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# Research Methods

Paul Childerhouse

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# Purpose of the Session

- Prepare students to undertake research
    - Reviewing literature
    - Deigning the research process
    - Collecting data
    - Being ethical
    - Analysing data

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# Learning Outcomes

1. Identify and define topical research problems
2. Critically review and synthesise relevant and necessary data, information and knowledge
3. Select and apply appropriate research methodologies
4. Accurately analyse research data
5. Effectively articulate research findings
6. Evaluate the value of research findings in relation to previous research

# Why Conduct Research?

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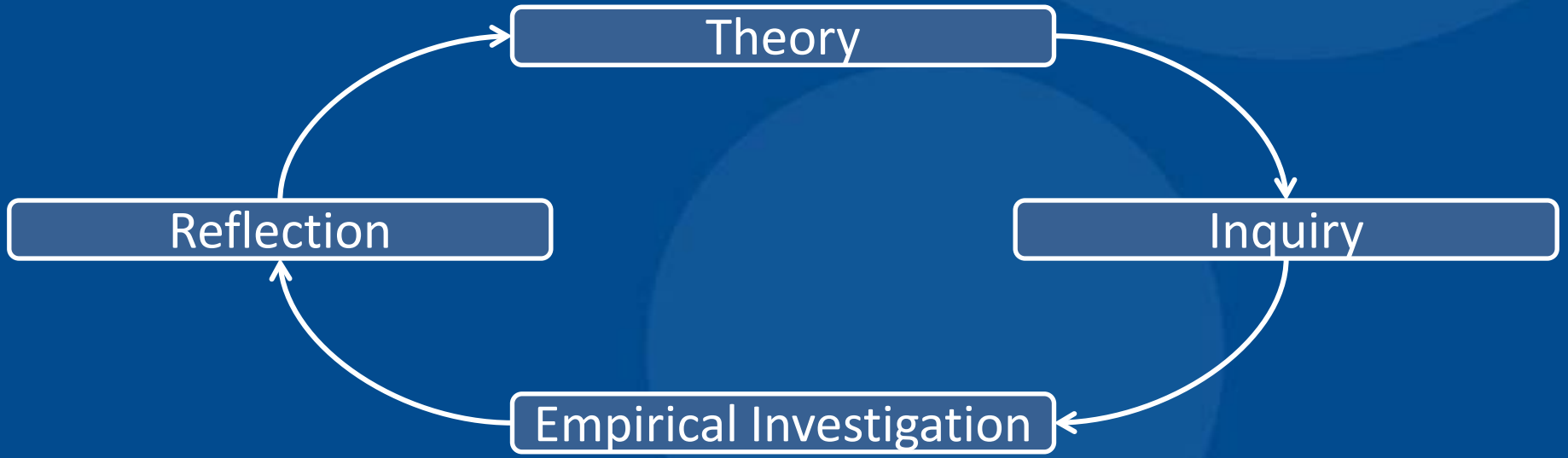
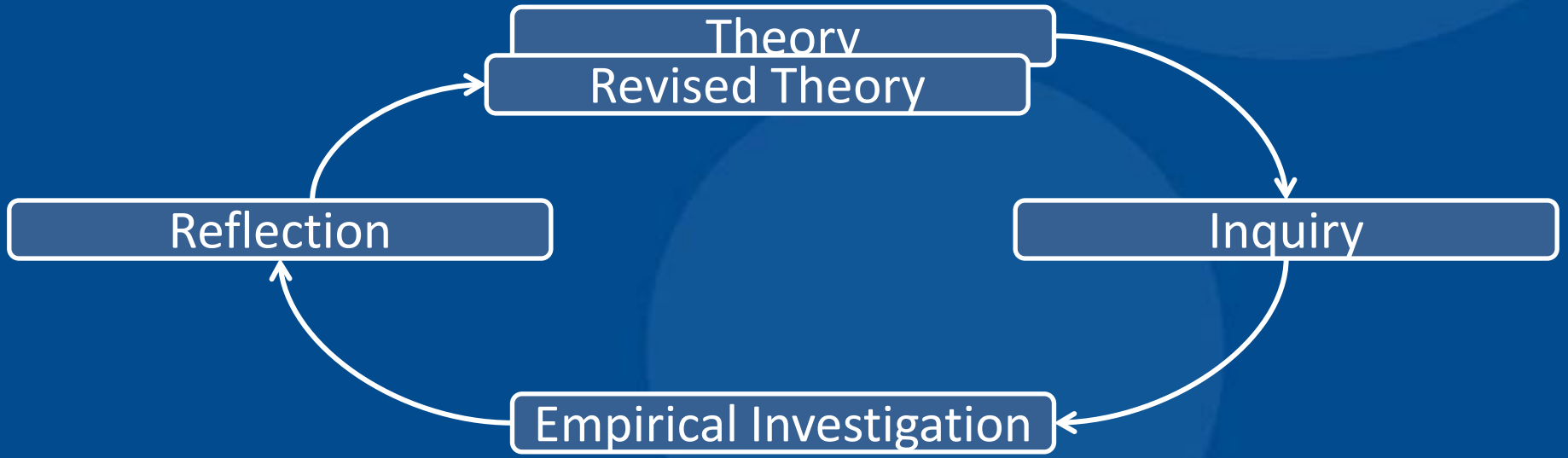
# Theory and Research




Bryman and Bell (2011) 1A p10

# Theory and Research: Deductive




Bryman and Bell (2011) 1A p10

# Scientific Method

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http://www.youtube.com/watch?v=k2MhMsLn9B0

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# Research Performance Criteria

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## Value = Significance x Originality x Rigour

| | | | |
|---|---|---|---|
| Impact | Scope | Unique | Exact |
| Performance | Breadth | Novel | Precise |
| Citable | Size | Ground breaking | Valid |
| | Importance | Innovative | Accurate |
| | Scale | Newness | Consistent |

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# Reviewing literature

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# Literature Reviews: Purpose

1. Current thinking in the discipline
   - What is already known
   - Relevant concepts and theories

2. Research norms in the discipline
   - Typical research methods and strategies
   - Typical research questions and analytical approaches

3. Debates in the discipline
   - Significant controversies
   - Inconsistent findings
   - Unanswered questions

Bryman (2012) 1E p1

# Literature Review Tips

- Prepare for reuse in the discussion
- Don’t use everything you’ve read
- Don’t stop reading the literature
- Don’t bore the reader with a list of summaries
- Don’t leave any gapping holes
- Don’t just repeat what others have said
- Provide a coherent structure
- Justify why topics are included

Bryman (2012) 1E p3

# Writing Literature Reviews

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http://www.youtube.com/watch?v=t2d7y_r65HU

