Realist evaluation

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RAMESES projects: www.ramesesproject.org
RAMESES on JISCM@il: www.jiscmail.ac.uk/RAMESES
University of Oxford training course on
Realist Review and Realist Evaluation (RR&RE) – more details: goo.gl/4vuqC8

Structure of this presentation

- Objectives
- What is realist evaluation
- When can it be used
- Small group activity
- Wrapping up comments
- Questions

Acknowledgements

- The quality and reporting standards and training materials for realist evaluation were developed as part of:
  - The RAMESES II Project – to produce quality and publication standards and training materials for realist reviews (completed).
  - Funded by NIHR HS&DR Programme (14/19/19).

- The views and opinions expressed therein are those of the presenters and do not necessarily reflect those of the UK's National Institute of Health Research Health Services and Delivery Research (NIHR HS&DR), NIHR, National Health Service (NHS) or the Department of Health.

Objectives

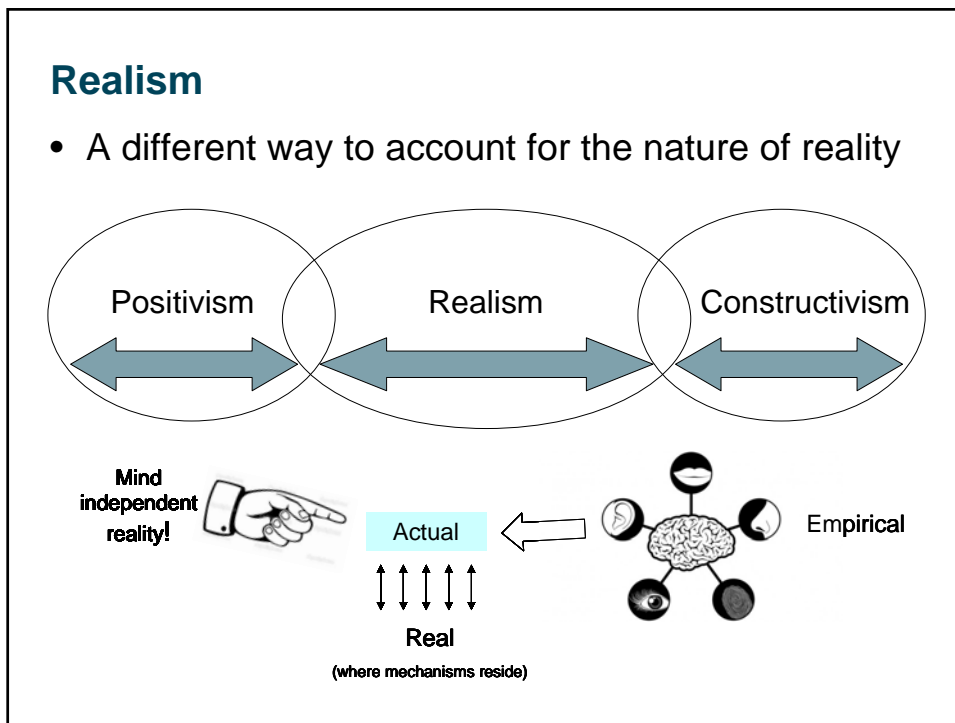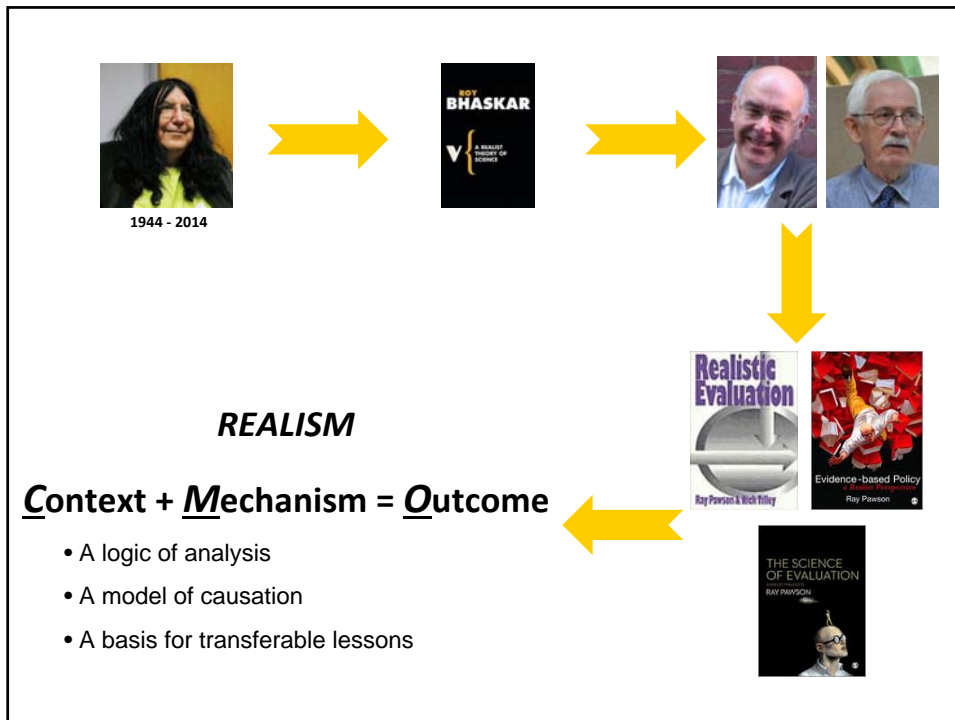By the end of this presentation hopefully you will have an understanding of:

