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CARES 2016 Workshop: Realist Synthesis

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Objectives

- ▶ To go through the 5 stages of a realist synthesis as proposed by Pawson (2006)
- ▶ To discuss the RAMESES standards for Realist Synthesis
- ▶ To outline the differences between realist review/synthesis and rapid realist review (RRR)

What is Realist Synthesis?

- ▶ It applies the same approach as realist evaluation, but uses literature instead of primary evidence
- ▶ First principle – synthesis as theory building
- ▶ “The purpose is to articulate underlying programme theories and then to interrogate the **existing evidence** to find out whether or not these theories are pertinent and productive” Pawson (2006)
- ▶ The same as a realist review!

Practical steps in Realist Review (Pawson, 2006)

1. Identifying the review question
2. Search for studies
3. Quality appraisal
4. Extract the data
5. Synthesise the data Disseminate the findings



1) Identify the review question

What is you are researching? This may seem obvious but ask yourself...

- ▶ What is your research question?
- ▶ Is this just one specific programme?
- ▶ If so, are there any other programmes which use the same underlying theory (for example, feedback to teenagers?)

“Rather than focusing on individual programs, as is now done, or even collections of programs grouped according to major ‘purpose’ as is frequently proposed, the suggestion here is that we should concentrate on the generic tools of government action that come to be used, in varying combinations in particular public programs” (Salaman, 1981)

- ▶ Is it a group of programmes? (E.g. PROMs research)

Quality standards for focussing the review

Table 1: Quality standards for focussing the review

| | Inadequate | Adequate | Good | Excellent |
|---|---|--|--|--|
| The review question is sufficiently and appropriately focussed. | <p>The review question is too broad to be answerable within the time and resources allocated.</p> <p>There is no evidence that progressive focussing occurred as the review was undertaken.</p> | <p>Attempts are made by the review team to progressively focus the review topic in a way that takes account of the priorities of the review and the realities of time and resource constraints.</p> <p>Attempts are documented so that they can be described in publications as appropriate.</p> | <p>Adequate plus: The focussing process is iterative.</p> <p>Commissioners of the review are involved in decision-making about focussing. Decisions made about which avenues are pursued and which are left open for further inquiry are recorded and made available to users of the review.</p> | <p>Good plus: The review team draws on external stakeholder expertise to drive the focussing process in order to achieve maximal end-user relevance.</p> |

Examples: focusing the review

Inadequate example:

“...to [a] explain what sort of Internet-based medical education ‘works’, for whom and in what circumstances, ...”

Adequate example (Wong et al. 2010):

“Several previous systematic reviews and two meta-analyses have compared the efficacy and utility of Internet-based education with conventional teaching methods or no teaching [References x2]. Two main questions face researchers in this field: efficacy (can Internet-based medical education work, and if so what is the ‘effect size’ compared to conventional teaching?) and effectiveness (under what real-world circumstances does it actually work, and how might its impact and cost-effectiveness be maximised?).”

Build programme theory

► **This initial programme theory will be your lens through which you examine the literature**

The general idea is to identify and map out:

- 1) the key components (functions, strategies or activities) of the program;
- 2) the outcomes the program intended to generate;
- 3) the components that contribute to particular outcomes.
- 4) In some programs (but not all) it's useful to develop a rough sequence in which things need to happen, or a rough hierarchy of outcomes, in order to develop a sense of how the program is expected to work.

Quality standards for constructing and refining a realist programme theory

Table 2: Quality standards for constructing and refining a realist program theory

| | Inadequate | Adequate | Good | Excellent |
|--|--|---|---|---|
| An initial realist program theory is identified and developed. | A realist program theory is not offered or A program theory is offered but is not converted to a realist program theory at any stage of the review. | An initial program theory is identified and described in realist terms (that is, in terms of the relationship between contexts, mechanisms and outcomes). The refined theory is consistent with the evidence provided. | Adequate plus: An initial realist program theory is identified and described at the outset. The theory is refined iteratively as the review progresses. | Good plus: The relationship between the program theory and relevant substantive theory is identified. Implications of the final theory for practice, and for refinements to substantive theory where appropriate, are described. The final realist program theory comprises multiple context-mechanism-outcome configurations (describing the ways different mechanisms fire in different contexts to generate different outcomes) and an explanation of the pattern of CMOs. |

Building programme theory

TASK 1:

Can you build 3 initial programme theories about an intervention you have worked on?

