Realist Evaluation: What Works, for Whom, in What Circumstances

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Poll Question #1

Have you ever used realist evaluation for research or program evaluation?

- **Yes**
- **No**

Realist Evaluation

What works, for whom, in what circumstances

A good fit for Implementation Research?

Close examination of how variables are connected

An intervention is only as strong as the weakest link in its implementation chain.

Explanatory models are needed to provide the evidence to strengthen every link in its implementation chain.

Realist Evaluation

- Draws from the natural sciences using case comparisons
- Makes use of qualitative and quantitative data
- Result is a middle-range theory of how something works

Key Assumptions

Interventions/Programs are "theories incarnate"

- They aim to change problematic conditions or patterned behaviors
- They hope that the approaches introduced will achieve the aim
- They incorporate ideas about how they will achieve their aims

Assumptions (cont)

- The incarnate theories (mechanisms) are often unrecognized or poorly articulated
- The incarnate theories are apt to change over time as interventions/programs unfold
- The intervention/program works differently amongst different subgroups
- Interventions are devised and work through ideas and intentions of those implicated in them

Focus of Realist Evaluation

Identify the mechanism of action that generates change in the intervention

Study the contexts that are most conducive to positive outcomes

(contextual factors are **not** "confounders" to be controlled)

Complex Interventions

- Wide range and variability of possible outcomes
- Difficulty standardizing the delivery and receipt
- Variability in the target population
- Sensitivity to features of local context
- Degrees of flexibility or tailoring of the intervention permitted
- Long causal chains linking the intervention with its outcome(s)

Assessment of Complex Interventions

Research applications

- self-management program for heart failure pts
- internet intervention for home recovery following a hip replacement
- sleep management program for persons in nursing homes

Program evaluation applications

- professional education training programs
- interprofessional education programs
- institution of new clinical guidelines

Implementaion Evaluation

Implementation Evaluation is typically complex:

- Multi-objective
- Multi-agency
- Multi-site

- Frequently seek “wholesale transformation”
- Shift institutional philosophy as well as practice

Realist Evaluation

- Interventions/Programs are inspected for their theories of change (your propositions about how they work)
- The evaluation then tests the adequacy of the theory in different contexts
- The end product of inquiry being a better understanding of which ideas work for whom, in what circumstances, in what respects, and why

Key Terms

- **Mechanism**
  - What is it about programs or interventions that bring about effects "active ingredients"
- **Context**
  - Those features of the conditions in which programs or interventions are introduced that are relevant to the operation of the mechanism
- **Outcome Pattern**
  - The intended or unintended consequences of programs or interventions resulting from the activation of different mechanisms in different contexts