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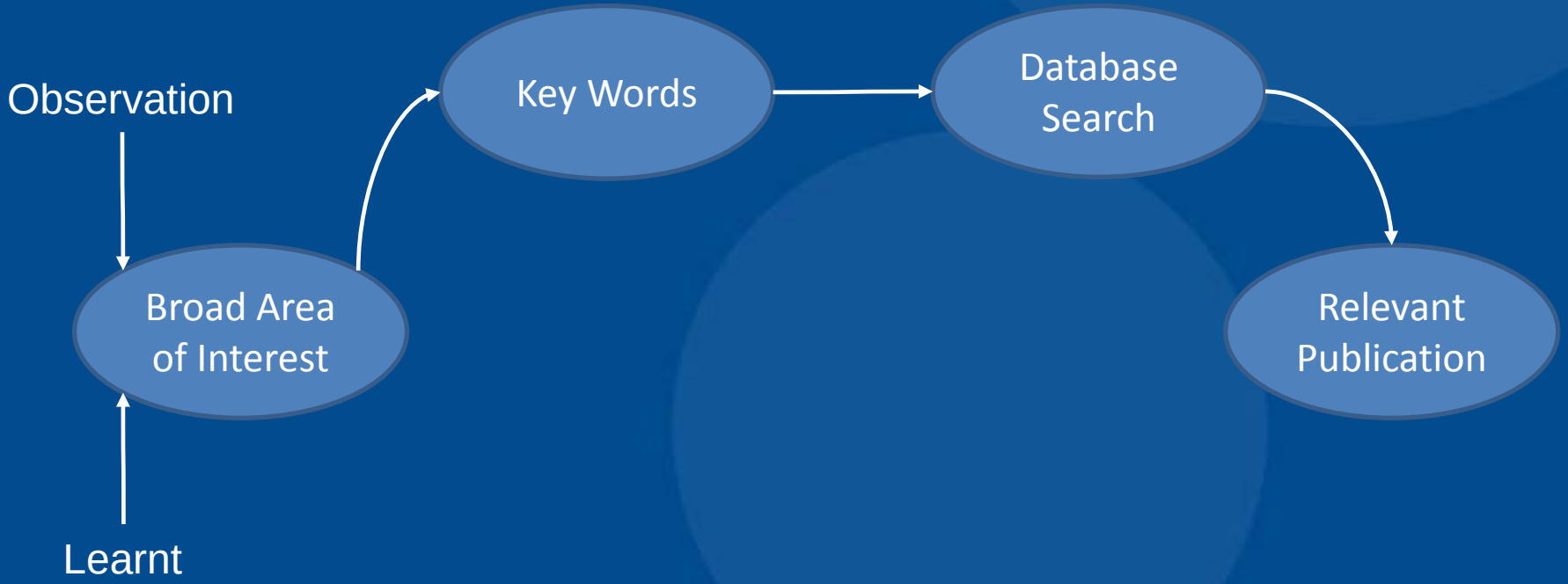
# Literature Search



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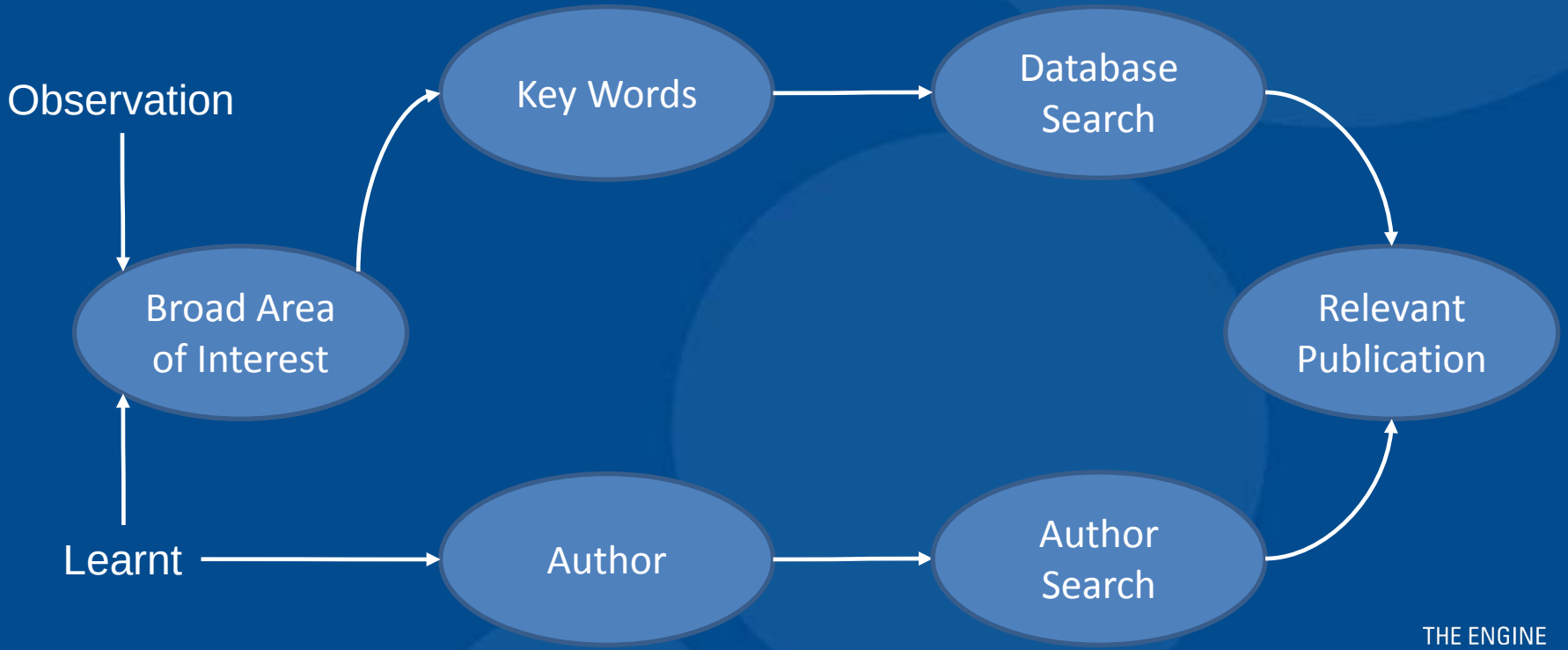