- ▶ Think about – how was it supposed to work? What are the key ingredients of the programme? What are the contexts, mechanisms and outcomes?
- ▶ Use the RAMESES standards
- ▶ NB: It's often easier to work backwards from outcome when creating CMOs/theorising.

2) Searching for studies

What constitutes 'the right evidence' is different in a realist synthesis than it is in other form of review.

► Data that may usefully contribute to a realist synthesis are:

- not decided by research type (e.g. randomised controlled trial (RCT))
- not restricted to research into or evaluations of programmes per se, but related to the program theory underpinning the programme;
- not necessarily about the whole research question
- not necessarily drawn from a whole text/document
- able to shed light on any aspect of C, M or O for any element of the theory;
- different for theory building (not as rigorous) as opposed to theory testing (sufficiently rigorous to support conclusion of the review).

Searching for studies

Ray Pawson (RAMESES emails): “What is clear is that RS needs to operate at BOTH levels of theory. There is a need to bounce off programme / stakeholder theories otherwise there would be no application of the research. More abstract middle range theories are needed otherwise it would be impossible to transfer lessons and it would be impossible to travel off to other domains in search of evidence.”

- ▶ Therefore we need to search for theory at the programme and middle range theory level



Searching for studies (Pawson, 2006)

- 1) A Background (scoping) search (Google/Scholar)**

“Enable the reviewer to make an initial judgement on whether the right volume of materials of the right substance is out there to answer the questions the review is likely to pose”
- 2) Search to track programme theories (Google/Scholar)**

“It is a search whose purpose is to help formulate the review question, and thus occurs in parallel with stage one of the review.”
- 3) Search for empirical evidence to test the programme theories (specific literature databases e.g. MEDLINE, EMBASE, HMIC)**

“The purpose of such a search is to find primary studies that will help interrogate the explanatory model about how the programme will work”
“The material sought here ... is much more like the orthodox empirical evaluations that are the bread and butter of standard reviews”

Searching for studies (Pawson, 2006)

5) Middle range (abstract) theory search (specific literature databases e.g. MEDLINE, EMBASE, HMIC and Google/Scholar)

A search to identify middle range theories (e.g. social cognitive theory, feedback intervention theory, third space theory) which may help to explain your findings/refined programme theory

4) Fine-tuning search (Google/Scholar, forward and backward citation tracking of included studies)

“Once the synthesis is almost complete the reviewer seeks out additional studies to test those further and revised programme theories that often emerge in the course of the review”.

Initial search strategy:

'Participatory research' OR 'Participative research' OR 'Action research' OR 'Collaborative inquiry' OR 'Participatory rural appraisal' OR 'Participatory appraisal' OR 'Emancipatory research' OR 'Social reconnaissance' OR 'Empowerment evaluation' OR ((participatory[title] AND (research[title]

OR

design[title])) OR

'participatory research'[title] OR 'action research'[title] OR

(('Consumer participation'[mesh] OR 'Consumer

advocacy'[mesh] OR 'Community-institutional

relations'[mesh]) AND (research[title] OR

research[mesh])) OR

'dialectical research' OR 'conscientizing research' OR 'participatory learning research' OR CBPR OR

Focused strategy used:

• Ovid Medline (international biomedical journal literature)

• EMBASE (international biomedical literature)

• PsycInfo (international biomedical literature) [which included numerous citations from Proquest Dissertations]

• ISI Web of Knowledge (journal literature all disciplines; citation searching) Additional sources used in initial searching only; results not included in screening:

learning research' OR CBPR OR

'community-based participatory research' OR 'community based participatory research' OR 'community based action research' OR

'participatory evaluation' OR

'participative evaluation' OR 'community-driven research' OR

'community-driven action research' OR 'action science' OR

'community-partnered action research' OR 'cooperative inquiry' OR

'dialectical inquiry' OR 'appreciative inquiry' OR 'decolonizing methodologies' OR 'democratic evaluation' OR 'recherche participative' OR 'recherche action' OR 'recherche collaborative' Final focused strategy:

'Participatory research' or 'Participative research' or 'Action research' or 'Collaborative inquiry' or 'Participatory rural' or 'Participatory appraisal' or 'Emancipatory research' or 'Social reconnaissance' or 'Empowerment

• Cochrane Library (databases of systematic reviews and of clinical trials)

• ERIC (journal articles, reports, and other types of publications in education)

• Social Work Abstracts (international social work literature)

