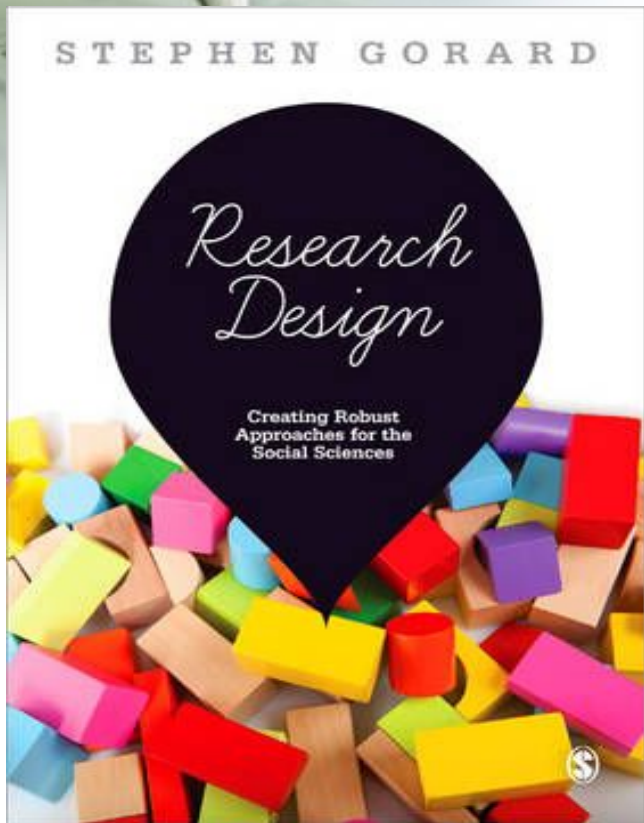


**Research Design:
Creating Robust
Approaches for the Social Sciences**

Stephen Gorard

By Hui, Amanda, Cori, Kanasha

→ Introduction to the Book



Title : **Research Design: Creating Robust Approaches for the Social Sciences**

Author: **Stephen Gorard**

Published: **In 2013**

Publisher: **Sage, United Kingdom**

The objective: **To meet the need for a new research design in social sciences**

The readers aimed: **New researchers**



→ Content of the Book

- ❑ A book about research design for social science;
- ❑ Introduce strategies for research how to make convincing research-based claims and highlight the new approaches that can help researchers develop their project;
- ❑ Empower readers to make judgements by focusing on why the elements of design matter and how they can be used to generate an almost infinite variety of study designs;
- ❑ Some case studies and notes parts followed for suggested reading and discussions to readers;
- ❑ Highly innovative by introducing new ideas for research design.



Structure of the Book

- ❖ Introduction
- ❖ The Preliminaries of Research Design
- ❖ Putting It All Together
- ❖ More Advanced Considerations
- ❖ Conclusion



STEPHEN GORARD

Research Design

Creating Robust
Approaches for the
Social Sciences

A close-up photograph of a fountain pen with a gold nib and a black barrel, resting on a document with some text. The pen is positioned diagonally from the top left towards the center. The document has some faint text, including "ADD 1226".

1

Introduction

- Research design largely ignored in social science
 - Care little about social science
 - Social science research is often ignored by its potential users such as politicians, and practitioners in the public services.
 - The research findings are often of very poor quality.
- Research design
 - Research design in social science is a way of organizing a research project or programme from its inception in order to maximise the likelihood of generating evidence that provides a convincing answer to the research questions for a given level of resource (p.8).