CMO Matrix

Context	Mechanism	Outcome
C_1	M_1	O_1
C_2	M_2	O_2
C_3	M_3	O_3

CMO Matrix

Context	Mechanism	Outcome
C_1	M_2	O_1
C_2	M_2	O_1
C_3	M_2	O_1

CMO Matrix

Context	Mechanism	Outcome
C_1	M_1	O_1
C_1	M_2	O_1
C_1	M_3	O_1

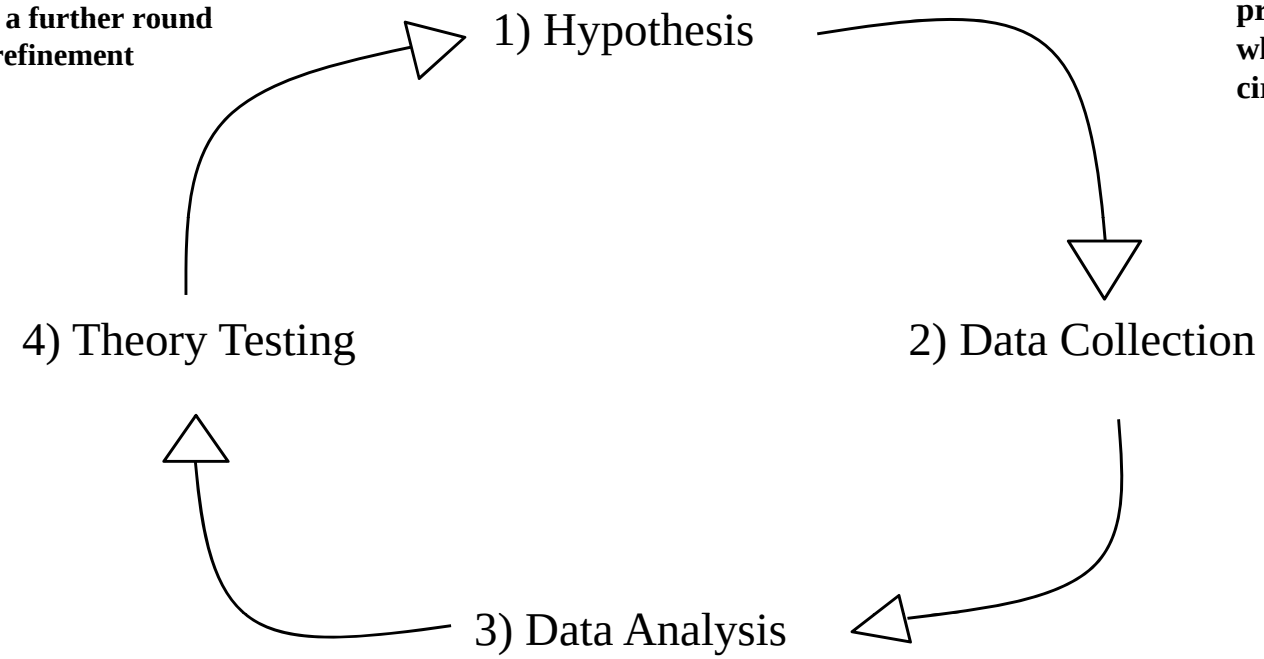
VA Quality Scholar CMO Matrix

Context	Mechanism	Outcome
C_1 Across sites	Increased systems thinking of QI team.	Better improvement in patient outcomes resulting from QI projects.
C_2 Type of Learner (predoc or postdoc)	QI project team collect more focused data.	Better improvement in patient outcomes resulting from QI projects.
C_3 Bkgd of Faculty	QI projects are done more quickly and thus change happens faster.	Better improvement in patient outcomes resulting from QI projects.

Stages in Realist Evaluation

4) Revise understanding of CMO configurations as a prelude to a further round of theory refinement

1) Elicit and formulate theory on what is about the programme that works for whom in what circumstances



3) Analyse outcome patterns to see which can and which cannot be explained by initial theory

2) Collect data on appropriate mechanisms contexts and outcomes

Methods of Realist Evaluation

1. Formulate context-mechanism-outcome patterns of configuration (CMO) hypotheses

2. Devise methods of testing CMO hypotheses

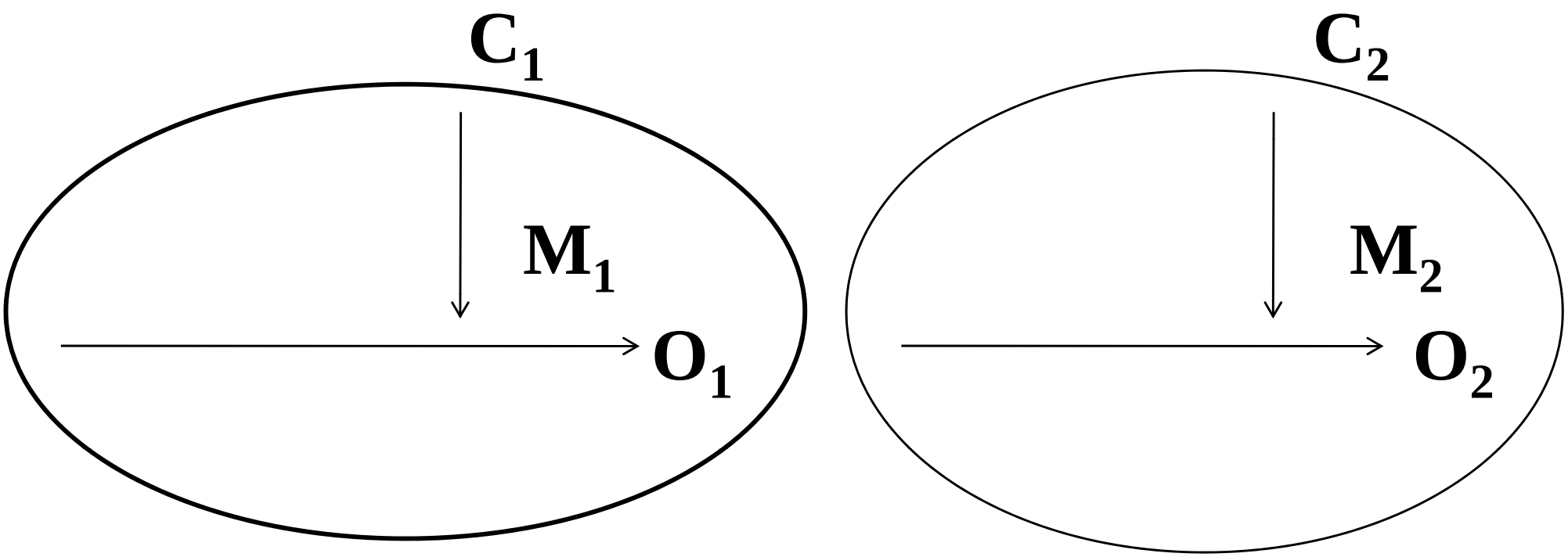
3. Test CMO hypotheses

Series of Pilot Studies

A goal is to draw lasting lessons about X (change, process, intervention, program), across contexts, on the basis of a series of “relatively” limited pilot studies