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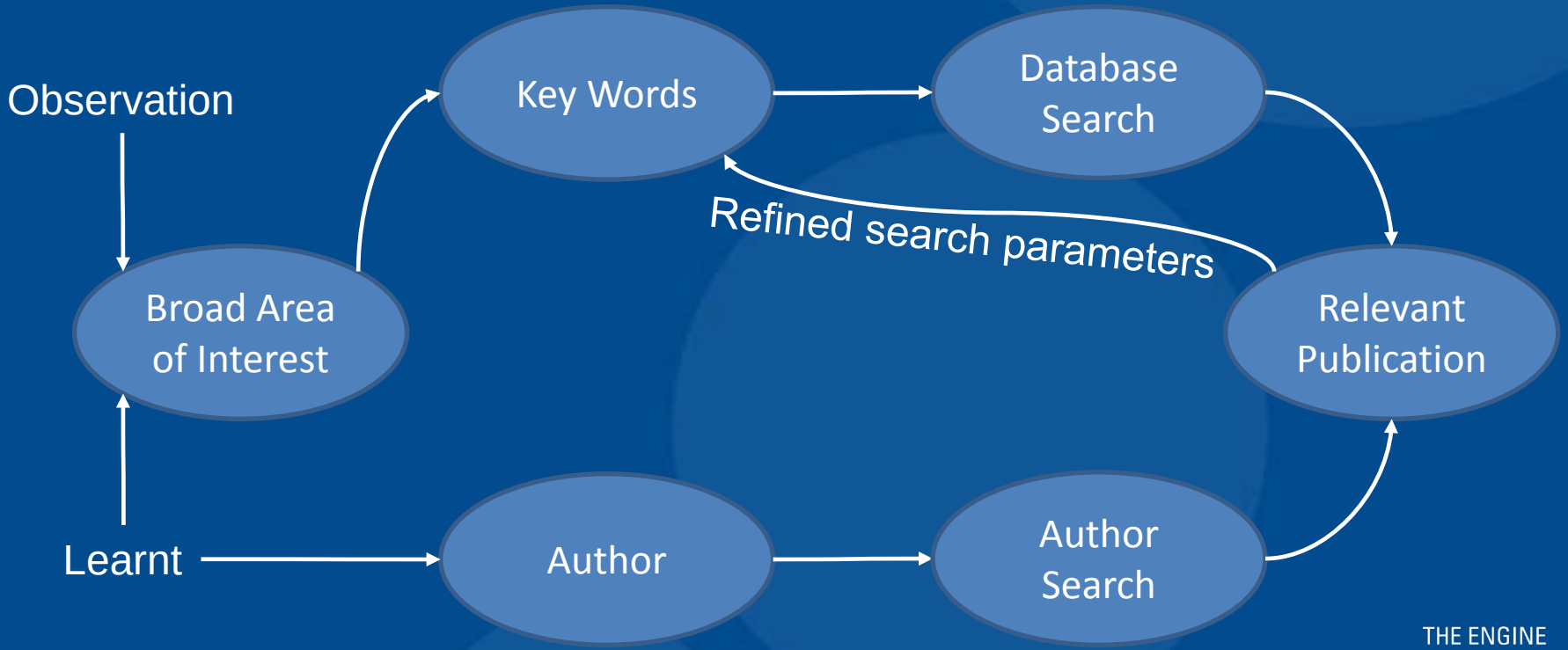

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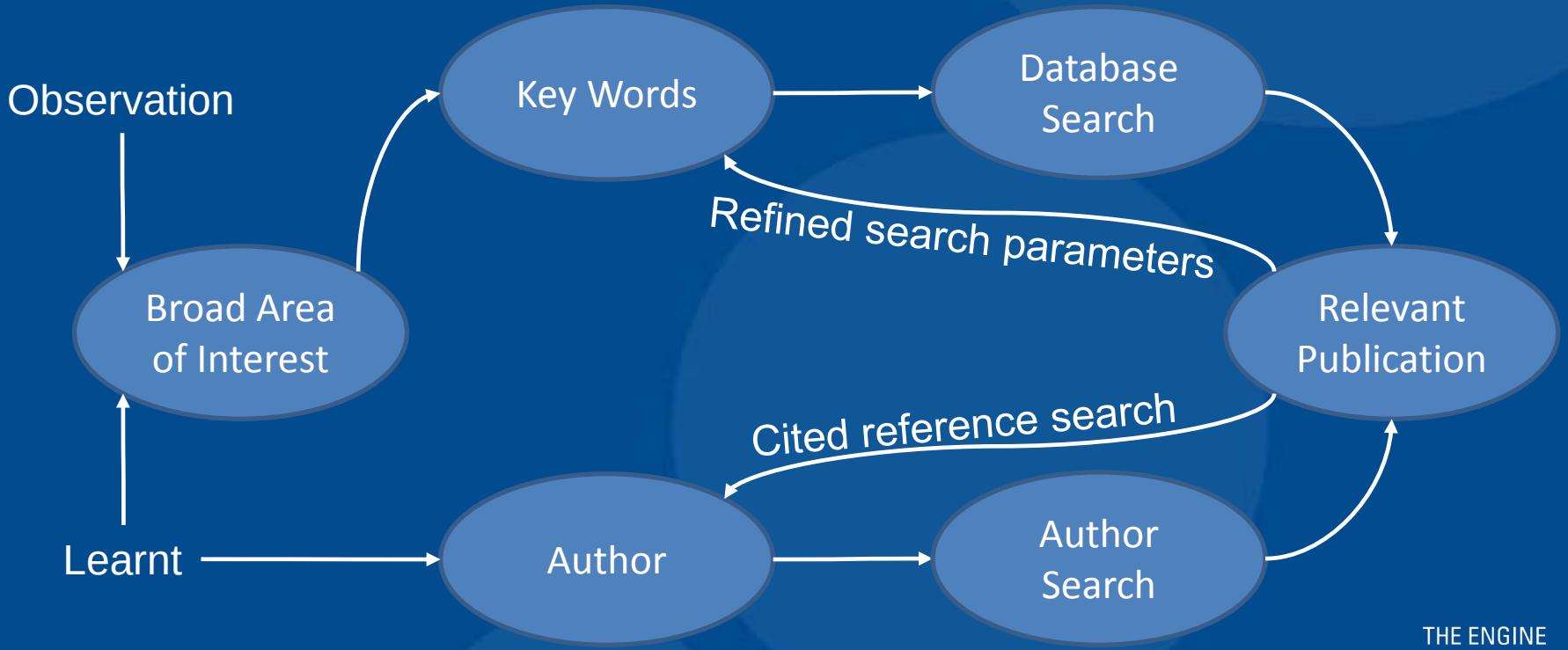

# Your Key Words/ Authors

Identify the terms of reference for your study

1. What are your key words?
2. Which of these are contextual and conceptual?
3. Who are the major authors?

Activity

# Your Key Words/ Synonyms

Develop a key word/ synonyms table

1. What are your key words?
2. What synonyms might be used?

Activity

# Literature Sources

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## Good

- Academic journals
- Text books
- Gov’t publications
- Thesis

## Bad

- Conf. proceedings
- Research reports
- Trade Journals
- Newspapers

## Ugly

- Websites
- Word of mouth
- Commercial reports
- Empirical data

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# Literature Review: Multidisciplinary

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**Broad Topic Area**
Definitions, status of the knowledge, key conceptual perspectives

