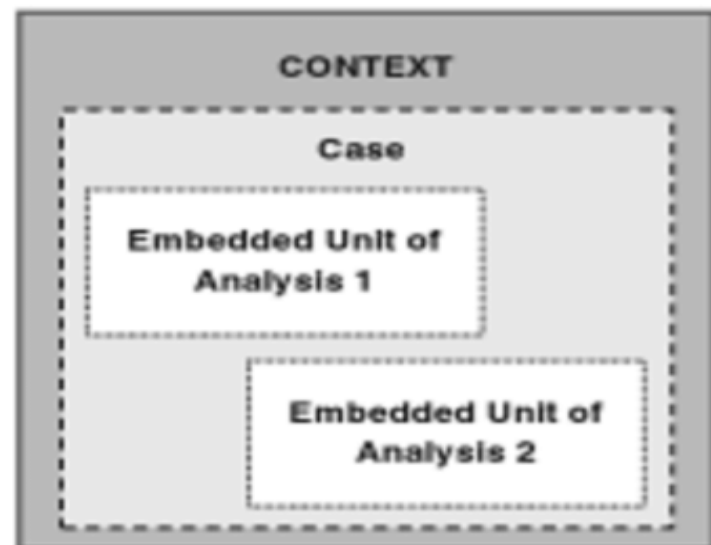
**single-case designs**

holistic  
(single-unit of analysis)



**multiple-case designs**

embedded  
(multiple units of analysis)





## Layer 4: Archival research

- **Archival research** is **research** that involves searching for and extracting information and evidence from original **archives**. **Archives** are historical – non-current – documents, records and other sources relating to the activities and claims of individuals, entities or both (Saunders et al., 2016).

## Layer 4: Ethnography study

- Ethnographies **focus** on describing the culture of a group in very detailed and complex manner. The **ethnography** can be of the entire group or a subpart of it. It involves engaging in extensive field work where data collection is mainly by interviews, symbols, artifacts, observations..etc (Saunders et al., 2016).

## Layer 4: Action Research

- Action research it seeks transformative change through the simultaneous process of taking action and doing research, which are linked together by critical reflection.
- Action research practitioners reflect upon the consequences of their own questions, beliefs, assumptions, and practices with the goal of understanding, developing, and improving social practices (Saunders et al., 2016).



## Layer 4: Narrative research

- **Narrative research** is a term that subsumes a group of approaches that in turn rely on the written or spoken words or visual representation of individuals. These approaches typically focus on the lives of individuals as told through their own stories.
- It is used to provide a voice for those normally unheard, analysis the experience of an individual, emphasis the sequence of events (Saunders et al., 2016).

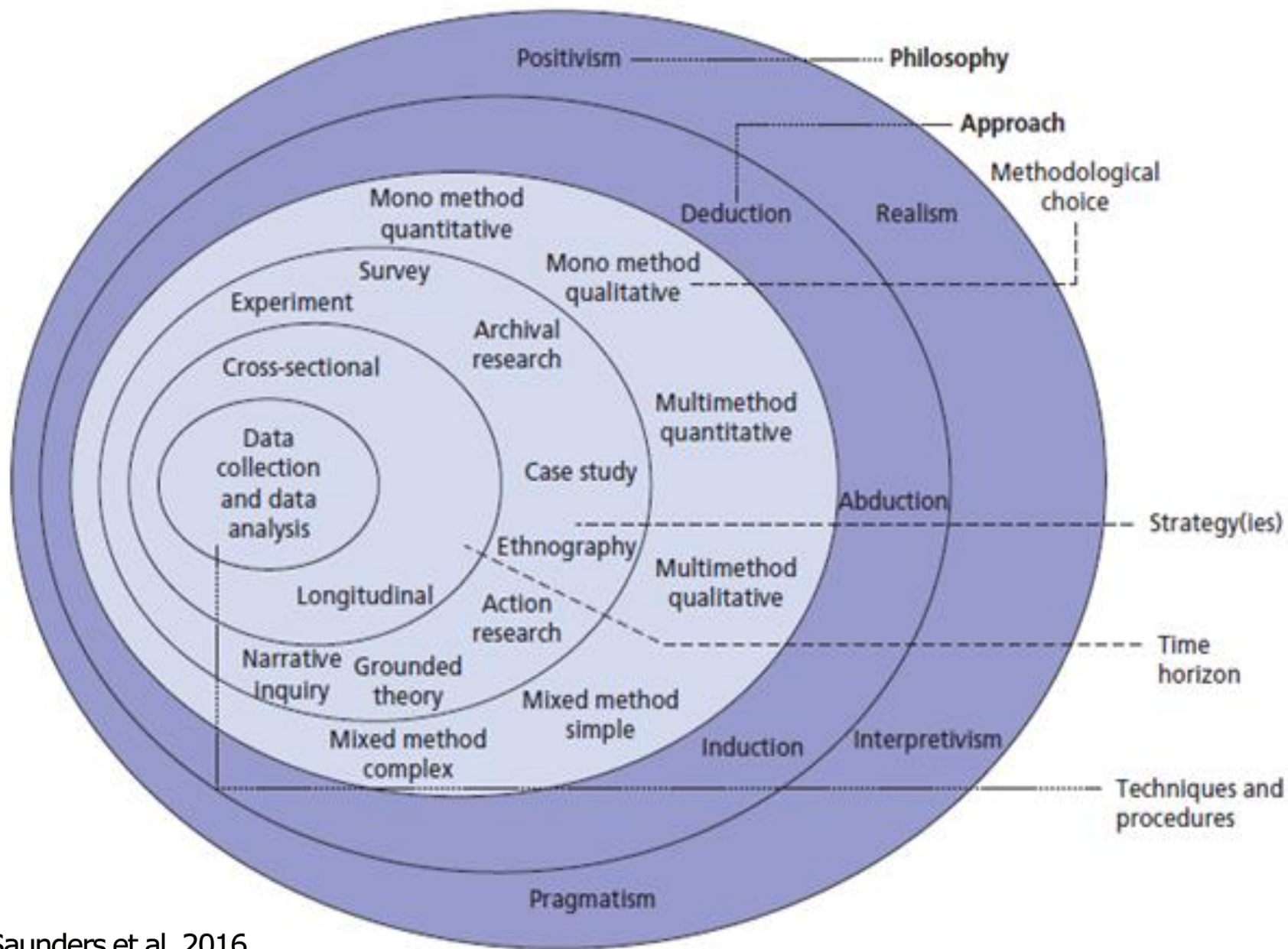
## Layer 4: Grounded theory

- Sociologists Glaser and Strauss' studied the social dimension of dying in a California hospital. They wrote a book called ***Awareness of Dying*** is 1965.
- In that research, they found no real theory to test against this subject. So they developed the methodology of GT to give them a method of developing a social theory of dying in hospital using only existing data gathering methods.

## Layer 4: Grounded theory

- So GT is about the discovery of theory from data – systematically obtained and analyzed in social research' (Glaser & Strauss, 1967: 1).
- In business & management research the purpose of GT is to develop new concepts and theories of business-related phenomena, where these concepts and theories are firmly grounded in qualitative data.
- It allows for the emergence of original and rich findings that are closely tied to the data.





# Layer 5: Time horizon

- The time horizon for conducting the data collection is either cross-sectional or longitudinal.
- The cross-sectional studies refer to a particular phenomenon in a particular time, it is also called a snap-shot. It could be quantitative, qualitative or mixed method data collection research.
- The longitudinal refers to the study's change and development over a period of time (Saunders et al., 2016).

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