Focus is on the transferability, generalizability, and external validity of findings from case studies

Case Study Comparisons



Methods for Multiple Case Study Comparisons

Data sources:

Observation

Interviews

Document analysis

Data Analysis:

Pattern making

Scatter plots

Data Matrix

Tables

Generalizing from the Particular

The aim is to draw big conclusions from a small number of studies

Analytic generalization

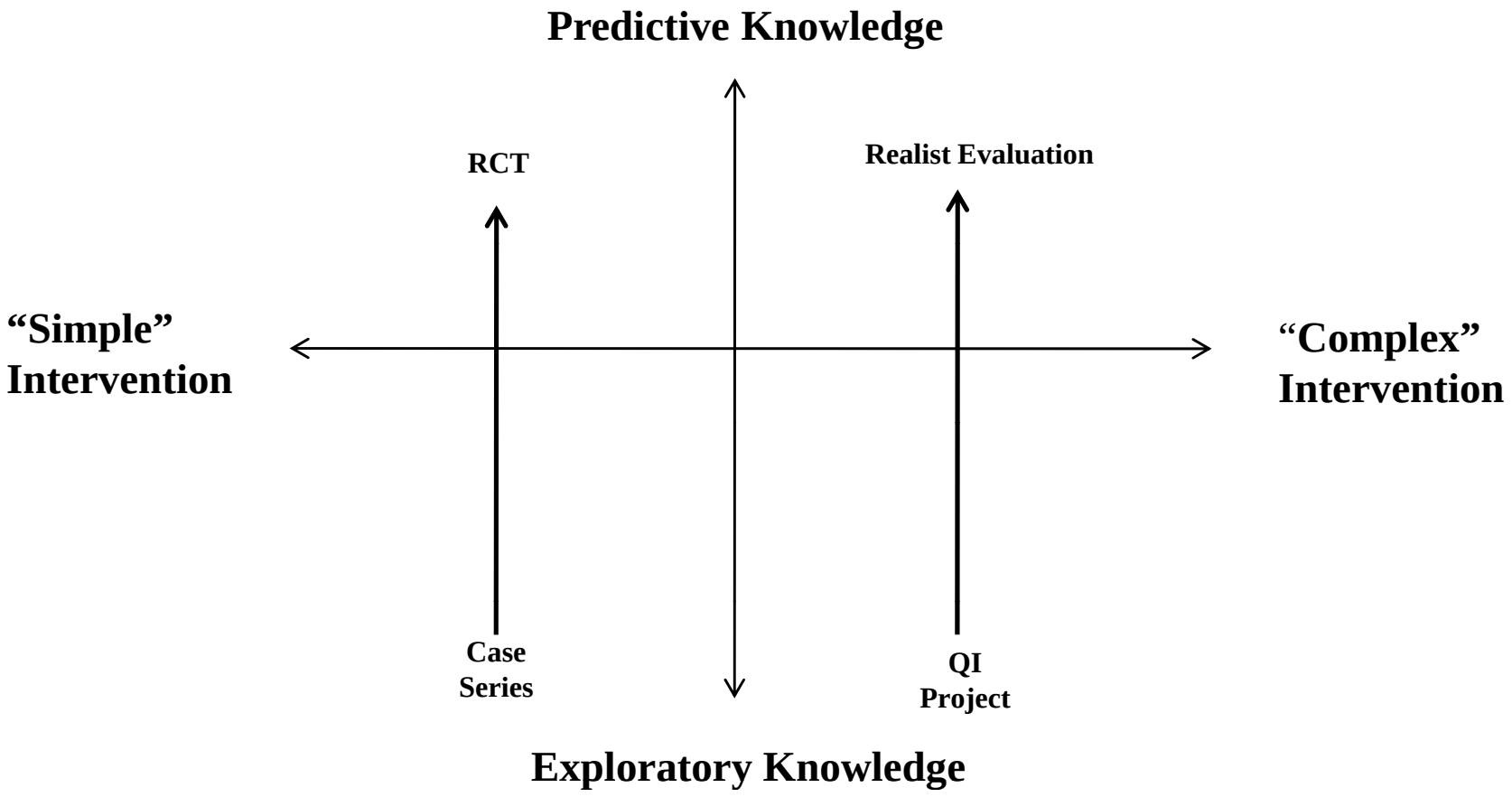
Can consist of countless Abstractions
or
Particular instances