**Specific Subject Focus**
Critical review

**Specific Subject Focus**
Critical review

**Specific Subject Focus**
Critical review

**Synthesis**
Coherent model/ framework, research lens, research gap

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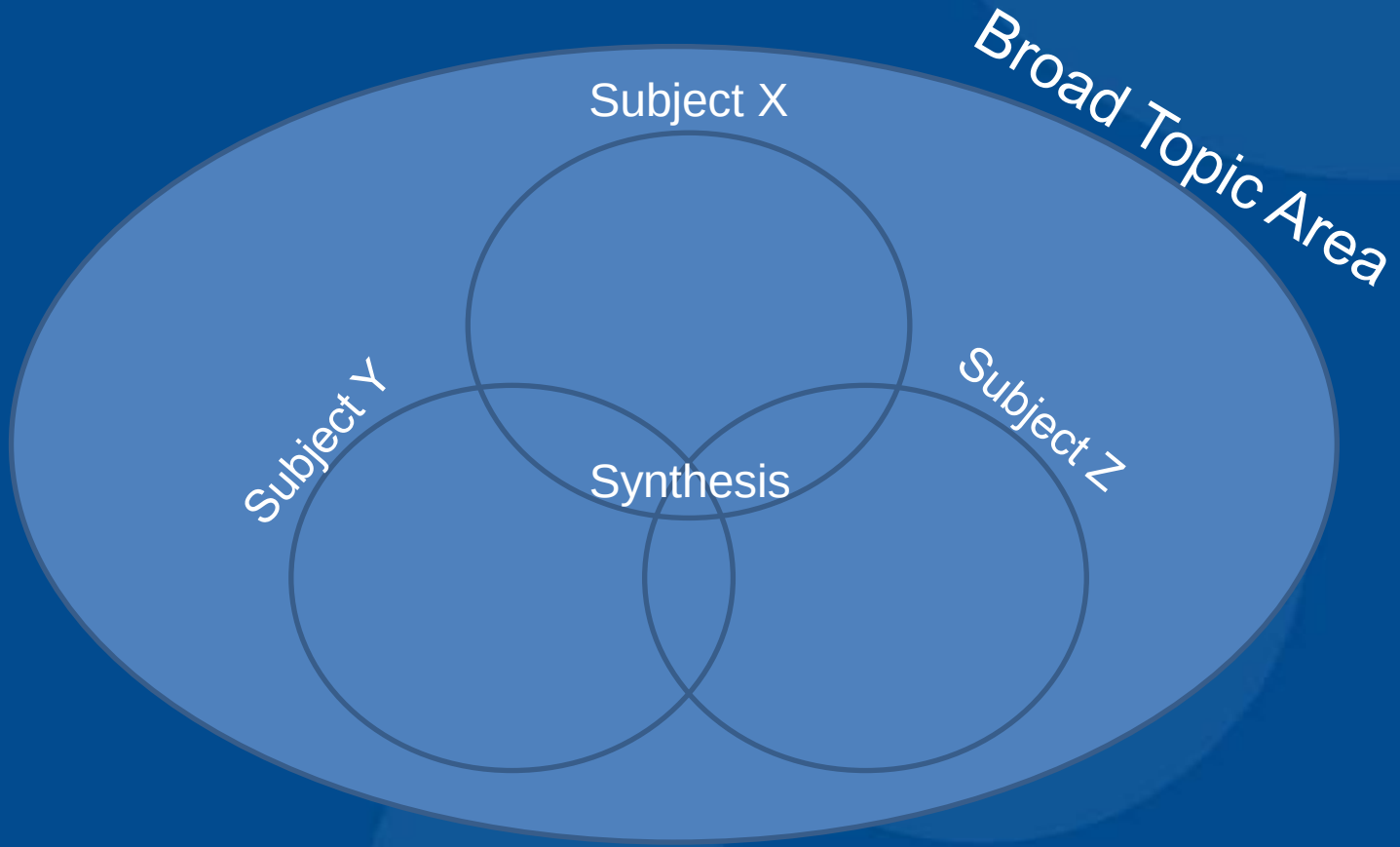
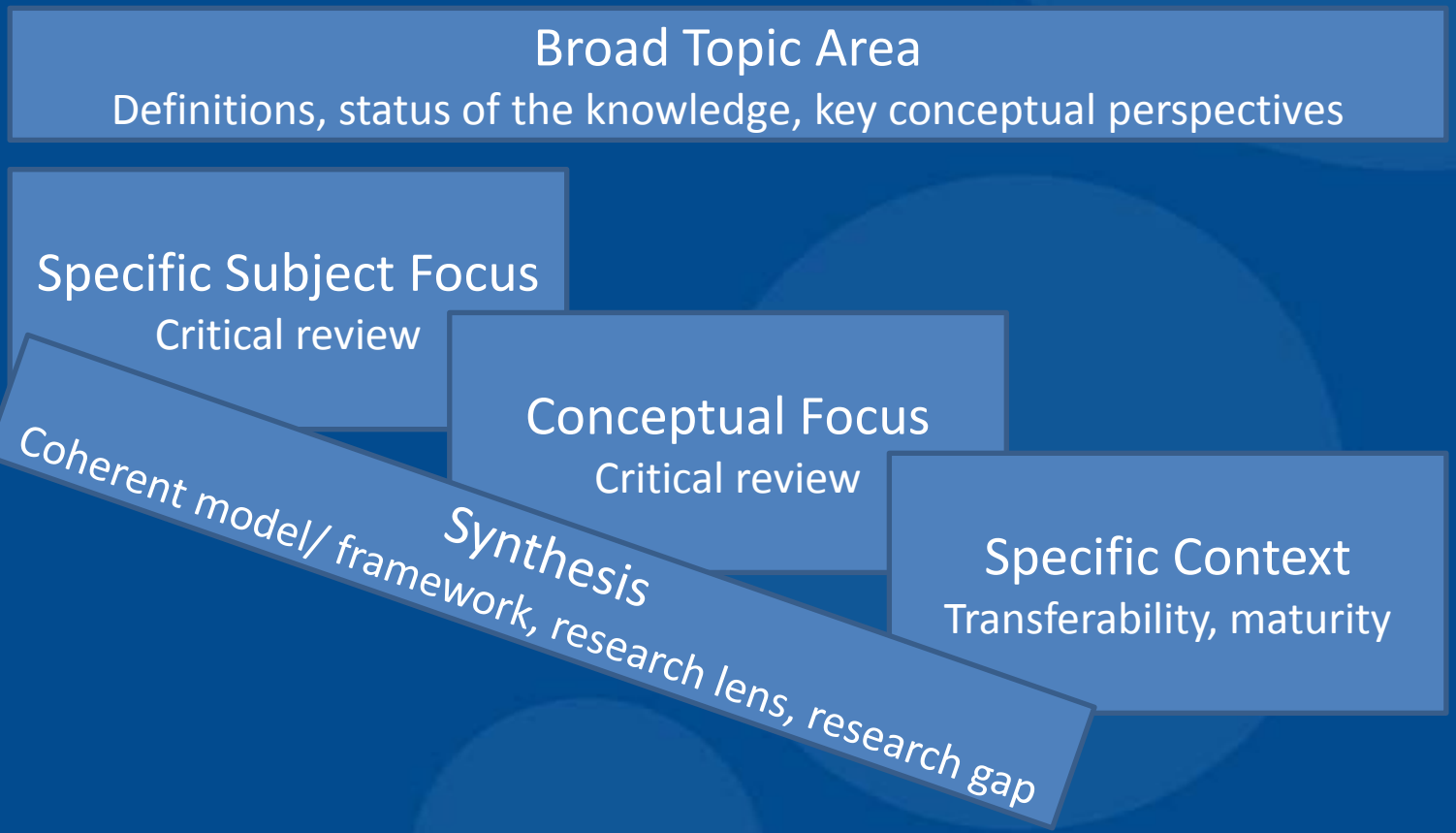
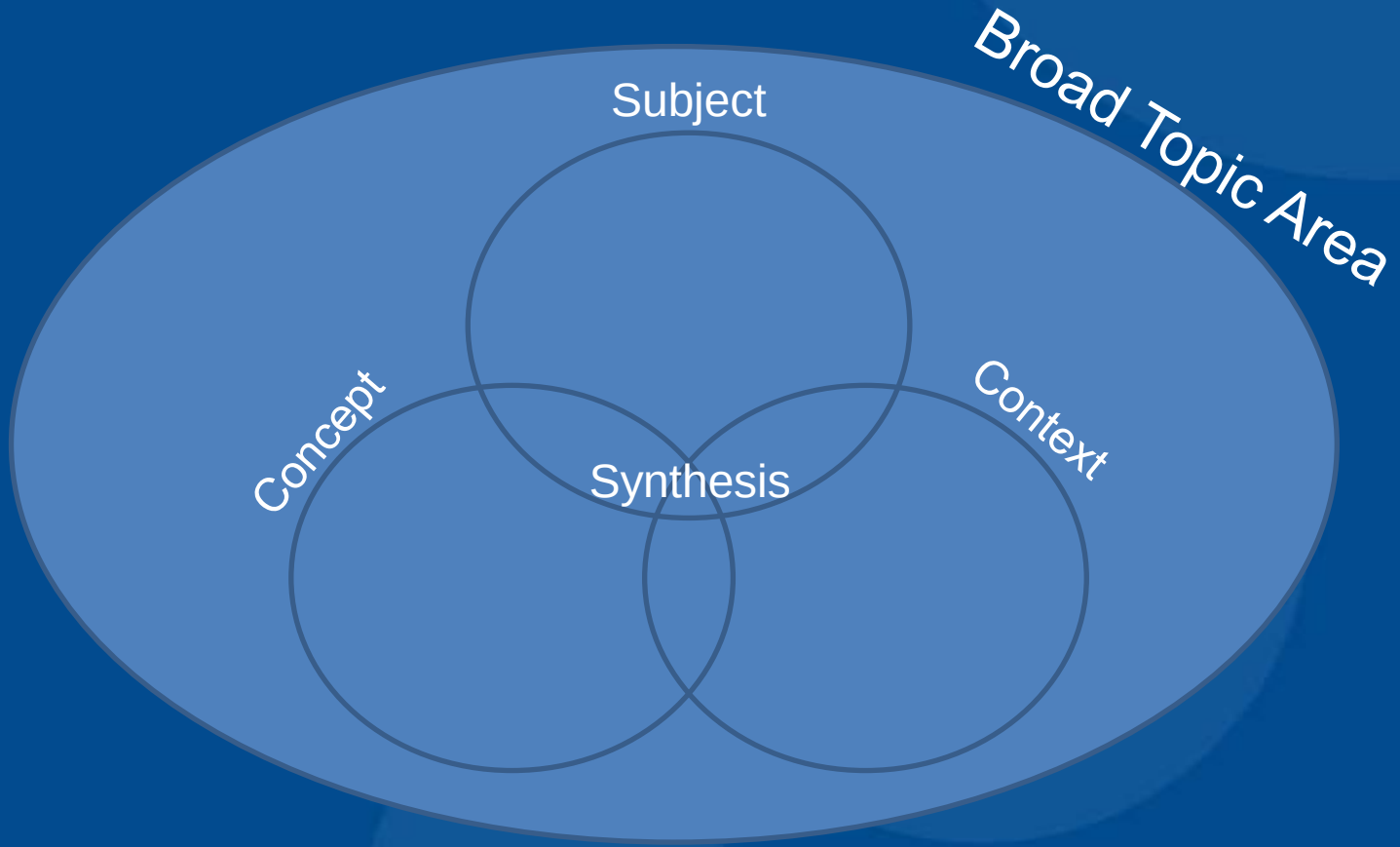
# Literature Review: Multidisciplinary