- what realist evaluation is
- when it might be used

Let's get you thinking…

- Read 'Cops with mops'

- Micheal Leaves, the Plymouth City Council member asks you to evaluate this intervention. He is not currently available to answer any questions you might have

- As an evaluator, plan an evaluation to present to him

- Work in small groups or pairs

- You only have 15 minutes

- We will discuss you evaluation plans later on

What is realist evaluation?

- Realist evaluation = primary research
- Realist evaluation:
    - has more of an explanatory rather than judgmental focus.
    - based on a realist philosophy of science (ontology)
    - looks for mechanisms and middle-range theories.
    - tests and builds these theories.
    - is iterative.
    - looks to answer the 'How?', '**Why?**', 'For whom?', 'To what extent?' and 'In what circumstances?'
    - helpful in making sense of interventions and programmes that are *complex* and have outcomes that are *context dependent*

REALISM

*C*ontext + *M*echanism = *O*utcome

- A logic of analysis
- A model of causation
- A basis for transferable lessons

1944 - 2014

Realism

- A different way to account for the nature of reality

Positivism   Realism   Constructivism

Mind independent reality!

Actual

Real
(where mechanisms reside)

Empirical

Causation

- Causation
  - Mechanism may be defined as:
    - "…underlying entities, processes, or structures which operate in particular contexts to generate outcomes of interest."*
    - The way in which a programme's resources or opportunities interact with the reasoning of individuals and lead to changes in behaviour.

  - Mechanism:
    - Are usually hidden
    - Sensitive to variations in context
    - Generate outcomes

*Astbury B, Leeuw F. Unpacking Black Boxes: Mechanisms and Theory Building in Evaluation *American Journal of Evaluation* 2010 31(3):363-381

Causation

Symptoms and signs	Mechanisms
Severe myocardial ischaemia:	
Chest pain	Ischaemia
Fourth heart sound	Forceful filling of non-compliant left ventricle
Low grade fever	Inflammation
Leucocytosis and increased levels of inflammatory markers	Inflammation
Increase in troponin levels	Leakage of protein from injured cardiac myocytes
Activation of autonomic nervous system:	
Tachycardia and sweating	Sympathetic activation
Bradycardia, nausea, and vomiting	Vagal activation (especially in inferior acute myocardial infarction)

Newton discovers comedy

What is middle-range theory?

- "Middle-range theory involves abstraction, of course, but they are close enough to observed data to be incorporated in propositions that permit empirical testing."

  Merton R. On Theoretical Sociology. Five Essays, Old and New. New York: The Free Press, 1967.

- In simple terms, a theory that is at the correct level of abstraction to be 'useful' and 'testable'.