• Scopus (journal literature of all scientific disciplines; citation searching)

• Proquest Dissertations and Theses

• Additional sources for report/'grey' literature: Internet via Google and Google Scholar; New York Academy of Medicine Grey Literature Report and other sources listed in GreyNet

Jago sh et al. (2011) Assessing the outcomes of participatory research: protocol for identifying, selecting, appraising and synthesizing the literature for a list review
Implementation Science

Table 3: Quality standards for developing a search strategy

| | Inadequate | Adequate | Good | Excellent |
|---|--|--|---|--|
| The search process is such that it would identify data to enable the review team to develop, refine and test program theory or theories | <p>The search is incapable of supporting a rigorous realist review. Common errors include:</p> <ul style="list-style-type: none"> The search is driven by a methodological hierarchy of evidence (e.g. privileging RCTs) rather than the need to identify data to develop, refine or test program theory/ies The search process is not informed by the objectives and focus of the review The database(s) selected are narrow in the subject matter that they contain (e.g. limited to specific topics rather than extending to social science, psychology etc.) Searching is undertaken once only at the outset of the review and there is no iterative component | <p>Searches are driven by the objectives and focus of the review.</p> <p>The search strategy is piloted and refined to check that it is fit for purpose.</p> <p>Documents are sought from a wide range of sources which are likely to contain relevant data for theory development, refinement and testing.</p> <p>There is no restriction on the study or documentation type that is searched for</p> | <p>Adequate plus: further searches are undertaken in light of greater understanding of the topic area. These searches are designed to find additional data that would enable further theory development, refinement or testing.</p> | <p>Good plus: the searching deliberately seeks out data from situations outside the program under study where it can be reasonably inferred that the same mechanisms(s) might be in operation.</p> |

RAMESSES

Quality standards for developing a search strategies

Table credit:

http://www.ramesseproject.org/media/Realist_reviews_training_materials.pdf

3) Quality appraisal

- ▶ Traditional quality appraisal: based on primary studies that have been carried out to the highest methodological standards
- ▶ Realist methods abandon this traditional approach – due to the focus on complex systems and complex interventions, we need to focus on complex bodies of evidence (Pawson, 2006)
- ▶ *“The reviewer should not attempt to line up and appraise every candidate study on its own terms and as a whole but, rather, appraise the contribution that each one makes to developing the synthesis. That contribution is unlikely to stem from the entirety of a study”* (Pawson, 2006)

How do we do a quality appraisal?

- ▶ “The reviewer asks ‘is this study good enough to provide some evidence that will contribute to the synthesis?’ and there are two grounds upon which to deliver an answer..” (Pawson, 2006)

1) Assessment of relevance

Go through the studies case by case and ask - Is it in the right ballpark? Does it connect at all? – there is no exact formula to making such a judgement

1) Assessment of rigour

Not made using pre-formulated checklists but to precise usage of each fragment of evidence in the review.

NB: Both relevance and rigour are subordinate to the overall strategy of the synthesis – if an article helps you to explain the programme theory, keep it in

Table 4: Quality standards for selection and appraisal of documents.

| | Inadequate | Adequate | Good | Excellent |
|---|---|---|---|---|
| The selection and appraisal process ensures that sources relevant to the review containing material of sufficient rigour to be included are identified. In particular, the sources identified allow the reviewers to make sense of the topic area; to develop, refine and test theories; and to support inferences about mechanisms | <p>The selection and appraisal process does not support a rigorous and complete realist review. For example:</p> <ul style="list-style-type: none"> • Selection is overly driven by methodological hierarchies (e.g. the restriction of the sources to RCTs to the exclusion of other forms of evidence) • Sources are appraised using a technical checklist for a particular method (e.g. assessment of quality for an RCT) rather than by making a defensible judgement on the relevance and rigour of the source • Selection and appraisal processes are overly restrictive and exclude materials that may be useful for a realist analysis • Selection and appraisal processes are not sensitive enough to exclude irrelevant materials | <p>Selection of a document for inclusion into the review is based on what it can contribute to the process of theory development, refinement and/or testing (i.e. relevance).</p> <p>Appraisals of rigour judge the plausibility and coherence of the method used to generate data.</p> | <p>Adequate plus: During the appraisal process limitations of the method used to generate data are identified and taken into consideration during analysis and synthesis.</p> | <p>Good plus: Selection and appraisal demonstrate sophisticated judgements of relevance and rigour within the domain.</p> |

