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Systematic Reviews as Program Theory

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Outline

- Program theory
- Systematic reviews
- Examples
- Discussion

Program Theory

- Suchman (1967) called the beliefs about cause-effect relationships the program's validity assumptions. This would be the program theory of change.
- The purpose of delineating a program's theory of change is to assist practitioners in making explicit their assumptions about the linkages between inputs, activities, outputs, and outcomes.

Program Theory (cont'd)

- For instance, many education programs are built on the validity assumptions that: 1) new information leads to attitude change; and 2) attitude change affects behaviour. These assumptions are testable.
- The theory seems commonsensical. However, as Carol Weiss (2000) has commented, it is known to be too simplistic. Much research has cast doubt on its universal applicability.

Theory or Implementation Failure

For programs, there is also an important distinction to consider, that of *theory* failure from *implementation* failure.

This leads to the relevance of assessing the:

- Implementation (process)
- Theory and evidence (validity assumptions of outcomes) (Prospective evaluation: assess the likely outcomes of proposed projects/programs)

Systematic Reviews - Purpose

The purpose of a systematic review is to sum up the best available research on specific questions and find as much as possible of the research relevant to those questions. This is done by synthesizing the results of several studies. However, the methods should be both explicit and systematic, with the aim of producing varied and reliable results. Such reviews then go on to synthesize research findings in a form which is easily accessible to those who have to make policy or practice decisions.

Systematic Reviews – Key Feature

A systematic review uses transparent procedures to find, evaluate and synthesize the results of relevant research. Procedures are explicitly defined in advance, in order to ensure that the exercise is transparent and can be replicated. This practice is also designed to minimize bias.

Systematic Reviews - Key Feature (cont'd)

The key features of a systematic review or systematic research synthesis are that:

- Explicit and transparent methods are used
- It is a piece of research following a standard set of stages
- It is accountable, replicable and updateable
- There is a requirement of user involvement to ensure reports are relevant and useful.

Systematic Reviews vs. Literature Reviews

Reviews of research should be rigorous but not necessarily explicit in their methods of review. Most reviews of research take the form of traditional literature reviews, which usually examine the results of only a small part of the research evidence, and take the claims of the report's authors at face value.

Systematic Reviews vs. Literature Reviews

A review earns the adjective systematic if it is based on a clearly formulated research/evaluation question, identifies relevant studies, appraises their quality, and summarizes the evidence by use of explicit methodology. It is the explicit and systematic approach that distinguishes systematic reviews from traditional reviews and commentaries.

Other Options

Meta-analysis

A subset of systematic reviews; a method for systematically combining pertinent quantitative study data from several selected studies to develop a single conclusion that has greater statistical power.

Realistic Reviews

A new method of systematic review designed for complex policy interventions

Other Options (cont'd)

Integrative Reviews

A specific review method that summarizes past empirical or theoretical literature, that allows for the inclusion of diverse methodologies (i.e. experimental and non-experimental research)

Scoping reviews

Also called "mapping" reviews. A scoping review will have a broader "scope" with correspondingly less restrictive inclusion criteria (JBI, 2015)

Systematic Reviews - How

1) Framing questions for a review
2) Identifying relevant work
3) Assessing the quality of the studies
4) Summarizing the evidence
5) Interpreting the findings

Systematic Reviews - Step 1

1) **Framing questions for a review**

   The problems to be addressed by the review should be specified in the form of clear, unambiguous and structured questions before beginning the review work. Once the review questions have been set, modifications to the protocol should be allowed only if alternative ways of defining the populations, interventions, outcomes or study designs become apparent.

Systematic Reviews – Step 2

2) Identifying relevant work

The search for studies should be extensive. Multiple resources should be searched (e.g., different databases, grey literature) and restrictions (e.g., language) identified. The study selection criteria should flow directly from the review questions and be specified a priori. Reasons for inclusion and exclusion should be recorded.

Systematic Reviews – Step 3

3) Assessing the quality of the studies

While the study selection criteria (Step 2) should describe the minimum acceptable level of research/evaluation design, the selected studies should be subjected to a more refined quality assessment. These assessments will be used for exploring heterogeneity and informing decisions regarding suitability of type of analyses (e.g., meta-analysis) in Step 4. In addition, they help to assess the strength of inferences and to make recommendations for programmatic decisions and for future research (Step 5).

Systematic Reviews – Step 4

4) Summarizing the evidence

Data synthesis consists of tabulation of study characteristics, quality and effects, and may use statistical methods for exploring differences between studies and combining their effects (meta-analysis).

Systematic Reviews – Step 5

5) Interpreting the findings

The issues highlighted in each of the four steps above should be met. The risk of publication bias and related biases should be explored. Exploration for heterogeneity should help determine whether the overall summary can be trusted, and, if not, the effects observed in high-quality studies should be used for generating inferences. Any recommendations should be graded by reference to the strengths and weaknesses of the evidence.

Decision

To do it yourself or not to do it yourself?

Systematic Reviews Collections

Cochrane Collection - Systematic reviews of primary research in human health care and health policy, investigating the effects of interventions for prevention, treatment and rehabilitation.

www.cochrane.org/cochrane-reviews

Systematic Reviews Collections

Campbell Collaboration - is an international research network that produces systematic reviews of the effects of social interventions.

www.campbellcollaboration.org

Many published articles in peer-reviewed journals are in fact systematic reviews.

Systematic Review Example I

Interventions for Children, Youth, and Parents to Prevent and Reduce Cyber Abuse

Mishna, Cook, Saini, Wu & MacFadden

Campbell Systematic Reviews

2009

Systematic Review Example II

Advocacy Interventions to Reduce or Eliminate Violence and Promote the Physical and Psychosocial Well-being of Women who Experience Intimate Partner Abuse

Ramsay, Carter, Davidson, Eldridge, Hegarty, Rivas, Taft, Warburton, Dunne & Feder

Campbell Systematic Reviews

2009

Systematic Review Example III

Dropout Prevention and Intervention Programs: Effects on School Completion and Dropout among School-aged Children and Youth

Wilson, Tanner-Smith, Lipsey, Steinka-Fry & Morrison

Campbell Systematic Reviews

2011

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