- Realist evaluation has a specific way of expressing a middle-range theory:
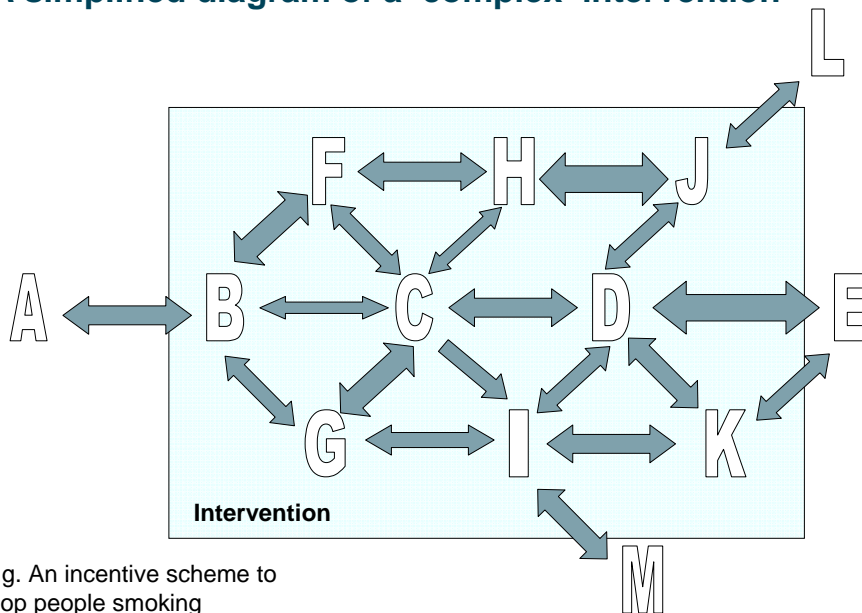
  Context (C) + Mechanism (M) = Outcome (O)

What is context?

Context is pre-existing structures that may or may not influence a mechanism

A simplified diagram of a 'complex' intervention

Intervention

e.g. An incentive scheme to
stop people smoking

Complexity – a realist perspective

- **V**olitions
  - People make choices
- **I**mplementation
  - Long implementation chain
- **C**ontext
  - Pre-existing context – micro to macro
- **T**ime
  - Programmes / interventions come from somewhere
- **O**utcomes
  - Desired, undesired and intermediate / proximal
- **R**ivalry
  - Interaction (if any) with existing programmes / interventions
- **E**mergence
  - Things change!!!

  – The Science of evaluation: A realist perspective. Pawson R, 2013, Sage, London
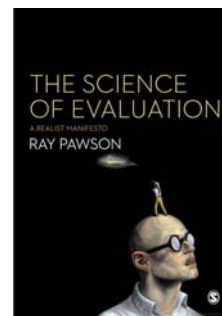
What happens in a complex intervention?

- When participants take part in a complex intervention, they make choices about what actions to undertake and these choices about actions give us our outcomes.

- Participants do not have an infinite range of choices available to them as to what actions they might take.

- The range of choices is limited and determined by the context in which the person is in.

- Various 'mechanisms' lie behind these choices.

A 'complex' intervention

Intervention

The multitude of interactions within a complex intervention may seem daunting!
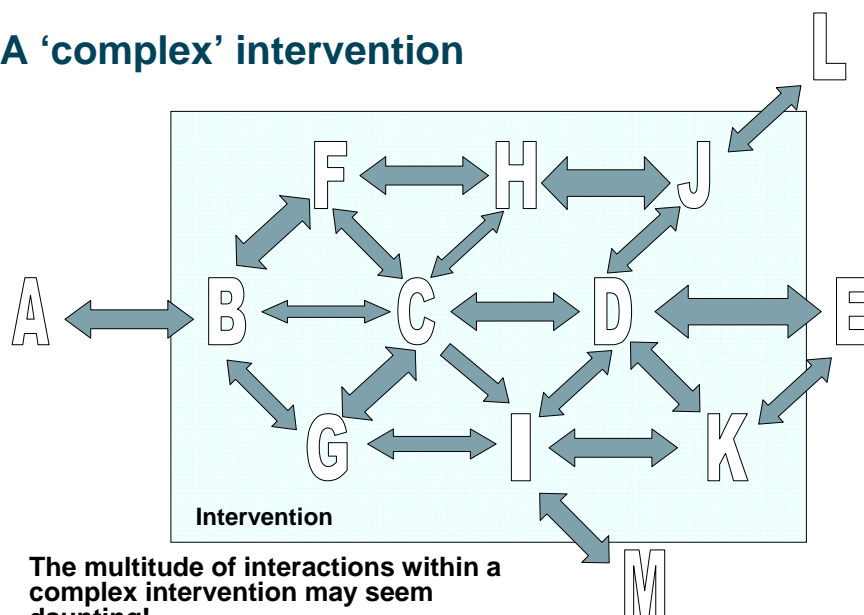
One section of the causal chain of a 'complex' intervention