RAMESES Quality standards for selection and appraisal of documents

4) Extract the data (Pawson, 2006)

1) Annotation

Get your highlighter out! Add notes and give labels. Look for commonalities in other papers and mentally bracket together

2) Collation

Papers have passed the test of relevance at this point

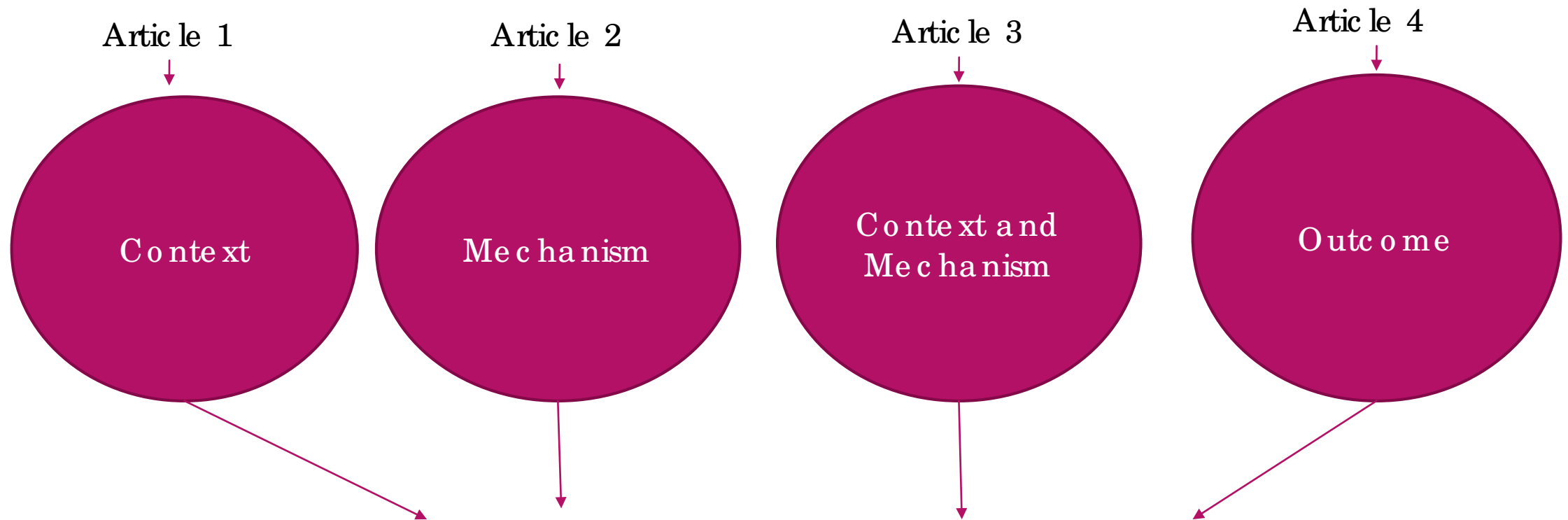
Pigeon hole extracts in terms of which programme theory they test

Can use a purposefully built data extraction form if you wish

3) Reportage

Ensure that you extract and present enough of the original data to ensure that the reader knows the basis on which the inference was made

