

The Research Process

Steps of the Research Process

Types of Research

Criteria for “Good” Research


Ethics in Research

How Scientists Work

Investigating


This plan will help you work like a scientist.

STEP 1 — Observe and ask a question.




Which car will roll farther?

STEP 4 — Do the test.




I'll measure how far each car rolls.

STEP 2 — Form a hypothesis.




The blue car will roll farther because it is heavier.

STEP 5 — Draw conclusions. Communicate results.




My hypothesis was correct. The red car did not roll as far as the blue car.

STEP 3 — Plan a fair test.

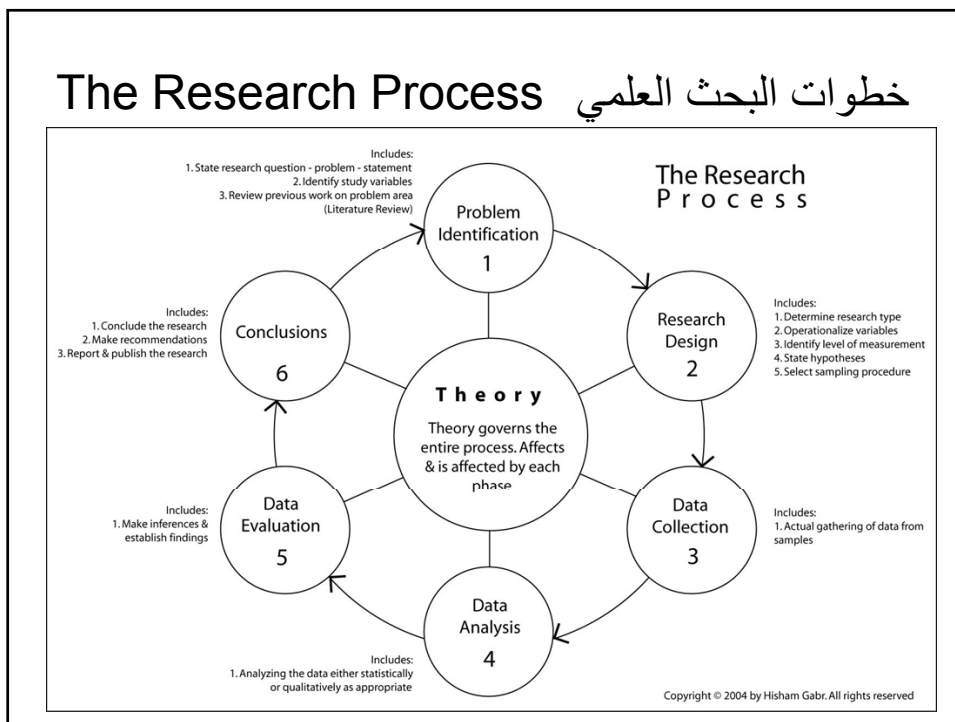


I'll start each car at the same spot.

Investigate More



I wonder if the height of the ramp will make a difference.



The Research Process خطوات البحث العلمي

1. Problem identification
2. Research design
3. Data collection
4. Data analysis
5. Data evaluation
6. Conclusions & recommendations

1. Initiating the research
2. Designing the research
3. Conducting the research
4. Examining the research data
5. Establishing the research findings
6. Reporting the research

Types of Research انواع البحث العلمي

1. Basic – Applied – Action (relationship with real world)
2. Primary – Secondary (kind of evidence or source data)
3. Exploratory – Descriptive – Explanatory
(purpose of research; kind of inference)
4. Experimental – Quasi-experimental – Correlation
(relationship between variables)
5. Case Study – Survey – Experimental
(research strategy or content)
6. Cross-sectional – Longitudinal (time dimension)
7. Quantitative – Qualitative (type of data)