BUT… the context in which this intervention is taking place may limit and/or influence this decision

B → C

A mechanism is 'something' that that causes the 'move' from B to C
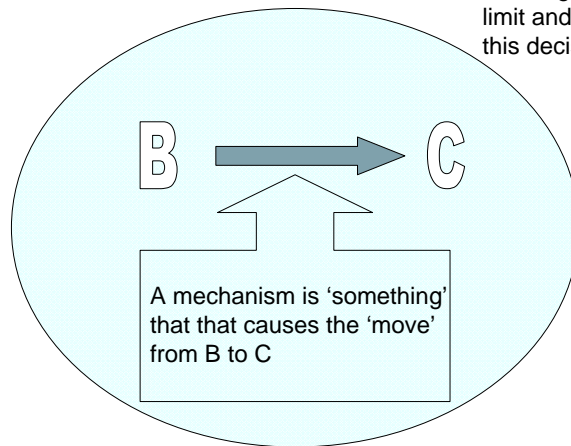
CMO and middle-range theory

- Hence…

Context influences which mechanisms 'fire'

Context + Mechanism = Outcome

• Mechanism are one of the building blocks of middle-range theories

• Middle-range theories explain how and why the context limits and influences mechanism

Putting it all together …

- Our heads are 'contain' various different mechanisms

- These mechanism 'fire' or are 'triggered' by certain contexts

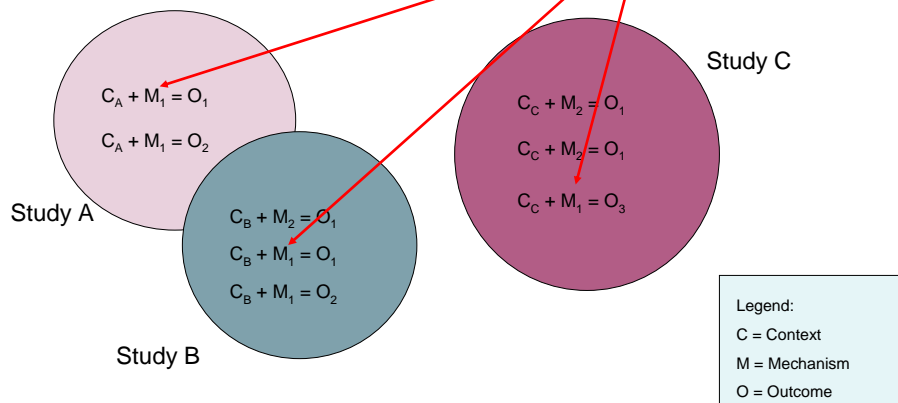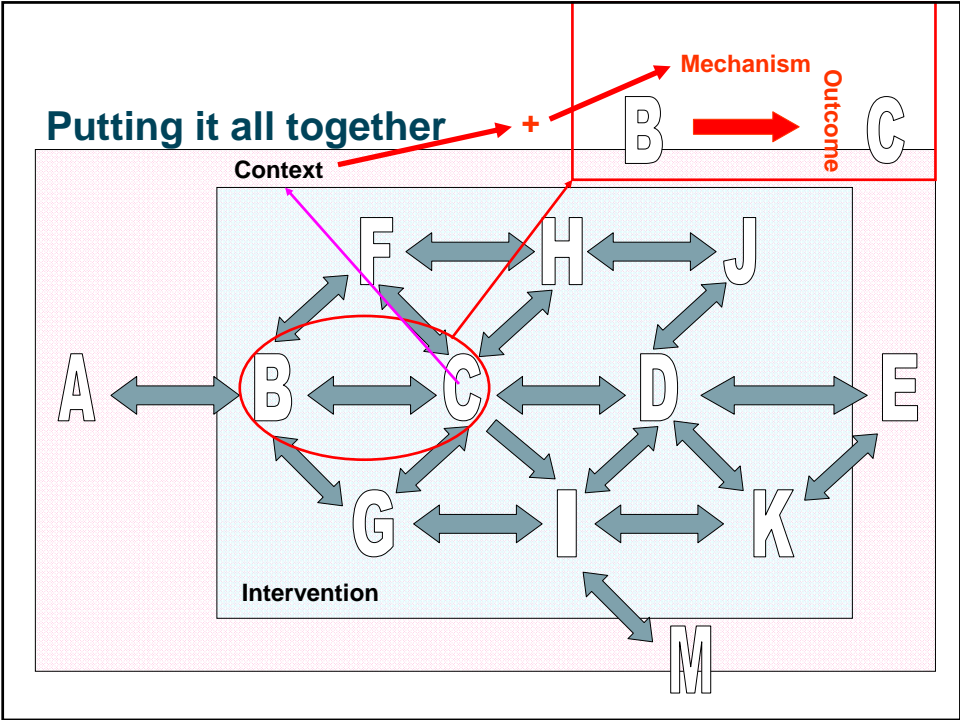- The world is 'full of' context, our interventions try to change these so that the 'right' mechanisms are triggered

