Multi-Level Evaluation Design

Challenges of A Mixed Methods Approach

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Presentation Overview

- Definition of Multi-Level Evaluation Design
- Design challenges: assessing impacts of programs that constitute a small fraction of effort to address a social goal
- Methodological challenges: methodological opportunities and limitations of different levels of analysis
- Case: application to a particular program
# Existing Mixed Methods Research Designs

<table>
<thead>
<tr>
<th>Triangulation design</th>
<th>Embedded design</th>
<th>Explanatory design</th>
<th>Exploratory design</th>
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<tbody>
<tr>
<td>Data obtained from several data sources complementing each other on the same topic. Typically a mix of qualitative and quantitative measures.</td>
<td>One data source plays a supportive and secondary role in a study based primarily on another data source.</td>
<td>Two-phase design. First, quantitative results inform on the topic. Then, qualitative evidence is used to explain quantitative results</td>
<td>Two-phase design. First, a qualitative method explores the topic to inform the second method. Then, a quantitative method generates systematic findings.</td>
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A Fifth Model of Mixed Methods Research

Multi-Level Evaluation Design
Definition of Multi-Level Evaluation Design

Addresses issues of performance at more than one systemic level of outcomes

Case (micro) level
- Used to document fine results and the detailed dynamic of the program
- Common proxy in many evaluations for societal impacts
- Example: case studies of impacts of a research funding program on one university
- Example: case study of impacts of stay-in-school support measures on one student

System (meso) level
- Does the program produce results that are discernable for large groups participating in a program?
- Example: do universities show better research outcomes after the introduction of a program?
- Example: do participants in stay-in-school program display collectively better graduation rates?

Societal (macro) level
- Addresses ultimate impacts of greatest interest to policy makers
- Example: did a research support program generate discoveries and improved well-being?
- Example: did a stay-in-school program reduce the drop-out rate?
Case: Indirect Cost Program

- Indirect Cost Program (ICP) supports universities and colleges to defray part of the indirect costs associated with direct funding of research (e.g., maintenance, management, intellectual property, ethics)
- Managed by SSHRC on behalf of CIHR, NSERC and SSHRC
- Since 2003
- $325 million in 2009-2010 or about 25% of grant
- University research "business" is about $10 billion annually
## Case (micro) level

<table>
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<tr>
<th>ICP</th>
<th>Advantages</th>
<th>Challenges</th>
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<tr>
<td>• 8 case studies of universities in receipt of program funding</td>
<td>• Provides tangible illustrations of program impact</td>
<td>• Policy makers likely to think &quot;So what?&quot;</td>
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<td>• Review of program documentation including annual self-reporting</td>
<td>• Easy to communicate</td>
<td>• Lacks credibility as part of summative evaluation</td>
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<td>• Survey of representatives</td>
<td>• Good understanding of local dynamics</td>
<td>• Risk that findings are biased (or seen as such) because recipient-generated</td>
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<td>• Site visits</td>
<td>• May suggest what works and what does not</td>
<td>• Getting official/written supportive evidence sometimes difficult</td>
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- No quantification of overall impacts
System (meso) level

ICP

• Multiple regression modelling
• Key independent variable: proportion that ICP funding represented of university revenues
• Dependent variables: from perceptions of the research environment to expenditures on library acquisitions, number of funded research applications and number of researchers

Advantages

• In the absence of a comparison group or baseline data, produces a "dosage" analysis
• Merges primary and secondary data in one analysis
• Can model change over time where time series data exist
• Was able to depict some system-wide effects

Challenges

• Indicator availability was a key challenge: had to accept compromise
• Multicollinearity and heteroscedasticity – statistical issues
• Does not open the "black box" as wide as case studies to understand how the program worked
### Societal (macro) level

**ICP**
- Interrupted time series analysis
- Annual data, 1980 onwards; about 3 data points after program inception
- Data from OECD, Statistics Canada, administrative sources
- Indicators such as # of patents, # of granting agency applications, R&D $ in higher education

**Advantages**
- Adopt a "big picture" perspective
- Compare to other countries
- Evaluate the effect size in light of the gap that the program intends to close

**Challenges**
- Attribution when program expenditures represent a small portion of total spending toward a goal
- Limited data points in a time series analysis, especially after
- Controlling for competing influences, part. when logically tied to program

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Learnings from the Evaluation

- Multi-level evaluation based on the premise that impacts can be observed at different scales in a system
- Each level provides its own type of evidence and demonstration
- Each level raises its own types of challenges, in particular:
  - generalisability from the micro level
  - understandability (meaning) from the meso level
  - attribution from the macro level
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