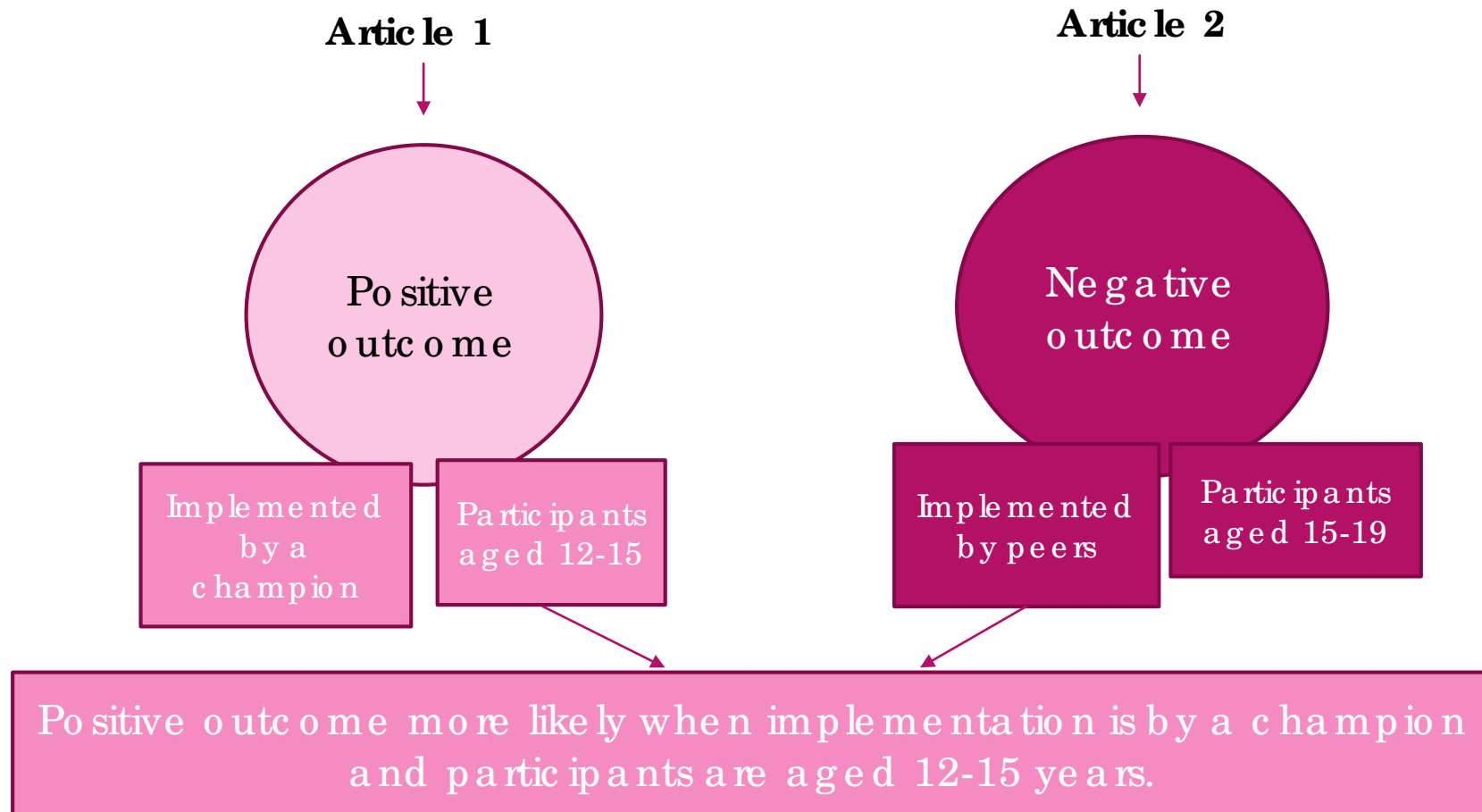
5) Synthesise the data



Research must spend time “Juxtaposing the evidence” (Pawson 2006)

What happens if the re's contradictory evidence?

- ▶ Don't panic!
- ▶ Common occurrence
- ▶ Analysis attempts to reconcile contradictory evidence by finding contextual or implementation differences in the original programmes



What if that doesn't work?

- ▶ Reviewer can adjudicate between the studies based on “methodological excava tions” (Pawson, 2006)
- ▶ Identify the methodological flaws of the studies and their conclusions
- ▶ Which study is stronger?
- ▶ Do more studies support one theory/mechanism than another?
- ▶ Make an informed conclusion

Synthesis (Pawson, 2006)

- ▶ **Synthesis to question programme theory integrity**

Identify typical weak points and stumbling blocks in the chain of implementation

- ▶ **Synthesis to adjudicate between rival programme theories**

Does the intervention work 'like this' or 'like this'?