Based on fields where case study analysis is used, such as comparative historical methodology

- Small n analysis
- Comparative case study
- Purposive sampling
- Process tracing
- Typological models
- Configurational analysis

(Skocpol, 1984; George & Bennett, 2005)

Study Design and Intervention Complexity



Ground Clearing Issues

Usually no statistical or probability sampling

Insider perspective is important

Systems studied are often changing as we study them (provisional nature of findings)

1. Developing the Theories

Surfacing, articulating, prioritizing and formalizing program theories

A set of theoretical statements to be tested are developed

Example of a Theory Chart for Institutional Change to Institute Self-Management Care Practices

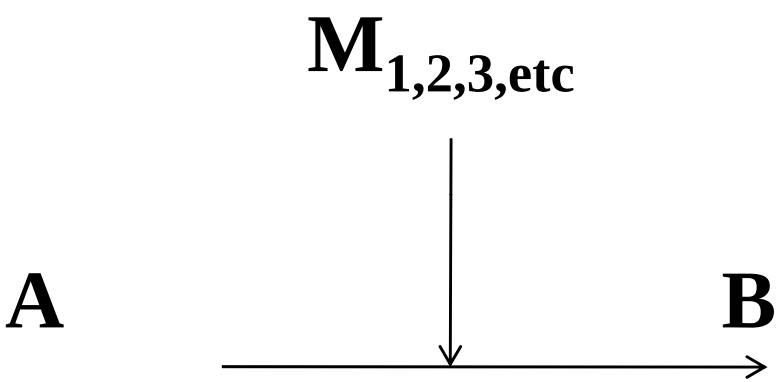
Theories of Change – seven key domains
1. Procedures - all procedures must be made "user-friendly"
2. Setting – patients will have more control over form and function of spaces
3. Role (patients) – become more involved and proactive
4. Role (staff) – adjustment of role toward education and support
5. Routine – distortion in current routines must occur to make this change
6. Authority – transfer more power to patients from staff
7. Efficiency – transfer power to cheapest provider should reduce costs

2. Choosing the Cases

- Sizing up the small n
- Multiple case studies to explore the relative success of different mechanisms as they are played out in different contexts
- Similarities and differences in different contexts are explored
- Discrepancies in the theory are observed
- Choice of each successive case organized under purposive sampling – what comes next in the case study chain?

3. Assembling the Evidence

Process tracking – to trace the operation of causal mechanism(s) at work in a given situation



Actual processes (mechanisms) are tracked

Qualitative as well as quantitative data – mapped onto each other

4. Analysis

Comparing further contexts in the search for general models

Contexts $C_{1,2,3,4,etc}$

$$M_{1,2,3,4,etc} \downarrow$$

$$\longrightarrow O_{1,2,3,4,etc}$$

Theory – new model is developed

New CMO Matrix Created Containing New Mechanisms

Context	Mechanism	Outcome
C_1	M_1	O_1
C_2	M_2	O_2
C_3	M_3	O_3

VA Quality Scholars Evaluation: Questions

What is the impact of adding interprofessional learning to the VAQS Program?

What are the mechanisms through which interprofessional program elements produce their impact?

What characteristics of the local environments contributed to better interprofessional learning?

Program Outcomes

1. Better improvement in patient outcomes resulting from QI projects.
2. Faster cycles of improvement on QI projects
3. Increased research publications re: QI.
4. Increased cross-disciplinary QI citations.
5. Increased number of physicians as active members of QI teams.
6. Increased satisfaction of healthcare professions workforce.

Potential Mechanisms

1. Increased sense of and application of knowledge held by different members of the QI team.
2. Use of a larger number of QI methods/tools.
3. Increased systems thinking of QI team.
4. Increased number of contextual variables taken into account when QI projects designed.

Contexts

1. Does interprofessional (IP) learning differ by site?

2. Do learning activities of pre and postdoc participants differ?

3. Does the impact of IP learning differ by pre and postdocs?

4. Does the impact of IP learning differ by mentor background?

5. Does the impact of IP learning differ by senior scholar background?

VA Quality Scholar CMO Matrix

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Challenges in Using Realist Evaluation

1. Distinguishing between context and mechanism
2. Is there an endpoint? When to “close”
3. Time-consuming
4. Can realist evaluation studies be replicated?
5. How does Realist Evaluation differ from traditional mediator/moderator analysis?

Realist Evaluation

A revised gold standard appropriate for the evaluation of complex interventions?

Questions