# Literature Review: Application



# Literature Review: Application



# Your Literature Review

Draw your own lit rev venn diagram

1. What is your broad topic area?
2. What are your key subject area(s)?
3. What conceptual lens are you going to use?
4. What is your context?

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# Research Process

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# The Research Process

1. Exploration of the situation
   - Research agenda
   - Literature review
2. Collection of data
   - Empirical study
3. Analysis and interpretation of the results
   - Findings
   - Discussion

Cooper and Schindler (2008) 1B p1

# Research Design Considerations

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| Category | Options | | |
|---|---|---|---|
| Question crystallisation | Formal | | Exploratory |
| Data collection | Monitoring | | Communication |
| Control of variables | Experiment | | Ex post facto |
| Purpose (what or why) | Descriptive | | Causal |
| Time | Cross-sectional | | Longitudinal |
| Scope (depth or bredth) | Case | | Statistical Study |
| Research Environment | Field | Simulation | Laboratory |
| Participants perceptions | Routine | | Modified |

Cooper and Schindler (2008) 1B p2

# Your Research Design

Re-read Cooper and Schindler's (2008) section on research design considerations and consider each category.

- Plan your research design
- Explain why these options make sense to you?
  - Research objectives
  - Feasibility/ opportunities
  - Personal competences

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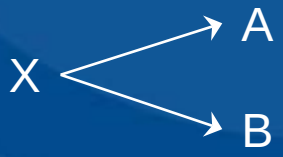
# Causal Relationships

1. Symmetrical
   - Shared common cause




2. Reciprocal
   - Mutually reinforcing


3. Asymmetrical
   - One variable is responsible for changes in the other


Independents Dependents

Cooper and Schindler (2008) 1B p21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# Steps of Quantitative Research

Bryman and Bell (2011) 2C p2

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# Preoccupations of Quantitative Research

1. Measurement
   - Internal validity
   - Indicators and reliability
2. Causality
   - Construct validity
   - Independent and dependent variables
3. Generalization
   - External validity
   - Sampling and development of law like principles
4. Replication
   - Objectivity

