Critical realism & realist evaluation: An overview for everyone

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#IIQMWebinar @iiqmUofA
Conference dates: October 19 - 21, 2015
Pre-Conference Workshops: October 17 & 18, 2015
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The wonder of:
Why?
Aims:

1. Cover key concepts
   Simple, complicated and complex

2. Overview the tenets of critical realism

3. Discuss the nature and use of realist evaluation
Why?
Why?
Why did the global recession happen?

Lawson (2009)
Why do most criminals re-offend?
(Byrne 2002)
Why are people not accessing our exercise program?

(Clark et al 2005)
Why?
Not
Not
Not
Why are ‘why’ questions so important?
More data
More data

More unexplained patterns and results than ever
More data

More unexplained patterns and results than ever

Plausible explanation is necessary for meaningful change
More data

More unexplained patterns and results than ever

Plausible explanation is necessary for meaningful change

Greater recognition of complexity in theory and policy
What is ‘complexity’?
Simple.
Complicated
Complicated
Inconsistent findings...

Heart failure disease management programs

Cardiac rehabilitation

Remote / telehealth monitoring programs
What heart failure programme works best?
Wrong question, wrong assumptions

Alexander M. Clark¹* and David R. Thompson²

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Complex
Complex
Complicated

Requires formulae

Uses expertise

Draws on precedence

Past experience can clearly inform current situation

If steps are followed, success is relatively well assured

Glouberman & Zimmerman (2002)
Complicated versus Complex

Requires formulae
Uses expertise
Draws on precedence
Past experience can clearly inform current situation
If steps are followed, success is relatively well assured

Formulae have limited application
Many factors involved
Past experience provides limited assurance of future success
Every situation is unique
If steps are followed, success is in doubt

Glouberman & Zimmerman (2002)
What football teaches us about researching complex health interventions

Football and healthcare are both complex adaptive systems. Alex Clark and colleagues wonder how and why football scores more highly when it comes to introducing interventions.

Alexander M Clark professor ¹, Thomas G Briffa research associate professor², Lorraine Thirsk assistant professor³, Lis Neubeck senior research fellow⁴, Julie Redfern senior research fellow⁴

¹Faculty of Nursing, Clinical Sciences Building, University of Alberta, Edmonton, AB, Canada T6G1C9; ²School of Population Health, University of Western Australia, Crawley, WA, Australia; ³Faculty of Nursing, University of Alberta, AB, Canada; ⁴George Institute for Global Health, University of Sydney, Sydney, NSW, Australia
The big issue: Outcomes
Who would you rather have on your team?
Clark or Messi?

“Spot the difference”
Similar?
Similar?

Two legs + two feet
Brown mousey hair
Under 6’ tall

Top income decile
Score goals regularly
What matters more?

What matters most?
What matters more?

How to know what is most important?

How does context matter?

What matters most?
How do the parts interact?

What matters more?

How is most important?

Does context matter?

What is most important?

How to know what is important?

How does context matter?

What changes most over time?
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Who would you rather have as a player on your football team: Messi or Clark? Both players share numerous characteristics, such as they both have brown hair, have the same size feet, and are less than 6 ft (1.8 m) tall. Each has scored many goals, playing in the number 10 jersey.

However, focusing on these overt characteristics is not a good basis for decision making. Close observation, informed assessment, and knowing the context of previous successes (goals against whom and on what occasion) provide more useful insights into the determinants of success in football. Lionel Messi, the Argentine international professional player, is infinitely preferable to Alex Clark, an amateur from the University of Alberta, Canada. Yet research into complex healthcare interventions still focuses on easily described components of interventions and risks overlooking what really matters.

Complex versus complicated

Interventions in football and healthcare systems are “complex” rather than “complicated.” Phenomena are complicated when intervention outcomes can be reliably predicted from past behaviour with the help of mathematical analysis. Sending a
Christmas 2012: Sport

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Complex interventions in football and healthcare have a range of shorter term and longer term outcomes (table 1) and are composed of many components that are made up of smaller subcomponents (table 2). Outcomes are generated by dynamic interactions between these components, not only with each other, but also with aspects of context and a wide range of other potentially influential laws, variations, and unpredictable factors (table 3).

Because of this complexity, outcomes in football and healthcare are not chaotic (random over time) or uniform (identical over time). Rather, outcomes are somewhat patterned. Some football players successfully complete passes more often than others, and identical medical interventions can result in very different outcomes in different doctors’ hands. But unexpected outcomes still occur. Messi still misses chances he should score from, and an intervention to promote diabetes self care that was effective in one setting, and is supported by meta-analyses, may not have benefits in another setting. Given their shared complexity, we suggest some lessons that healthcare research can learn from football.