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1

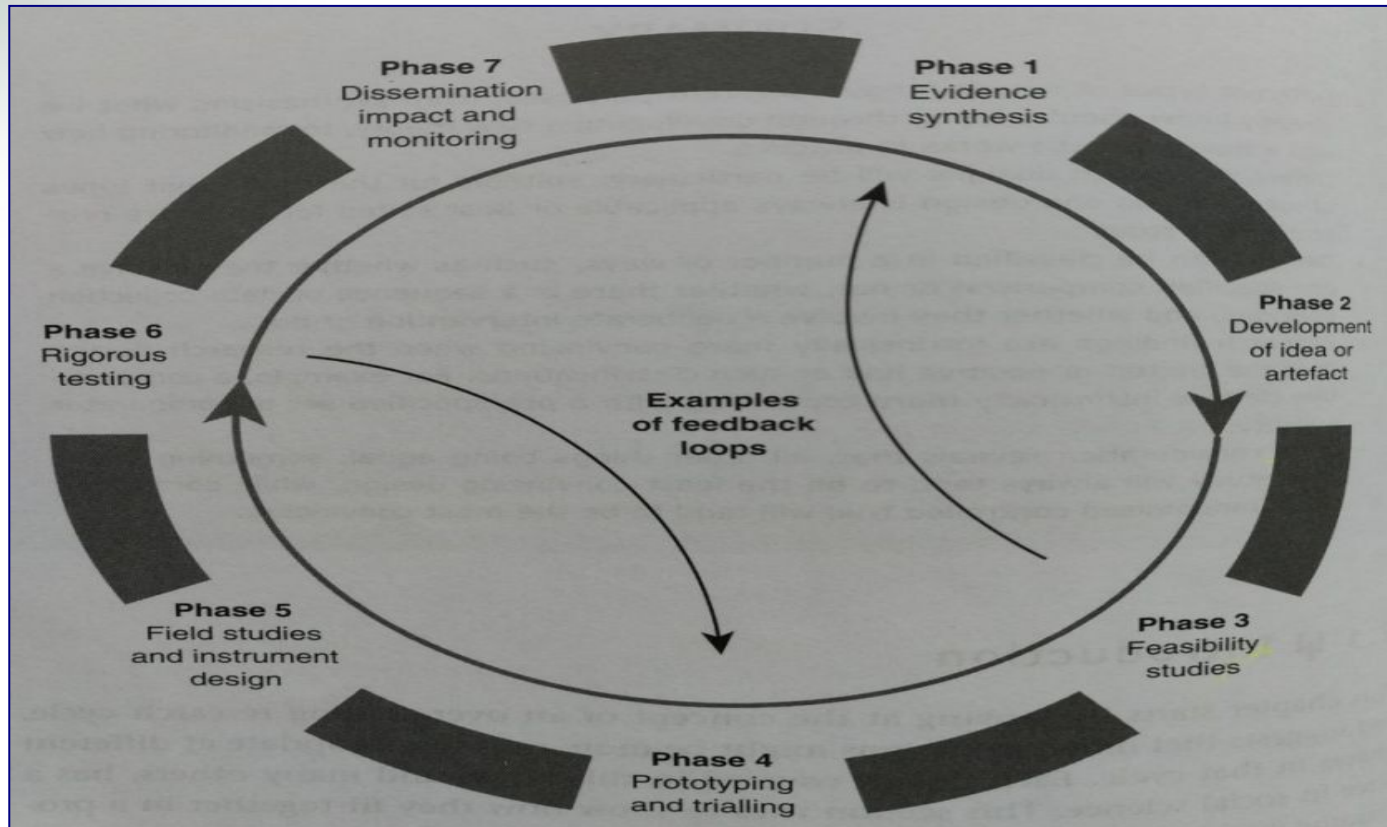
Introduction

- Research design is not about methods of data collection and analysis.
 - The two “infamous ‘Q’s’” and mixed methods
 - Focus on the issues related to the research topic, define the problem, determine areas, and allow the research methods to fall into place later on.
 - The elements of research design
 - Cases involved (participants)
 - The allocation to sub-groups
 - The time & sequence of data collection
 - Manipulated interventions
-

1

Introduction

- Introducing designs in the cycle of research
 - The full cycle of social science research and development
 - 7 Phases (p. 14)



Notation

Cases, classified based on how they are allocated to their groups:

R – randomly

C – by cut-off point

M – through matching

N – by none of these methods

0: Episodes of data collection (i.e. observation, measurements, conversations, text) (denoted O_1, O_2 , etc.)

X: Interventions (denoted X_1, X_2 , etc.)