- Patterns of C + M = O might occur
  (i.e. certain people tend to behave in certain ways under certain situations)
  When these patterns occur, one possible inference is that the <u>same</u> mechanism may be causing the outcome

- Middle-range theories explain the limitations and/or influence of context on mechanisms behind these patterns.

- The key goal of a realist synthesis is to uncover these middle-range theories.

Putting it all together…

The same mechanisms are operating in these different contexts AND SO the same middle-range theory may explain why certain outcomes may arise.

In three 'seemingly' similar complex interventions (Study A, B and C) with two mechanisms and three outcomes

$C_A + M_1 = O_1$

$C_A + M_1 = O_2$

Study A

$C_B + M_2 = O_1$

$C_B + M_1 = O_1$

$C_B + M_1 = O_2$

Study B

Study C

$C_C + M_2 = O_1$

$C_C + M_2 = O_1$

$C_C + M_1 = O_3$

Legend:

C = Context

M = Mechanism

O = Outcome

Putting it all together

Mechanism

Outcome

+ B → C

Context

Intervention

A — B — C — F — H — J — D — E — G — I — K — M

Any further questions?
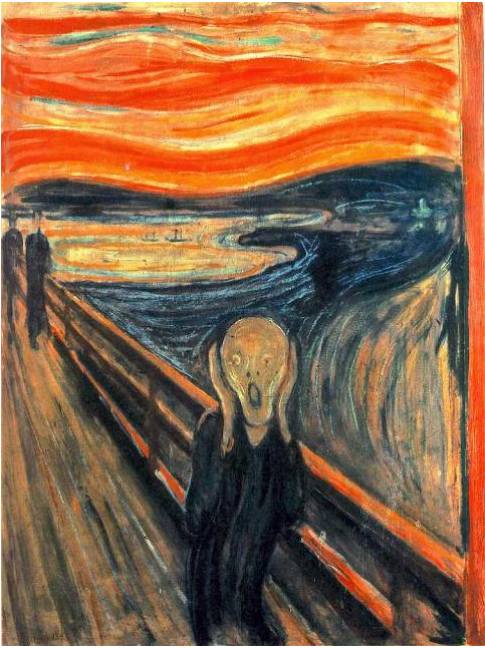
Lunch break

Welcome back!

Now to practical examples of ….

- Programme theory
- Structure of a realist evaluation
- Getting data
- Data analysis process

What is a programme theory?

- A programme theory refers to an abstracted description and/or diagram that lays out what a programme (or family of programmes or intervention) comprises and how it is expected to work

A fully refined programme theory (PT)