Bryman and Bell (2011) 2C p12

# Critique of Quantitative Research

1. Failure to distinguish between people and social institutions from the world of nature

2. Measurement gives an artificial and spurious sense of precision and accuracy

3. Reliance on instruments and procedures hinders the connection between research and everyday life

4. Analysis of relationships between variables creates a static view of social life that is independent of people's lives

Bryman and Bell (2011) 2C p17

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# Data collection

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# Data Sources

| | Primary | Secondary |
|---|---|---|
| Source | Ordinal | 2nd hand |
| Collected | Researcher | Others |
| Focus | Our research problems | Their agenda |
| Reliability | High | Questionable |
| Accuracy | In own hands | Questionable |
| Time & cost | High | Low |
| Research value | Specific insights | Tools, Context, Theory |

Ghauri and Gronhaug (2005)

# Types of Secondary Data

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## Internal sources

- Invoices
- Departmental reports
- Warranties
- Complaints
- Brochures and catalogues

## External sources

### Published

- Books and articles
- General statistics
- Industry statistics
- Statistical bureaux
- Annual accounts
- Research reports

### Commercial

- Panel research
- Scanner research
- Monitors
- In-shop research and reports

Ghauri and Gronhaug (2005)

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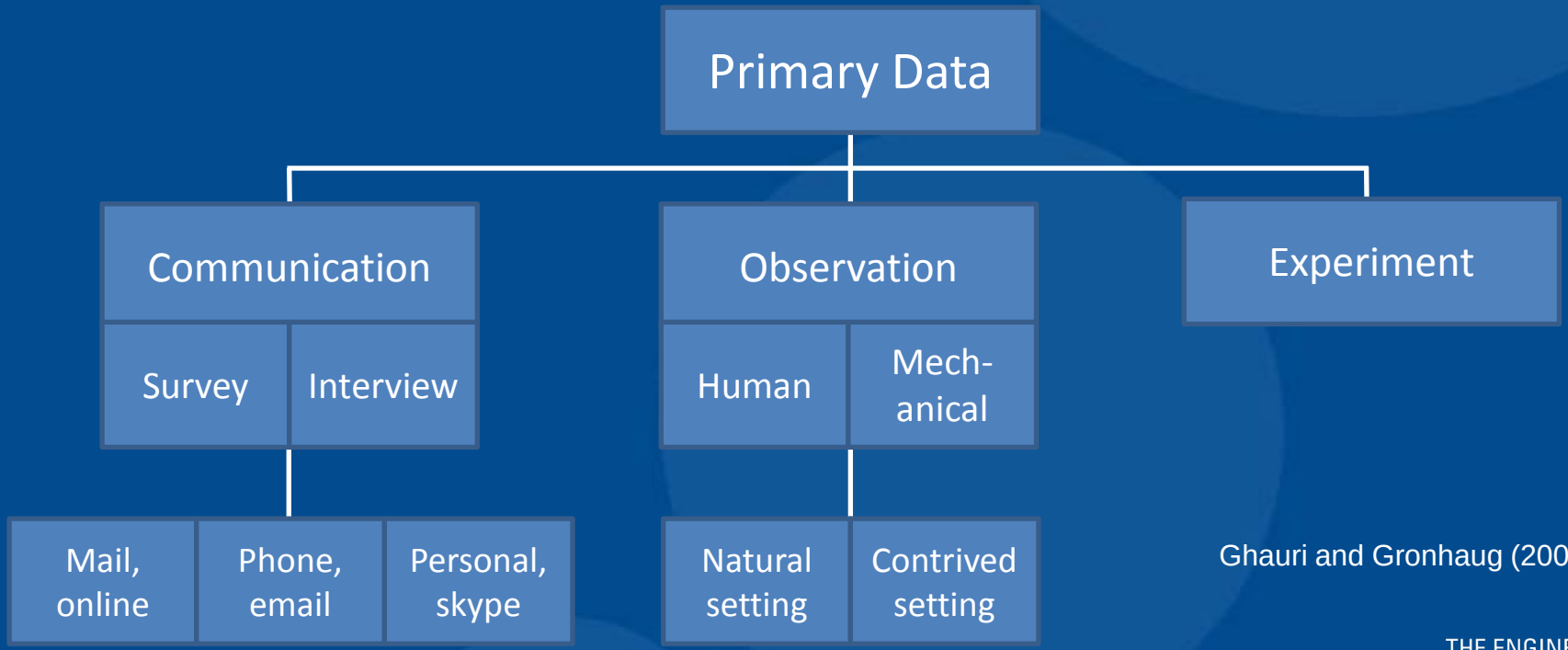
# NZ Govt Secondary Data Sources

- Statistics New Zealand
  (http://www.stats.govt.nz/)

- New Zealand Productivity Commission
  (http://www.productivity.govt.nz/)

# Sources of Primary Data




Ghauri and Gronhaug (2005)

# Observation

## Participant observation

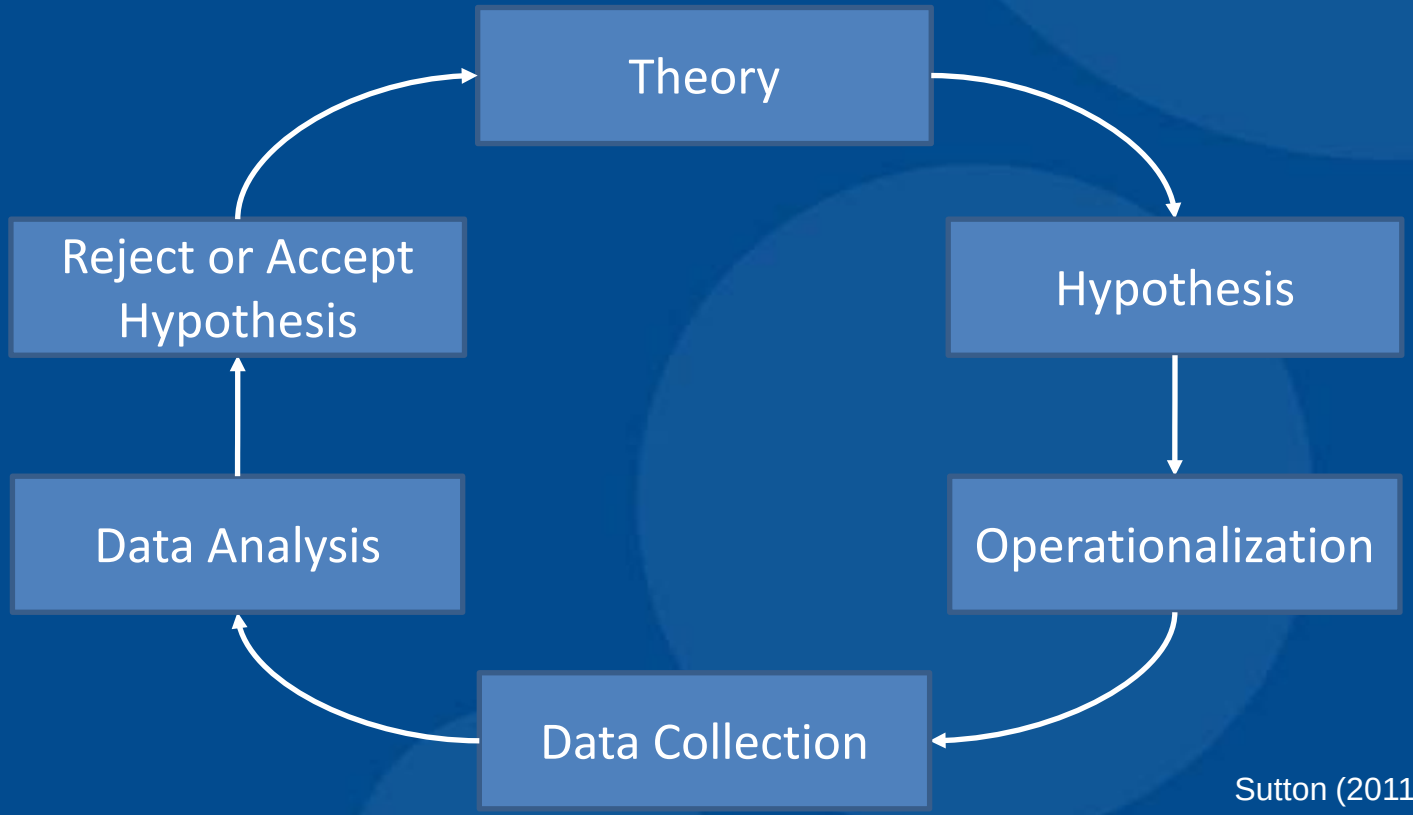
- Active
- Performing actions and engaging in conversations