Lesson 1: Ontology—bring complexity in
Complex Critical Realism
Tenets and Application in Nursing Research

Alexander M. Clark, BA(Hons), PhD, RN;
Sue L. Lissel, MA; Caroline Davis, PhD

Aim: To outline the main tenets of critical realism (CR), its use, and future application in nursing. Background: Little work has been done to discuss how CR can be applied to nursing research. Findings: The tenets of CR include recognition of reality independent of human perceptions, a generative view of causation in open systems, and a focus on explanations and methodological eclecticism using a postdisciplinary approach. Critical realism is useful for (1) understanding complex outcomes, (2) optimizing interventions, and (3) researching biopsychosocial pathways. Such questions are central to evidence-based practice, chronic disease management, and population health. Conclusions: Critical realism is philosophically strong and potentially useful for nursing research. Keywords: framework, nursing research, ontology, philosophy, realism, realist, theory
What must reality be like for science to be possible?

Key reference: Bhaskar (1975)
Critical realist tenets:

1. Existence of independent reality
   • Fallibly known

2. Stratified emergent generative ontology
   • Actual, empirical and real

3. Explanatory focus

4. Recognition of agency and structure

5. Reality as a complex, open system

6. Methodological eclecticism and post disciplinarity
Existence of mind independent reality

Physical reality

Non-physical reality
  Social
  Cultural

Key reference: Williams (1999)
Stratified emergent generative ontology

The actual
The empirical
The real

Stratification and emergence:

- Populations
- Social beings
- Psychological Beings
- Biological systems
- Cells
- Sub-atomic particles
Explanatory focus

What is going on here?
What is causing this to happen?
Recognizes agency & structure
Recognizes agency & structure
Reality as a complex, open system

The open-systems view

Key reference: Pawson and Tilley (1997)
<table>
<thead>
<tr>
<th>Open Systems</th>
<th>Closed systems</th>
</tr>
</thead>
<tbody>
<tr>
<td>Natural</td>
<td>Abstracted</td>
</tr>
<tr>
<td>Uncontrolled</td>
<td>Controlled</td>
</tr>
<tr>
<td>Observation</td>
<td>Manipulation</td>
</tr>
<tr>
<td>Complex</td>
<td>Simplified</td>
</tr>
</tbody>
</table>
The world as partially patterned

Demi-regularities
(Lawson 1997, 2003)
Linear Causation:

Successionist

Sedentary person + exercise program = Regular exercise
Generative Causation:

Generative

Event C
Methodological eclecticism & post-disciplinarity:

Led by: Reality

Not: Methodological predilection
     Disciplinary lens

Key reference: Sayer (1999)
Methodological eclecticism & post-disciplinarity:

Led by: Reality

Not:
Methodological predilection
Disciplinary lens

Key reference: Sayer (1999)
What does CR research look like?

Ontology before method

Qualitative, mixed and quantitative methods

Focus on explanation

Complexity-ontology
Realist Evaluation:

‘What works for whom, when and why?’

What works?
Origins of Realistic evaluation:

Programs:

- Lack of replicability of successful programs
- Lack of insight into reasons for variations
- Lack of explanatory power of existing approaches
- Lack of attention to ontology in existing research
What is missing from current research?

Explanation

Depth

Ontology
Hoddinotta et al. (2010) Social Science & Medicine, 70: 769-778
From:
What works?

To:
What works for whom, when and why?
Think of the best and the worst teacher you ever had?
Bad Teacher...?
Good Teacher...?
From:
Incident in home ➔ Warning but no arrest

To:
Incident in home ➔ Mandatory arrest

Successful pilot ➔ DV
From:
Incident in home ➔ Warning but no arrest

To:
Incident in home ➔ Mandatory arrest
Successful pilot ➔ DV

Ergo...hypothesis
Mandatory arrest policies will ➔ DV
What happened?

Pilot:

Pilot
(Context)

Arrested in public
(Intervention)

Public shame, vilification
(Mechanism)

Reduction in DV
(Outcome)
What happened? Roll out
What happened?

Real world
(Context)

Arrested in public
(Intervention)

Annoyance
(Mechanism)

Increase in DV
(Outcome)
‘What works for whom, when and why?’
What has the **power**?

Mechanism → Context → Outcome

Pawson and Tilley (1997)
When should you do a Realist Evaluation?

Complex randomized trial evaluation
Measure *and also* explain outcomes

Process evaluation
Medical Research Council (2014)

Dedicated realist evaluation
C-M-O
What is Realist Synthesis...?

“A new model for systematic review…”

What is it about interventions that gives them powers?

Outcomes, mechanisms and context
Name and shame interventions:

There are five homes in Rock Street S3 without a TV licence.
Criticisms of CR & RE:

RE is badly done

CR is philosophically incoherent

CR and RA are not well aligned
1. Existence of independent reality
   • Fallibly known

2. Stratified emergent generative ontology
   • Actual, empirical and real

3. Explanatory focus

4. Recognition of agency and structure

5. Reality as a complex, open system

6. Methodological eclecticism and post disciplinarity
Closing thoughts:

Is your research approach simple, complicated or complex?

How could critical realism add value to seeing old problems in new ways in your work?

How could knowledge of mechanisms, context and outcomes help your research?
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What is critical realism and how can I use it?  

What is complexity and complexity theory?  

How can I research complex interventions?  