Intervention strategy or 'step' in PT

$C_1+M_1=O_1$

$C_2+M_1=O_1$

Intervention strategy or 'step' in PT

$C_3+M_2=O_2$

$C_3+M_1=O_2$

$C_1+M_3=O_3$

Intervention strategy or 'step' in PT

$C_3+M_2=O_3$

$C_4+M_3=O_3$

Intervention strategy or 'step' in PT

$C_3+M_2=O_2$

$C_3+M_1=O_1$

Intervention strategy or 'step' in PT

$C_3+M_2=O_4$

$C_4+M_3=O_4$

$C_4+M_3=O_4$
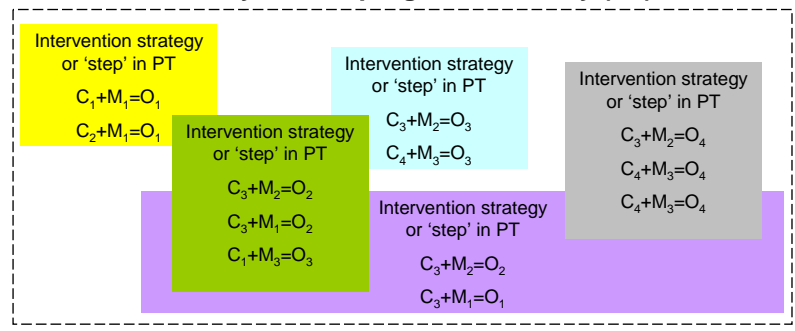
Examples of programme theory – development phase
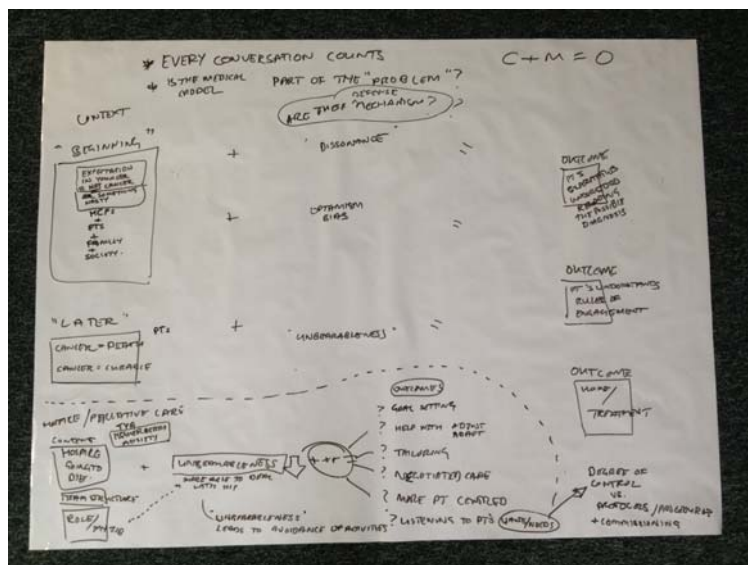
Examples of programme theory - refined
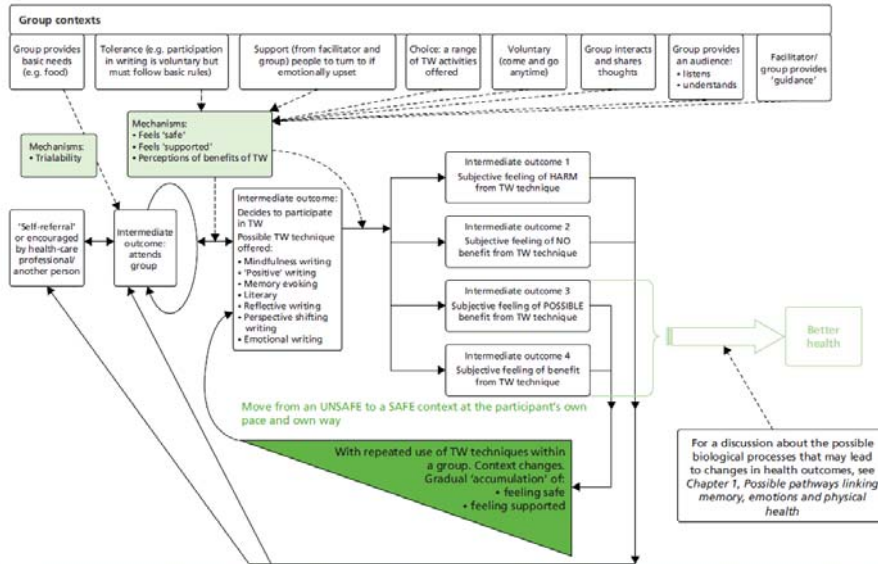
FIGURE 57 Programme theory for facilitated TW. Light green shading indicates mechanisms and dashed lines indicate where mechanisms or contexts have their influences.