## Non-participant observation

- Passive
- Recording actions, dialogue and behaviour

Ghauri and Gronhaug (2005)

# Hypothetico-Deductive Research Process




Sutton (2011)

# Operationalization: Developing Measures

1. Define the concept (own or others)
2. Measurement dimensions (and sub-dimensions)
3. Operational dimension definition (that can be observed)
4. Dimensional indicators (use existing one?)

De Vaus (2001)

# Operationalization: An Example

Hypothesis: Students that undertake paid work during their studies gain valuable experience that enhances their future employability and academic performance.

Sutton (2011)

# Operationalization: An Example

Hypothesis: Students that undertake paid work during their studies gain valuable experience that enhances their future employability and academic performance.

Operationalize: Student, paid work, academic performance and employability.

Sutton (2011)

# Operationalization: An Example

Hypothesis: Students that undertake paid work during their studies gain valuable experience that enhances their future employability and academic performance.

Operationalize: Student, paid work, academic performance and employability.

Student: undergrad, postgrad or broader? Full or part time?

Sutton (2011)

# Operationalization: An Example

Hypothesis: Students that undertake paid work during their studies gain valuable experience that enhances their future employability and academic performance.

Operationalize: Student, paid work, academic performance and employability.

Paid Work: During semester or holiday? Weekdays or weekends? Type of work? Work load? Pay rate?

Sutton (2011)

# Operationalization: An Example

Hypothesis: Students that undertake paid work during their studies gain valuable experience that enhances their future employability and academic performance.

Operationalize: Student, paid work, academic performance and employability.

Academic performance: Grades alone? Attendance, self perception or meeting deadlines?

Sutton (2011)

# Operationalization: An Example

Hypothesis: Students that undertake paid work during their studies gain valuable experience that enhances their future employability and academic performance.

Operationalize: Student, paid work, academic performance and employability.

Employability: How long a delay? Retrospectively or longitudinal? Income, status or desirable vocation?

Sutton (2011)

# Sampling

1. Probability
    - Random, systematic, stratified, cluster
2. Convenience
    - Availability, opportunity, quota
3. Theoretical
    - Purposive, snowball

Sutton (2011)

# What's Your Approach to Collecting Data?

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What are your primary or secondary data sources?

- If interviewing, structured or unstructured?
- If observing, participant or non-participant?
- If deductive, what dimensions and indices?
- If surveying, what sample approach?

Justify your decisions to your peers

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# Ethics

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# Ethics

*"… norms and standards of behaviour that guide moral choices …*

*… to ensure that no one* (including the researcher) *is harmed or suffers adverse consequences"*

Respondents must not suffer:

- Physical harm, discomfort, pain
- Emotional harm, embarrassment, stress
- Loss of privacy

Cooper and Schindler (2008)

# Massey University Code of Ethical Conduct

(http://www.massey.ac.nz/massey/research/research-ethics/human-ethics/human_ethics.cfm)

# Ethical Principles

a) Respect for persons
b) Minimisation of harm
c) Informed and voluntary consent
d) Respect for privacy and confidentiality
e) Avoidance of unnecessary deception
f) Avoidance of conflict of interest
g) Social and cultural sensitivity
h) Justice

Code of Ethical Conduct, Massey University (2013)

# Minimisation of Risk of Harm

1. Participants
   - Pain, stress, fatigue, emotional distress, embarrassment, cultural dissonance and exploitation
2. Researchers
3. Groups/Communities/Institutions
4. Massey University

Code of Ethical Conduct, Massey University (2013)

# What Harm Might Your Research Inflect?

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Consider each of the four types of harm

What are the likeliest harmful risks of your research?

Develop a plan to mitigate these risks?

Explain your thinking to a peer

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# Unethical Research Analysis

- Violating participant confidentiality
- Changing data or creating false data
- Changing data presentations or interpretations
- Interpreting the data from a biased perspective
- Omitting sections of data analysis and conclusions
- Making unsubstantiated recommendations

Cooper and Schindler (2008)

# Research Ethics

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http://www.youtube.com/watch?v=AmNuVgVmIBs

