

# Research design and methods

## Part I

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POST-GRADUATE ENROLMENT AND THROUGHPUT



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A place of quality,  
a place to grow, from hope  
to action through knowledge



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# RESEARCH DESIGN

- Logic of the inquiry
- Purpose of the inquiry
- Types of research design
- Research (Study) design vs. research methodology
- Directions of reasoning (logic)





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# Some basic concepts

- Research methodology
  - Quantitative vs. Qualitative vs. Participatory/action research
- Research methods
  - Methods of sampling, data collection and data analysis
- Research design
  - Experimental, descriptive, exploratory





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# LOGIC OF THE INQUIRY

- Research design is the overall plan for connecting the conceptual research problems to the pertinent (and achievable) empirical research.
- In other words, the research design articulates what data is required, what methods are going to be used to collect and analyse this data, and how all of this is going to answer your research question.
- Both data and methods, and the way in which these will be configured in the research project, need to be the most effective in producing the answers to the research question (taking into account practical and other constraints of the study).
- Different design logics are used for different types of study.





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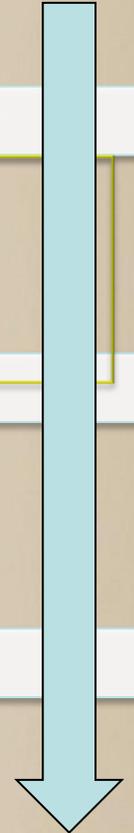
# THE BASIC FRAMEWORK (v.1)

**Statement of the research problem**  
(unit of analysis + research objectives)

**The logics of research**  
(modes of reasoning about evidence – conceptualising our study)

**Choice of research design (type)**

**Methodological designs**





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# THE BASIC FRAMEWORK (v.1)

**Statement of the research problem**

(unit of analysis + research objectives)

**The logics of research**

**Generalisation vs. individualisation**

**Validation vs. discovery**

**Variance vs. process**

**Choice of research design (type)**

**Methodological designs**





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# PURPOSE OF THE INQUIRY

The research design also reflects the **purpose of the inquiry**, which can be characterised as one or more of the following:

- Exploration
- Description
- Explanation
- Prediction
- Evaluation
- History





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# EXPLORATORY STUDY

- This is the most useful (and appropriate) research design for those projects that are addressing a subject about which there are high levels of uncertainty and ignorance about the subject, and when the problem is not very well understood (i.e. very little existing research on the subject matter).
- Such research is usually characterised by a high degree of flexibility and lacks a formal structure.
- The main aim of exploratory research is to identify the boundaries of the environment in which the problems, opportunities or situations of interest are likely to reside, and to identify the salient factors or variables that might be found there and be of relevance to the research.





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# DESCRIPTIVE STUDY

- The main aim of descriptive research is to provide an accurate and valid representation of (encapsulate) the factors or variables that pertain / are relevant to the research question.
- Such research is more structured than exploratory research.





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# EXPLANATORY STUDY

- Sometime referred to as **analytical** study
- The main aim of explanatory research is to identify any causal links between the factors or variables that pertain to the research problem.
- Such research is also very structured in nature.



<b>Question type</b>	<b>Question</b>	<b>Examples</b>
<b>Exploratory questions</b>	What is the case? What are the key factors?	What are the critical success factors of a profitable company? What are the distinguishing features of a good leader? What are the reasons for the carnage on South African roads?
<b>Descriptive questions</b>	How many? What is the incidence of x? Are x and y related?	How many people died of AIDS in South Africa last year? Is there a correlation between parental support and scholastic achievement?
<b>Causal questions</b>	Why? What are the causes of y?	What are the main causes of malnutrition in a rural community? Is smoking the main cause of lung cancer?
<b>Evaluative questions</b>	What was the outcome of x? Has P been successful?	Has the new TB awareness programme produced a decline in reportable TB cases? Has the introduction of a new refrigeration technology led to more cost-effective production?
<b>Predictive questions</b>	What will the effect of x be on y?	What effect will the introduction of a new antibiotic have on population P?
<b>Historical questions</b>	What led to y happening? What were the events that led up to y? What caused y?	What caused the demise of socialism in Central Europe during the late eighties? What led NATO countries to decide to start aerial bombing of Kosovo?



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# TYPES OF RESEARCH DESIGN

- Generating **primary data**
  - e.g. surveys, experiments, case studies, programme evaluation, ethnographic studies
- Analysing **existing data**
  - e.g. text data – discourse analysis, content analysis, textual criticism, historical studies, or
  - numeric data – secondary data analysis, statistical modelling.