- ▶ **Synthesis to consider the same theory in comparative settings**

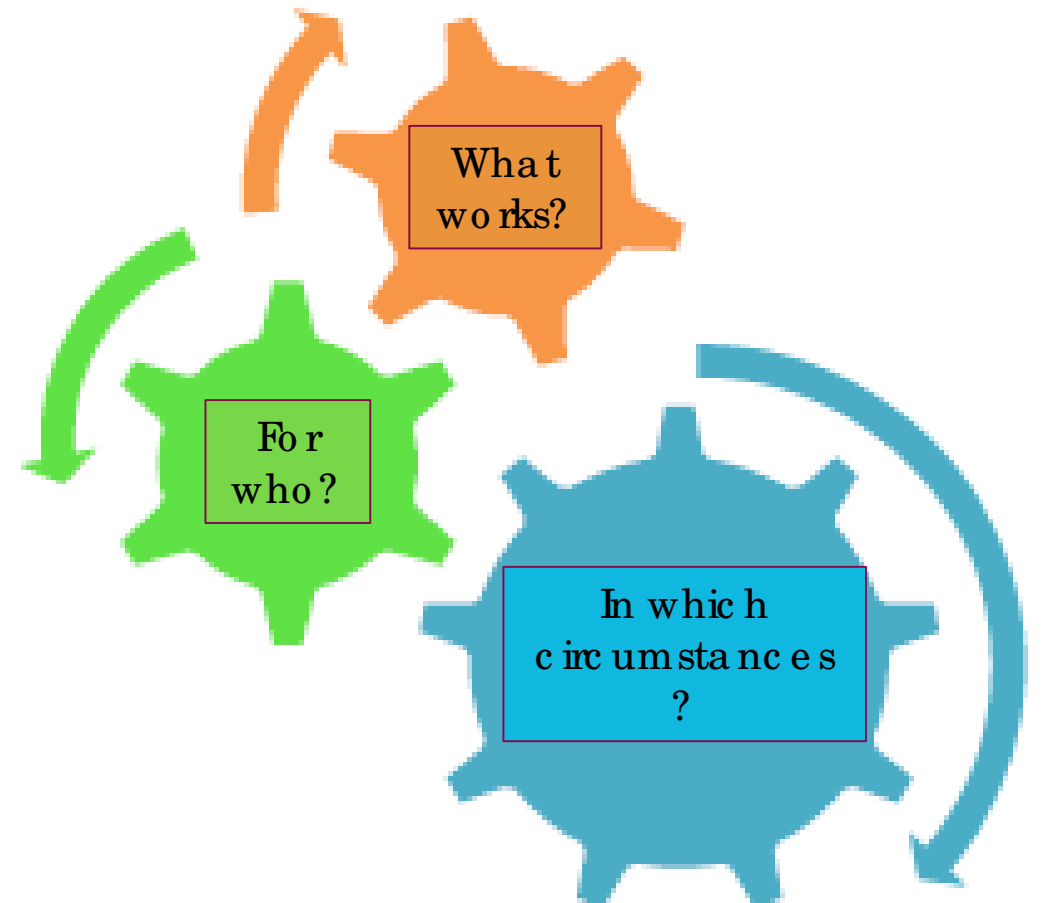
Assumes particular programme theories work in some settings and not others E.G. Naming and shaming (not topic specific)

- ▶ **Synthesis to compare official expectations with actual practice**

"It's supposed to work 'like this' but it actually works 'like this'"

What do you end up with?

- ▶ NOT– an arithmetic verdict on a programme
- ▶ Refinement of the underlying theory of how the programme works, for whom, in which circumstances