Realist evaluation: A type of theory driven evaluation
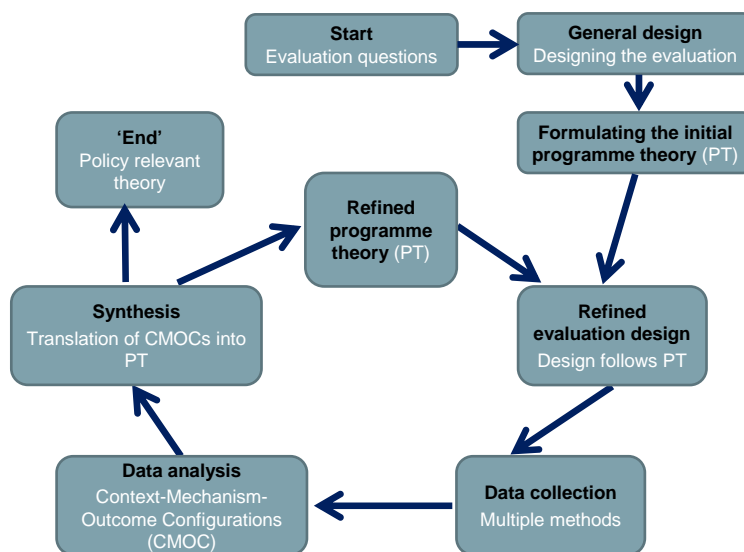
Realist evaluation design

- The design is not the same as the methods used to collect data

- Design is informed by the programme theory

- Design may change as the evaluation progresses

- Data collected is used to refine programme theory

- Programme theory refinement is iterative

Example of a possible design

Figure 2. Study Design
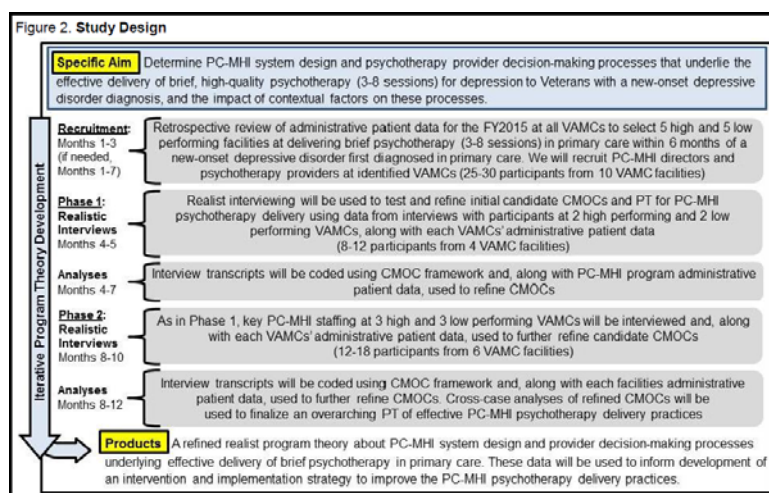
Coffee / comfort break

Getting data

- Realist evaluation is a form of theory-driven evaluation.
- The type of theories we develop are realist programme theories.
- Whenever we have to develop theory, we have to interpret data.
- These data should be from multiple sources
- Transparency is very important. Others have to be able to see on what basis we have made our interpretations.

Getting data

- We need to gather data that informs us about:
  - Context
  - Mechanism
  - Outcome
  - The relationships between context, mechanism and outcome – i.e. CMO configurations
  - The relationships of these CMO configurations within a programme theory

Data analysis - principles

- Analysis is about applying a realist logic of analysis to data:
  Context + Mechanism = Outcome
- Data have to be interpreted.
- Data analysis is an iterative process that starts with data collection.
- As the evaluation progresses different data may need to be analysed to confirm, refine or refute specific section of the programme theory.

Data analysis in realist evaluation – one way to approach it

Applies to all CMOCs
More data may be needed

Read data

↓

Decide on relevance

↓

Assign conceptual 'label'

Concept 1 ↔ Concept 2 ↔ Concept 3 ↔ Concept X

Build Context-Mechanism-Outcome-Configurations (CMOCs)

Build Context-Mechanism-Outcome-Configurations (CMOCs)

Build Context-Mechanism-Outcome-Configurations (CMOCs)

Build Context-Mechanism-Outcome-Configurations (CMOCs)

Requires judgements to be made about what a section of text means

and

Using data to confirm, refute or refine aspects of the programme theory

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Data analysis in realist evaluation – one way to approach it

Data analysis processes

Before starting analysis, you might wish to familiarise yourself with all the data sources available. You might also find it helpful to start reading the 'richest' examples first.
Read contents of a potentially relevant data source and go through the following steps:

STEP 1 - Relevance:
- Are the contents of a section of text referring to data that might be relevant to programme theory development?
If you are not sure but suspect that they might be relevant put them in a clearly labelled 'concept box' – revisit when you have clearer picture.