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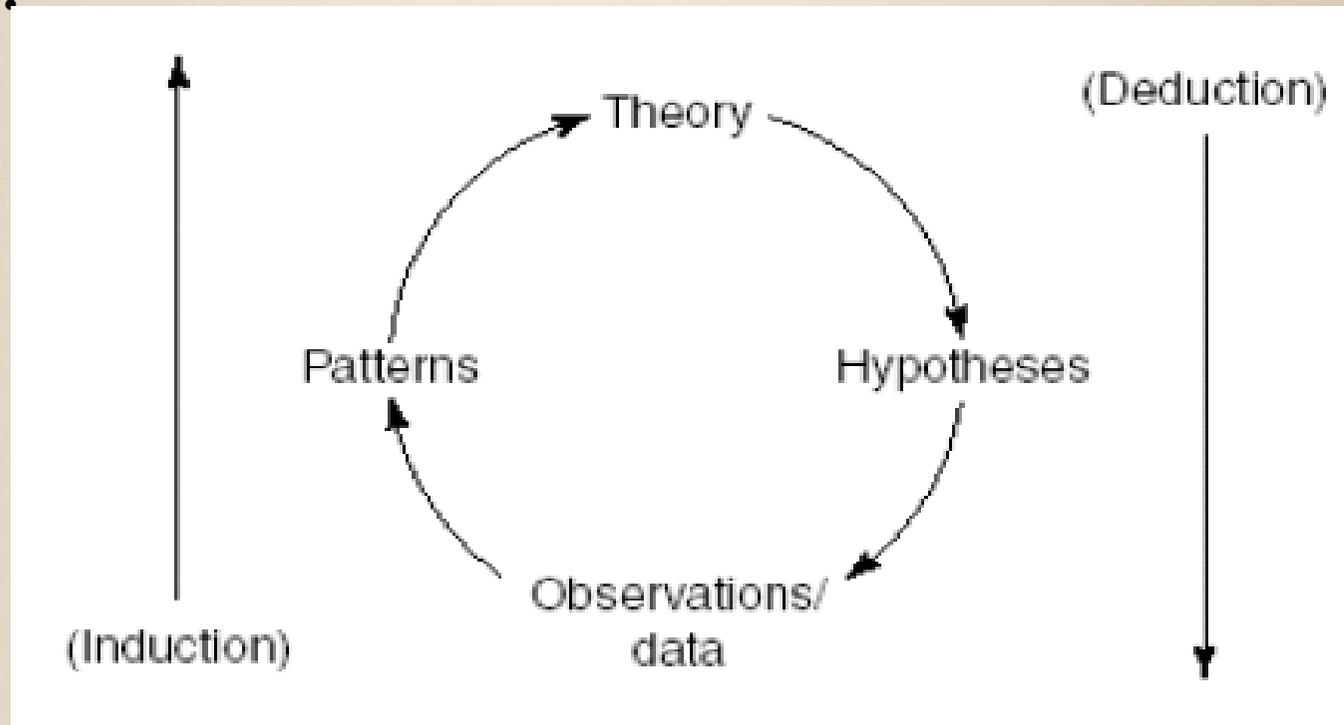
# RESEARCH DESIGN VS RESEARCH METHODOLOGY

Research design	Research methodology
Focuses on the <b>end-product</b> : What kind of study is being planned and what kind of results are aimed at. E.g. Historical - comparative study, interpretive approach OR exploratory study, inductive and deductive etc.	Focuses on the <b>research process</b> and the kind of tools and procedures to be used. E.g. Document analysis, survey methods, analysis of existing (secondary) data/statistics etc)
Point of departure (driven by) = Research problem or question.	Point of departure (driven by) = Specific tasks (data collection or sampling) at hand.
Focuses on the logic of research: What evidence is required to address the question adequately?	Focuses on the individual (not linear) steps in the research process and the most 'objective' (unbiased) procedures to be employed.



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# DIRECTIONS OF REASONING





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Hypothetico-deductive logic	Ethnographic-inductive logic
<ul style="list-style-type: none"><li>• Read first (literature review)</li></ul>	<ul style="list-style-type: none"><li>• Read first (literature review)</li></ul>
<ul style="list-style-type: none"><li>• Develop an idea (theoretical framework)</li></ul>	<ul style="list-style-type: none"><li>• Gain experience, participate, listen, record experiences &amp; data (ethnographic description)</li></ul>
<ul style="list-style-type: none"><li>• Go and gather evidence (data collection methods)</li></ul>	<ul style="list-style-type: none"><li>• Describe the theoretical implications of what you saw/heard (discussion &amp; theory building)</li></ul>
<ul style="list-style-type: none"><li>• Test it (findings)</li></ul>	<ul style="list-style-type: none"><li>• Explain where you were and how you went about your task of understanding (background to the study)</li></ul>
<ul style="list-style-type: none"><li>• See if you were right in the first place (discussion)</li></ul>	





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- In some cases, it is more appropriate to begin with the inductive approach (i.e. observing patterns, outcomes and behaviours and drawing conclusions from the empirical data).
- In other cases, the contextual framework within which the research will be conducted is much clearer and can therefore be the point of departure for the research.
- Often, the lines between inductive and deductive processes are blurred in the research process (i.e. both occur); while the main thrust of the study might be inductive, the interaction between the conceptual and empirical aspects of the subject matter might well imply a deductive element inherent in the research.
- In general (but not always), **quantitative research** methods are usually associated with **deductive** approaches (based on logic), while **qualitative research** methods are usually associated with **inductive** approaches (based on empirical evidence). Similarly, deductive-quantitative designs are usually more structured than inductive-qualitative designs.