From initial programme theory to refined programme theory

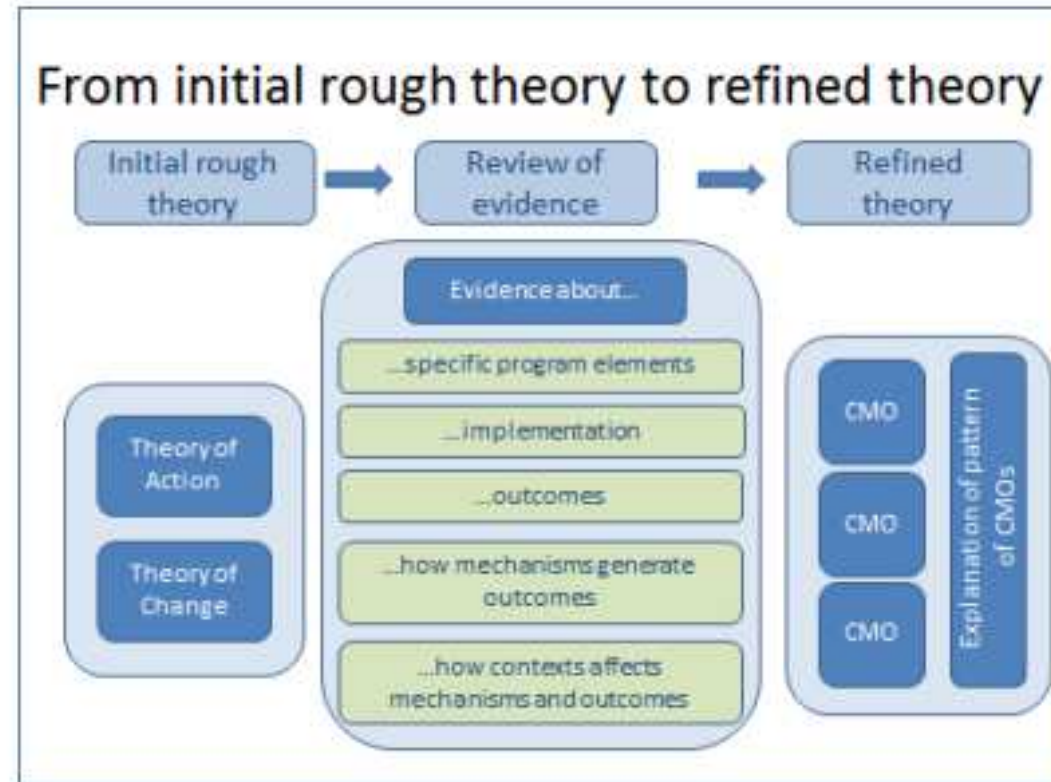


Figure 5: The process and sources of evidence used to refine theory

Figure credit:
http://www.rameseproject.org/media/Realist_reviews_training_materials.pdf

6) Disseminate the findings

Presentations to
academics

Final report to
commissioners

Doctoral Thesis

Inform Policy
makers

Journal articles

Blogs or social
media outputs

Presentations to
public (if
appropriate)