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# Data Analysis

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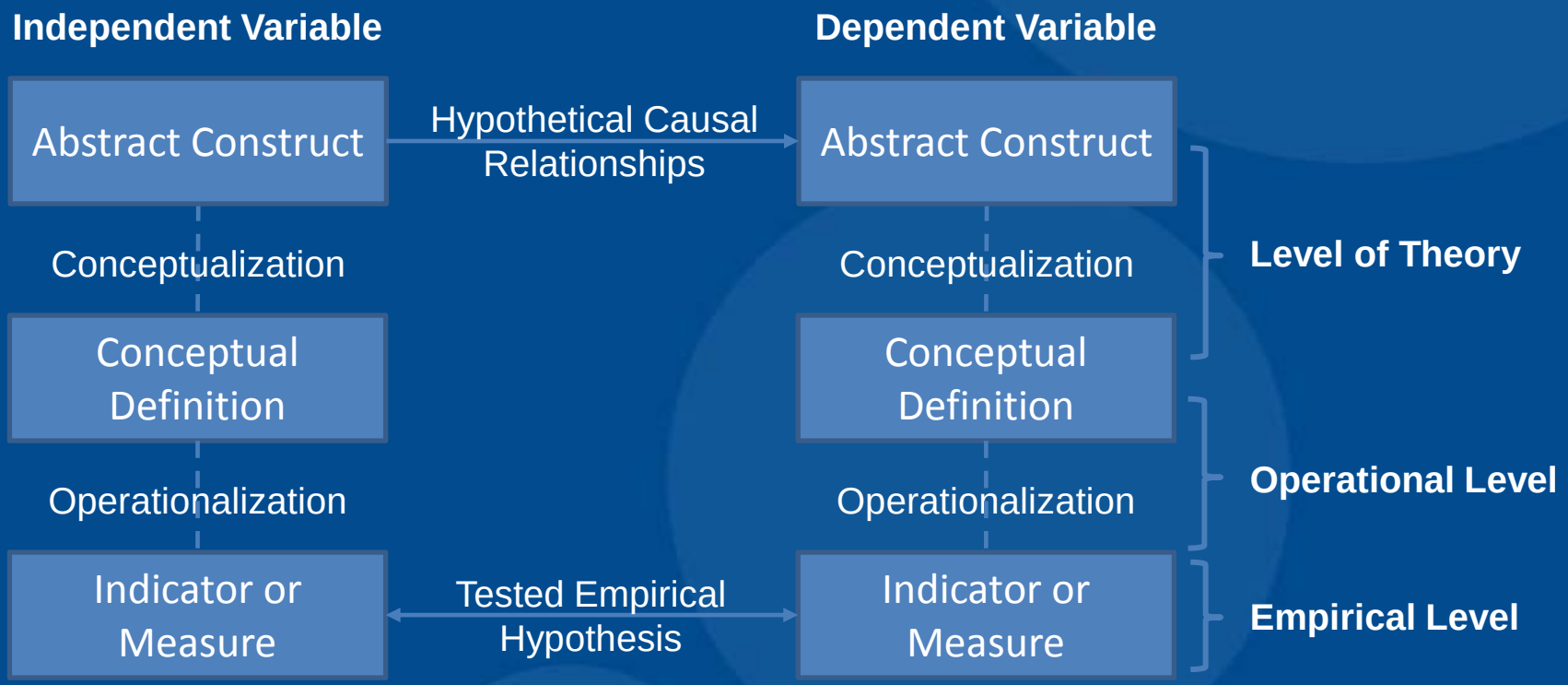
# Abstract Concept to Concrete Measure




Neuman (2006)

# Quantitative Measurement Reliability and Validity

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| Reliability (Dependent variables) | | Validity (True measure) | |
|---|---|---|---|
| Stability (over time) | Test-retest method | Face | Judgment of others |
| Representative (across sub-groups) | Half-split method | Content | Capture entire meaning |
| Equivalence (across indicators) | Subpopulation analysis | Criterion | Agrees with external source |
| | | Concurrent | Agrees with pre-existing measure |
| | | Predictive | Agrees with future behaviour |
| | | Construct | Multiple indicators are consistent |
| | | Convergent | Alike ones are similar |
| | | Discriminant | Different ones differ |

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Neuman (2006)

# Descriptive Analysis

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1. Average
   - Mean, medium and mode
2. Variance
   - Standard deviation, range, frequency distribution
3. Comparison
   - Cross-tabulation, contingency table, quadrant analysis

Zikmund et al (2010)

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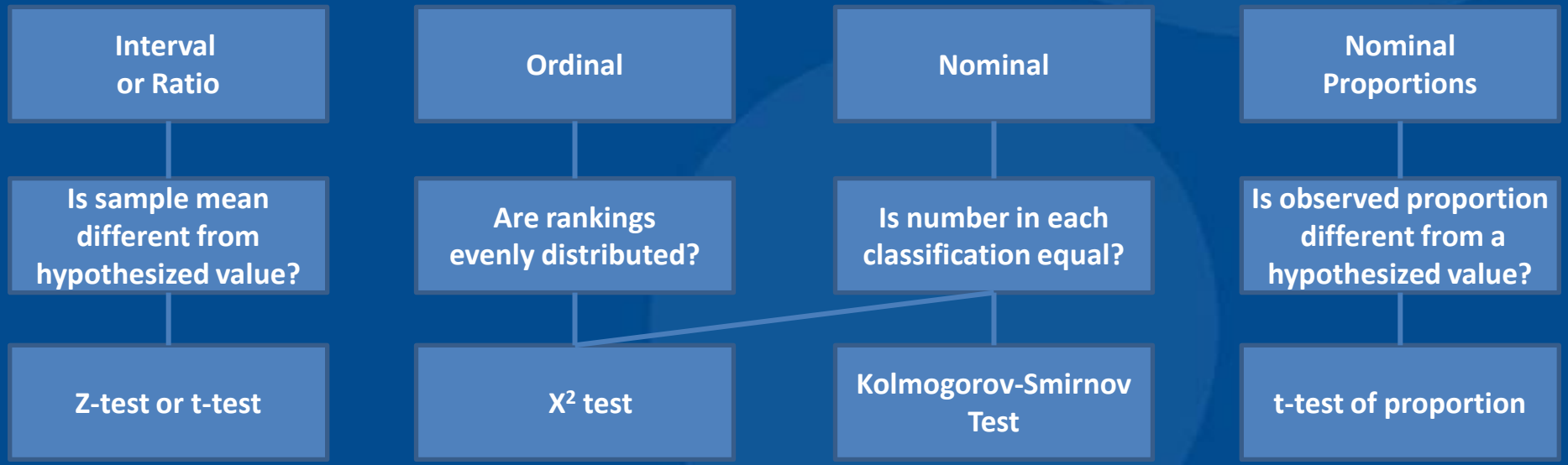
# Testing Hypotheses Statistically



1. Univariate
   - Comparison of a single variable against a benchmark
2. Bivariate
   - Comparison of two variables
3. Multivariate
   - Comparison of multiple variables

Zikmund et al (2010)

# Statistical Tests




Zikmund et al (2010)

# Your Analysis Approach

How do you plan to analyse your data?

How is this approach aligned to your overall methodology?

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# Errors in Explanations

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| Error Type | Definition | Example |
|---|---|---|
| Tautology | The relationship is true by definition as it involves circular reasoning | Poverty is caused by having very little money |
| Teleology | The cause is an intention that is inappropriate, or it has misplaced temporal order | People get married in religious ceremonies because society wants them to |
| Ecological fallacy | The empirical observations are too high a level for the causal relationship that is stated | New York has a high crime rate, Joan lives in New York, therefore she probably stole my watch |
| Reductionism | The empirical observations are too low a level for the causal relationship that is stated | Because Steven lost his job and did not buy a car, the country entered a recession |
| Spuriousness | An unseen third variable is the actual cause of both the independent and dependent variables | Hair length is associated with TV programs, people with short hair prefer watching rugby, people with long hair prefer watching Shortland Street |

Neuman (2006)

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# Questions

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