[X] – brackets indicate natural interventions

*Time is indicated with spacing location from left to right (->Time->)

Example: Two groups classes of psychology students are studied regarding their comprehension of material. (Each row represents a separate group.) Both groups take the same written test (as a pre-test), but Group 1 receives a review session from the instructor, and then a review packet. Group 2 does not receive either resource, but students naturally form their own study group to review the day before the exam. The same written exam is given again (as a post-test), and then students submit a final paper.

| | | | | | | |
|---|-------|-------|-------|-----|-------|-------|
| N | O_1 | X_1 | X_2 | | O_1 | O_2 |
| N | O_1 | | | [X] | O_1 | O_2 |



2

The Preliminaries of Research Design

- Identifying researchable questions



- Reviewing the literature

- Secondary Analysis

- Theory

- Synthesizing the information

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2

The Preliminaries of Research Design

- Warranting research claim
 - Have a warranted conclusion
 - The conclusion should not be made to fit the evidence or vice versa
 - “Do not be one of them, please” (Gorard, 2012, p.48)
 - “Do not be a pigeon” (Gorard, 2013, p.64)
-

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3

Putting It All Together

- Randomization is the best way to choose cases!
 - Avoids bias as much as possible
 - Social science research should be required to include a detailed report regarding non-response (just as in medical experiments) (p.89)
 - who failed to participate, and why
 - who dropped out after agreeing to participate, and why
 - why cases may have been excluded from analysis
-

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3

Putting It All Together

- Strategically create subdivisions
 - Allows for better comparisons
 - Produces more convincing claims
- Sub-groups should be decided before conducting research
 - * Major flaw when claims are made without comparators

A close-up photograph of a fountain pen with a gold nib and a black barrel, resting on a document. The document has some faint text, including "ADD 1226".

3

Putting It All Together

- Claims should not be made over time in respect to only one time period
 - One recognized relationship does not necessitate that one factor caused another
 - “Active” design is recommended
 - Involve interventions
-

4

More Advanced Considerations

- Alternatives to trials
 - When laboratory or randomized control trials are not possible, passive approaches to research such as statistical modeling, interrupted series, regression discontinuity and a combined design are used as alternatives
 - Using statistical modeling
 - Most common alternative
 - Use complex mathematical models, data set and software to overcome deficiencies in identifying causes
 - Reject non-experimental evidence as inconsistent
 - Interrupted time series
 - Measurements are taken of a series of samples from the same population several times before and after a natural occurring event
-

- Regression discontinuity
 - As near to unbiased as randomization
 - Used when a known variable determines if a case is given an intervention or not, cannot work without true cut off
 - If value is under a certain threshold then treatment is given, it help estimate impact of a treatment
 - Combined designs
 - Using more than one of the alternatives to trial in same evaluation
 - Same outcome from each design strengthen findings
 - Different or ambiguous outcomes occur it's unwise to continue with intervention as is
 - Research report should discuss the ambiguous outcome
-

4

More Advanced Considerations

- Challenges for validity
 - Validity is important in protecting research conclusions from biases
- Bugs and other data errors
 - Errors in measurement could occur in research calculations, software errors, or researcher influencing the outcome of the research
 - Suggestion to ensure validity:
 - Subcontract out portions of the research
 - Focus on getting the right answer, not a specific answer
 - Note clear and concise methods and protocols
 - release the data for the duplication of the research

4

More Advanced Considerations

- How big is a difference, and related matters
 - A range of 'effect' sizes
 - Converting different groups, patterns, and trends into standardized raw data.
 - Ways of standardizing effect size include,
 - The absolute difference in the scores divided by their sum
 - The absolute difference divided by their standard or mean deviation
 - the percentage of variation in common

4

More Advanced Considerations

- A second principle of ethics

- Conflicts of interest

- Key to ethics is not harming research participants, stakeholders, researchers or funders
 - Precautions includes transparency of research procedures and protocol, formal agreement to participate, oversight by independent ethical committees (IRB at Niagara University), making it clear participants can withdraw at any time, safeguarding private and sensitive data and concealment participants identity
 - Inappropriate design method or not using a design method at all is just as unethical as research that harm participants
-

5

Conclusion

● Revisiting the need for robust design

- How to choose a design?
 - A flexible approach to understanding and using design
- Preparing a research proposal
 - Clarity /asking for money /explicit and answerable research question/not teach reviewer elementary things

Preparation before
conducting research

Making allowance at the start
for the kinds of claims you
will want make afterwards

Generate better research,
results and conclusions;
Easier to a wide audience.

5

Conclusion

- Reflections

- Passionate about bringing awareness to social science research
 - many people undervalue the design aspect
- Recognition of the two “infamous ‘Q’s’” (p. 6)
 - should not specify what type of data that is used
 - should be specific elements of design involved in all stages
- Flaws of respected researchers are pointed out frequently
 - Creswell and Plano Clark (2007)
 - Robert Yin (2009)



Thank You!