Pawson (2006)
 Evidence based
 policy: A realist
 perspective.
 SAGE; London

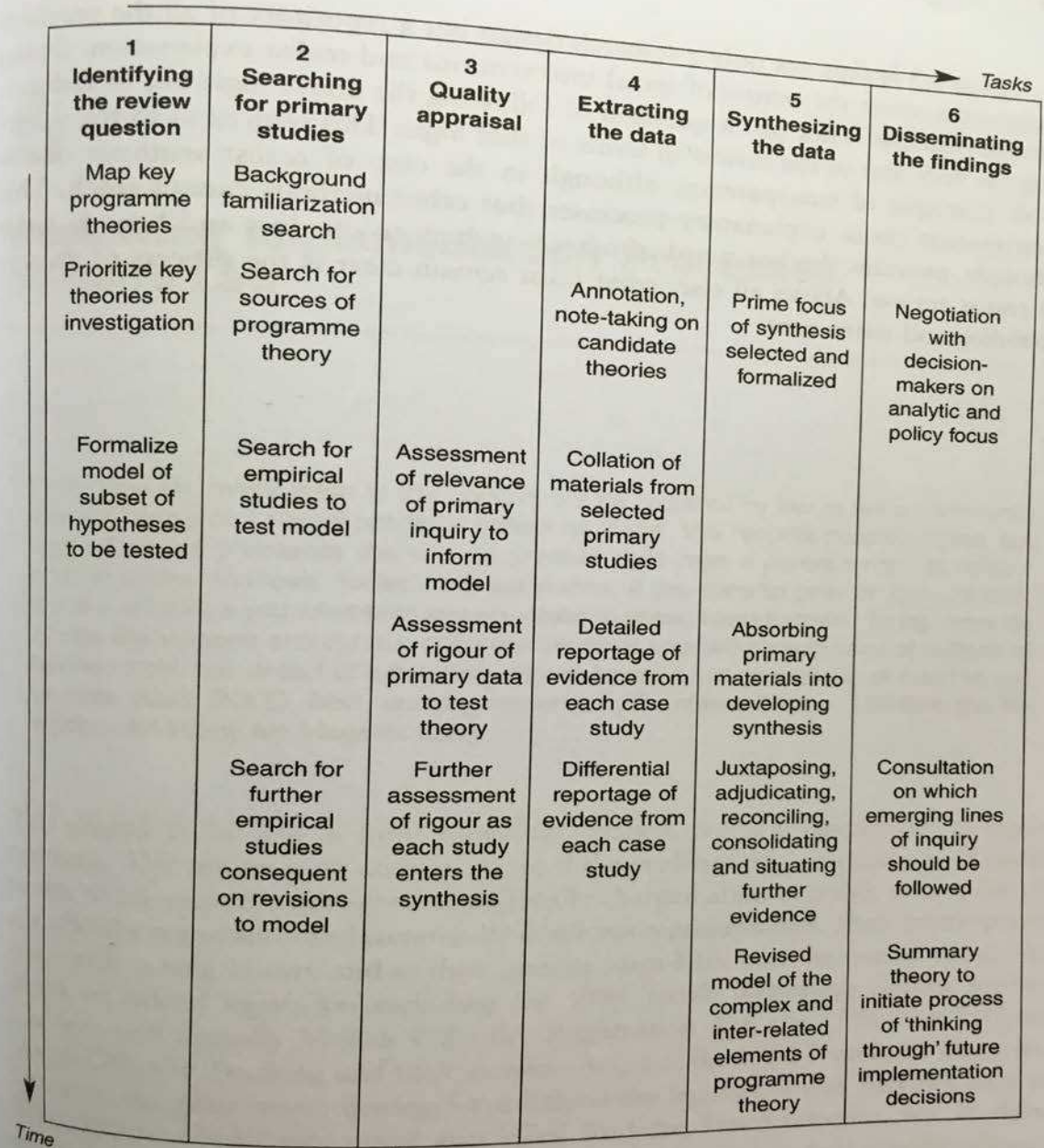


FIGURE 4.3 A task-and-time template for realist synthesis

Rapid Realist Review (RRR)

Developed to better meet the time-sensitive needs of policy makers for syntheses of knowledge to develop evidence-informed policies

Guided by both a **local reference group**, and a **group of content experts**:

“**a local reference group** ensures that the project will produce results that will be relevant for the context in which they will be used. The reference group typically includes representatives of the funding organization, as well as knowledge users (the target audience for the findings of the review).”

“**an expert panel** made up of researchers and practitioners, actively engaged in conducting work in the content area for the review, who are in the process of negotiating the interplay between research, practice and policy.” Saul et al. (2013)

Negative: Not necessarily comprehensive (Saul et al. 2013)

Rapid Realist Review

Experts and stakeholders are used to (Saul et al, 2013):

1. Develop project scope
2. Develop specific research questions
3. Identify how the findings and recommendations will be used
4. Develop search terms
5. Identification of articles and documents for inclusion in the review (both published and grey)
6. Quality review: Data are extracted using identical methods to a traditional realist review
7. Data are extracted using identical methods to a traditional realist review
8. Validation of findings with content experts
9. Synthesis of the findings in a final report.
10. Dissemination of results

Team members in a RRR (Saul et al. 2013)

Team members needed to complete a Rapid Realist Review include:

1. Project manager, responsible for preparing internal project documents, coordinating the dialogue and managing a pre-determined set of requests for the reference group and expert panel (providing feedback at each stage of the process from question development to review of the final report), consolidating feedback, maintaining the timeline, budget and other duties;
2. Local Reference group (including client representatives) and expert panel (ideally four to six individuals for each group);
3. Librarian (or information specialist) to lead on document searches;
4. Review team (two to four individuals who screen abstracts, read selected documents, and perform extractions);
5. Synthesis lead to oversee the review process and play a main role in synthesizing information;
6. Academic or research lead.

Task

- ▶ In light of the presentation, try to map out on 1 A4 page a realist synthesis plan for a programme you are familiar with
- ▶ Would you use a realist review/synthesis or a RRR?
- ▶ How would you operationalise your review? What would the phases be?

Suggested reading

General:

- ▶ Pawson (2006) Evidence based policy: A realist perspective. SAGE; London
- ▶ Wong et al. (2010) Internet-based medical education: a realist review of what works, for whom and in what circumstances. BMC Medical Education
- ▶ Pawson et al. (2005) Realist review--a new method of systematic review designed for complex policy interventions. Journal of Health Services Research and Policy

Programme theory (underlying mechanism as opposed to topic):

- ▶ R. Pawson. (2002) Evidence Based Policy: the promise of realist synthesis. Evaluation
- ▶ R. Pawson and N. Tilley (2001). Realist evaluation guidelines. American Journal of Evaluation
- ▶ R. Pawson (2002) Does Megan's Law Work? A Theory-Driven Systematic Review. ESRC report

Suggested reading

RAMESES guidelines

G. Wong et al. (2013). RAMESES publication standards: realist synthesis. *BMC Medicine*

http://www.ramesesproject.org/media/Realist_reviews_training_materials.pdf

Rapid Realist Review

- ▶ Saul et al. (2013) A time-responsive tool for informing policy making: rapid realist review. *Implementation Science*.
- ▶ Willis et al. (2014) Improving organizational capacity to address health literacy in public health: a rapid realist review. *Public Health*