Session 4.
Developing a research strategy – overview of study designs

Health Systems Research Course
Western China School of Public Health
7-11 December 2015
Four key steps in HSR

1. Identify research focus (problem/concern/ opportunity) and question
2. Design study
3. Ensure quality and rigour
4. Apply ethical principles
Objectives

• To define what a study design is
• To review three types of study designs (fixed, flexible and mixed methods)
• To select study designs for research questions
• To explore the use of theory in HSR
1. What is a study design?
2. Types of study designs
3. How to move from a research question to a study design
4. Using theory with different design features
5. Exercise
1. What is a study design?
Robson, 2002

- Research design is concerned with turning research questions into projects
  - deals primarily with the aims, purposes, intentions and plans within the practical constraints of location, time, money and availability of staff

1. What is a study design?
1. What is a study design?
The specific study design must be *appropriate* for:

- the *issues* being investigated
- the *questions* you want to answer; and
- the underlying *purpose*

For example, to explore how actors’ understandings of a new policy change over time, don’t use a structured questionnaire at one time only.

1. What is a study design?
2. Types of study designs
Research design categories in HSR

- Fixed designs
- Flexible designs
- Mixed methods designs

Terminology pause
- Fixed-flexible vs quantitative-qualitative
- Not about data forms!

2. Types of study design?
2. Types of study design?
**The image for flexible designs**

2. Types of study design?

*Flexible*: importance of the research spiral or cycle

Kemmis & McTaggart, 2005
Design features

Robson, 2002

**Fixed**

- Carefully pre-planned
- Focuses on ‘variables’ (defined property of person, thing, group, situation) that can be measured and compared

*Data generally numerical, but could collect qualitative data*

**Flexible**

- Start with an idea or problem and let relationships and causality emerge
- Evolving design, no predetermined ‘variables’

*Data often non-numerical, but quantitative data also collected*

2. Types of study design?
2. Types of study design?

**Fixed**
- Impact evaluation
- Quasi-experimental, Randomised Control Trial
- Quantitative cross-sectional (survey, record reviews)
- Discrete Choice Experiments
- Longitudinal (before and after, trend analysis)

**Flexible**
- Process evaluation
- Case study
- Longitudinal case study
- Qualitative cross-sectional (key informant interviews, Focus Group Discussions (FDGs))
- Ethnography
- History
- Action research
Mixed method design

• Deliberately combines elements of fixed and flexible design “to expand the scope of, and deepen the insights from, their studies” (Sandelowski, 2000)

• A PURPOSEFUL combination, not a free for all

• Combination of sampling, data collection & analysis techniques

• Benefits: e.g. allows triangulation across datasets

2. Types of study design?
Ozawa & Pongpirul 2014:

“Mixed methods research is important in health systems because it allows researchers to view problems from multiple perspectives, contextualise information, develop a more complete understanding of a problem, triangulate results, quantify hard-to-measure constructs, provide illustrations of context for trends, examine processes/experiences along with outcomes and capture a macro picture of a system.”
Mixed method design

When you see a ‘mixed methods’ study, be aware:

• Fixed or flexible (overall) design?
• Are methods being used in parallel or integrated?
• Is qualitative research in a supporting role?
• Is there tension or conversation between the different views/insights?
• At what stages are the different methods applied?

2. Types of study design?
3. From research question to study design
Let's go back to the study question

<table>
<thead>
<tr>
<th>Question</th>
<th>Study designs</th>
</tr>
</thead>
</table>
| **What+? (who, what, where, how many, how much?)**  
*Exploratory & Descriptive* | • Qualitative cross-sectional (e.g. in-depth interviews, FGDs, document review) / case study  
• Surveys/archives/administrative statistics (includes *longitudinal analysis*) |
| **Why + How?**  
*Impact evaluation*  
*Explanatory* | • Case studies / history / ethnography  
• Surveys /simple modelling / experiment / quantitative cross sectional (semi-structured interviews) (includes *longitudinal studies & analysis*) |
| **What if?**  
(includes *impact* studies) | • Experiment/scenarios/multi-variable modelling  
• Qualitative interviews & panels |