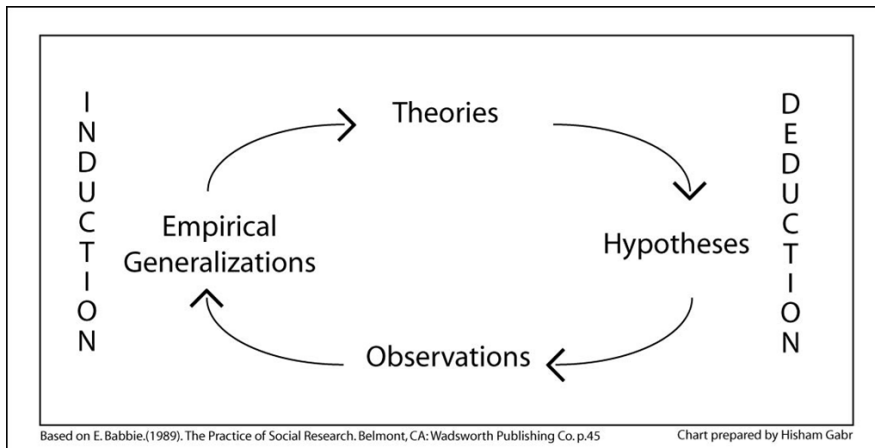
Criteria for Good Research

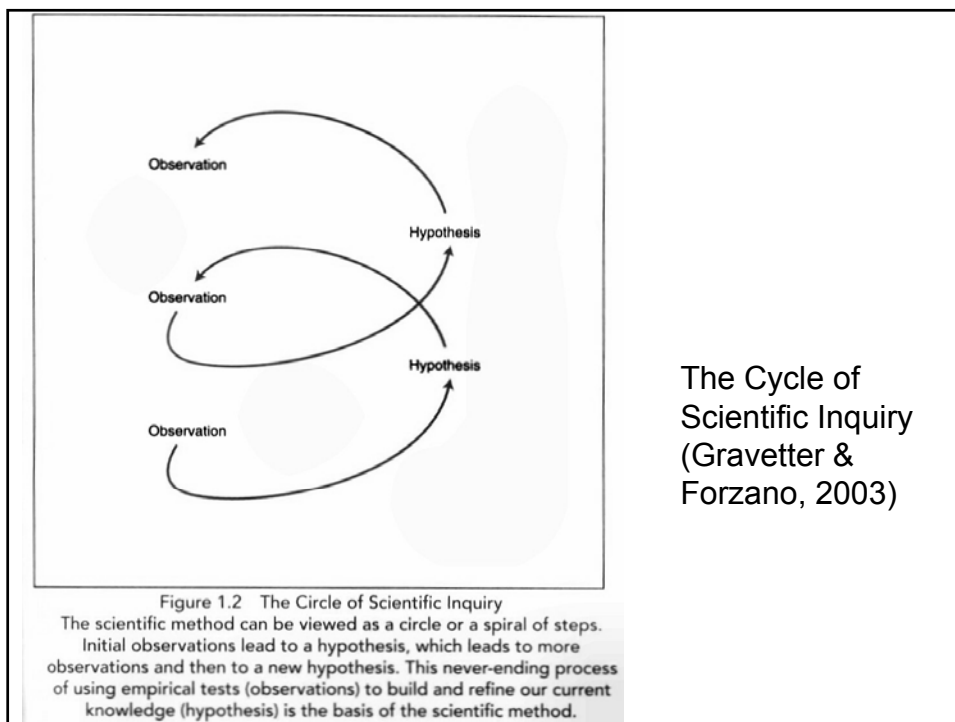
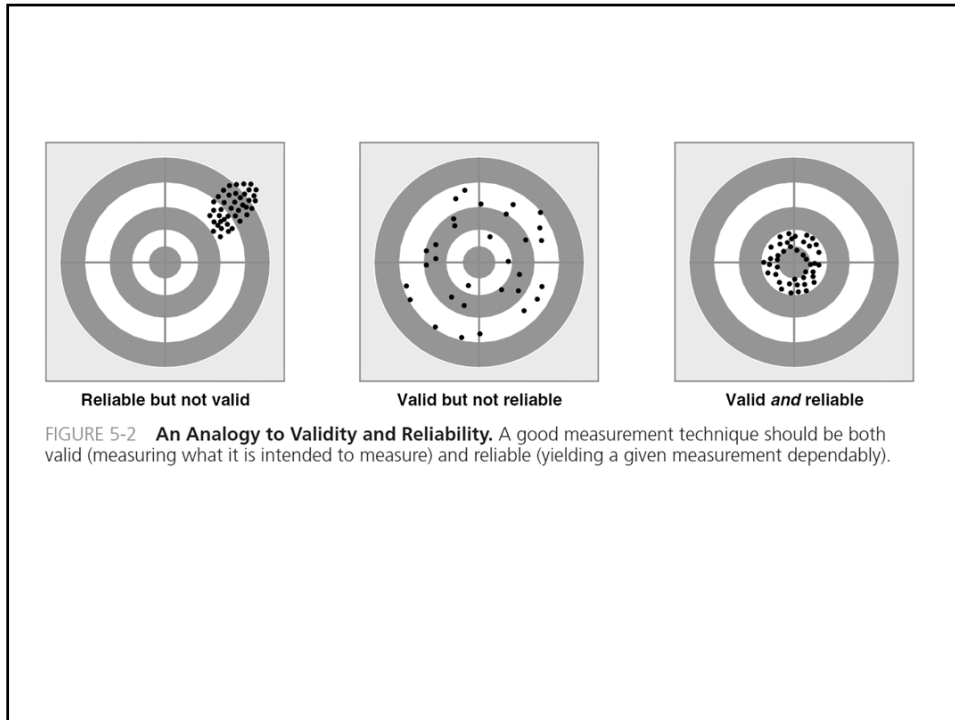
معايير البحث الجيد

- | | |
|---------------------|---------|
| 1. Reliability | الثبات |
| 2. Validity | الصدق |
| 3. Generalizability | التعميم |
| 4. Utility | المنفعة |

Deduction & Induction

المنهج الاستنباطي و الاستقرائي





Ethics in Research

أخلاقيات البحث العلمي

Ethics in Research

أخلاقيات البحث العلمي

1. While preparing the research

اثناء التحضير للبحث

2. While conducting the research

اثناء اجراء البحث

3. While reporting the research

اثناء كتابة البحث

Ethics in Research	أخلاقيات البحث العلمي
1. While preparing the research	اثناء التحضير للبحث
1. Inform participants	
2. Informed Consent (written permission)	

Ethics in Research	أخلاقيات البحث العلمي
2. While conducting the research	اثناء اجراء البحث
1. No harm to participants (physically or emotionally)	
2. No damage to equipment	

Ethics in Research أخلاقيات البحث العلمي

3. While reporting the research أثناء كتابة البحث

1. **Completeness** (can be replicated with ease)
2. **Privacy** (anonymity & confidentiality)
3. **PLAGIARISM**