STEP 2 - Judgements about trustworthiness:
- Are these data of sufficient trustworthiness to warrant making changes to the CMOC?
- Are these data of sufficient trustworthiness to warrant making changes to the programme theory?
If not then continue reading.

STEP 3 - Interpretation of meaning:
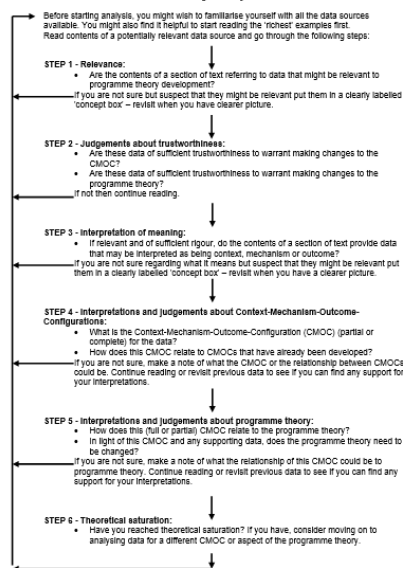- If relevant and of sufficient rigour, do the contents of a section of text provide data that may be interpreted as being context, mechanism or outcome?
If you are not sure regarding what it means but suspect that they might be relevant put them in a clearly labelled 'concept box' – revisit when you have clearer picture.

STEP 4 - Interpretations and judgements about Context-Mechanism-Outcome-Configurations:
- What is the Context-Mechanism-Outcome-Configuration (CMOC) (partial or complete) for the data?
- How does this CMOC relate to CMOCs that have already been developed?
If you are not sure, make a note of what the CMOC or the relationship between CMOCs could be. Continue reading or revisit previous data to see if you can find any support for your interpretations.

STEP 5 - Interpretations and judgements about programme theory:
- How does this (full or partial) CMOC relate to the programme theory?
- In light of this CMOC and any supporting data, does the programme theory need to be changed?
If you are not sure, make a note of what the relationship of this CMOC could be to programme theory. Continue reading or revisit previous data to see if you can find any support for your interpretations.

STEP 6 - Theoretical saturation:
- Have you reached theoretical saturation? If you have, consider moving on to analysing data for a different CMOC or aspect of the programme theory.

Geoff Wong and Chrysanthi Papoutsi   October 2016

You don't have to see the whole staircase, just take the FIRST STEP

Small group exercise – a mini realist evaluation

In pairs or a small group:

– Read 'Cops with mops' again. Now try to evaluate this using a realist evaluation approach ☺

– Put on your 'realist thinking caps' and try to explain as much of it as you can in realist terms:
- What is the Programme theory?
  – Is there one? Is there more than one?
- Try to make the programme theory 'realist'
  – i.e. identify Contexts, Mechanisms and Outcomes and configure at least one complete Context-Mechanism-Outcome configuration

You have 40 minutes.

Small group exercise – a mini realist evaluation

- How did you get on?

- How did your realist evaluation differ (if at all) to the design you had planned right at the beginning of the day?

- Any questions?

Any final questions?

Closing summary

- Many interventions or programmes are 'complex interventions'

- Complexity comes about because of V I C T O R E

- One way to make sense of complex interventions is to account for how outcomes occur – i.e. a model of causation.
  In realism the explanation for why knowledge is transferable is based on mechanisms

- Many current research methods often lack a coherent account of how outcomes occur in relation to context and what the rationale is for transferable knowledge

- Realist research approaches help by focussing on the influences of context on mechanisms and dare to look inside the 'black-box' of the intervention itself!

Thank you for listening and for your participation

Discussion list:
• RAMESES on JISCM@il – www.jiscmail.ac.uk/RAMESES

Training materials:
• The RAMESES Projects –
http://ramesesproject.org/Standards_and_Training_materials.php

Course:
• University of Oxford training course on Realist Review and Realist Evaluation
(RR&RE) – more details: goo.gl/4vuqC8

Suggested readings:

• Pawson R., Tilley N. **Realistic Evaluation**. London: Sage, 1999

• Pawson R. **Evidence-based Policy. A Realist Perspective**.
London: Sage, 2006.

• Pawson R. **The Science of evaluation: A realist manifesto**.
London: Sage, 2013