3. From research question to study design
### Linking Purpose, Research Question + Study Design

<table>
<thead>
<tr>
<th>Purpose</th>
<th>Questions</th>
<th>Study design examples</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Normative</strong></td>
<td>• Does intervention x work?</td>
<td><em>Fixed:</em> Quasi-experimental (adapted RCT, case control, before and after)</td>
</tr>
<tr>
<td><strong>Exploratory</strong></td>
<td>• What categories of information are used in decision-making?</td>
<td><em>Fixed:</em> Cross-sectional survey</td>
</tr>
<tr>
<td></td>
<td>• What are the social processes, including power relations, influencing actors’ understandings and experiences, and shaping impacts of interventions?</td>
<td><em>Flexible:</em> Ethnography</td>
</tr>
<tr>
<td></td>
<td>• What are the social processes, including power relations, influencing actors’ understandings and experiences, and shaping impacts of interventions?</td>
<td><em>Flexible:</em> Case study</td>
</tr>
<tr>
<td></td>
<td>• What are the social processes, including power relations, influencing actors’ understandings and experiences, and shaping impacts of interventions?</td>
<td><em>Flexible:</em> Qualitative interviews</td>
</tr>
<tr>
<td><strong>Descriptive</strong></td>
<td>• What is the quality of care in place q?</td>
<td><em>Fixed:</em> Cross-sectional survey</td>
</tr>
<tr>
<td></td>
<td>• What is the level of health worker motivation in place z?</td>
<td><em>Flexible:</em> Qualitative interviews (e.g. SHA)</td>
</tr>
<tr>
<td></td>
<td>• What are stakeholder positions on policy A?</td>
<td></td>
</tr>
</tbody>
</table>

3. From research question to study design
### Linking Purpose, Research Question + Study design

<table>
<thead>
<tr>
<th>Purpose</th>
<th>Questions</th>
<th>Design examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Explanatory</td>
<td>• How do managers influence facility performance?</td>
<td><strong>Fixed:</strong> Panel study</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Multi-level modelling</td>
</tr>
<tr>
<td>Exploratory/Exploratory</td>
<td>• How and why does management influence facility performance?</td>
<td><strong>Flexible:</strong> Multiple case study</td>
</tr>
<tr>
<td>Explanatory</td>
<td></td>
<td>(perhaps longitudinal)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ethnography</td>
</tr>
<tr>
<td></td>
<td></td>
<td>History</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Theory-based evaluation (<strong>realist</strong>)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mixed method</td>
</tr>
<tr>
<td>Emancipatory (<strong>critical</strong>)</td>
<td></td>
<td><strong>Flexible:</strong> Action research</td>
</tr>
</tbody>
</table>

3. From research question to study design
4. Using theory with different design features
• HSR addresses complex phenomena
• Theory *should* play an important role within all HSR
  – e.g. conceptual frameworks = a set of concepts and their inter-linkages
  – e.g. theory-driven evaluation
  – e.g. conceptual work
• Different disciplines have different ‘tools’ – and often utilise theory differently

4. Using theory with different design features
Theory: a general explanation of what is going on in a situation or phenomenon

- from ‘grand theory’ to informal hunches and speculation
- a theory explains why an answer is predicted (hypothesis)

Conceptual frameworks: diagram summarising theory

- may not explain or predict behaviour or outcomes, but identifies relevant elements and relationships among them

Help in investigating causality (and particularly important for complex causality)

- refine through discussion, literature review & sometimes, through research

Robson, 2002

4. Using theory with different design features
Design features

Robson, 2002

Fixed

• Use theory to establish hypotheses to test
• Use theory to allow investigation of complex causality

Flexible

• Use theory to frame question
• Use theory to guide inquiry of complex phenomena – data collection & analysis
• Generate theory from data

4. Using theory with different design features
• Non-hierarchical approach to study design
• Research design follows purpose, question, and your positioning as a researcher
• HSR makes use of theory and conceptual frameworks

4. Using theory with different design features
Exercise

- Get into groups of 4
- Each group will get one of the research questions we discussed yesterday
- For your question, consider which type of study design you would choose and why
- Take into account:
  - The type of question
  - The purpose of your study
  - The different features of fixed, flexible and mixed designs


Acknowledgements

Some of the material in this presentation is drawn from:
Copyright

You are free:
To Share – to copy, distribute and transmit the work
To Remix – to adapt the work

Under the following conditions:
Attribution You must attribute the work in the manner specified by the author or licensor (but not in any way that suggests that they endorse you or your use of the work).
Non-commercial You may not use this work for commercial purposes.
Share Alike If you alter, transform, or build upon this work, you may distribute the resulting work but only under the same or similar license to this one.

Other conditions
For any reuse or distribution, you must make clear to others the license terms of this work.

Nothing in this license impairs or restricts the authors’ moral rights.

Nothing in this license impairs or restricts the rights of authors whose work is referenced in this document.

Cited works used in this document must be cited following usual academic conventions.

Citation of this work must follow normal academic conventions.
The CHEPSAA partners

University of Dar Es Salaam
Institute of Development Studies

University of Ghana
School of Public Health, Department of Health Policy, Planning and Management

University of Nigeria Enugu
Health Policy Research Group & the Department of Health Administration and Management

Great Lakes University of Kisumu
Tropical Institute of Community Health and Development

University of Cape Town
Health Policy and Systems Programme, Health Economics Unit

University of the Western Cape
School of Public Health

University of the Witwatersrand
Centre for Health Policy

University of Leeds
Nuffield Centre for International Health and Development

London School of Hygiene and Tropical Medicine
Health Economics and Systems Analysis Group, Depart of Global Health & Dev.

Karolinska Institutet
Health Systems and Policy Group, Department of Public Health Sciences

Swiss Tropical and Public Health Institute
Health Systems Research Group