The Meta-Narrative Review
Systematic Reviewing Across Different Paradigms

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With thanks to Trish Greenhalgh, Geoff Wong & others
• Systematic reviewing has evolved over time
• Meta-analysis for quantitative outcomes
• Some degree of methodological heterogeneity can be handled with sub-group analyses
• Various ‘mixed methods’ approaches developed to combine qualitative and quantitative studies
Not just heterogeneity, not just mixed methods, but incommensurability

The article explores information and communication systems to produce development of electronic patient services. In particular, it explores how gender and systems combine to produce a lack of integration. There have been many integration efforts. Such efforts typically include some or all of the four principle classes of hospital-based systems: electronic patient records, laboratory systems, radiology systems, and patient administrative systems. In this study, we trace the implementation process during most of 2004 at the University Hospital of North Norway, where these systems were part of a larger replacement project. We analyze the images and visions of order and perfection as a foundation for the decision to replace the existing IT portfolio. Furthermore, we analyze the manner and form in which unintended consequences of the integrated solutions appear and, finally, how the very act of integration may indeed produce rather than curb disorder. As a result, a lack of integration of any reasonably complex information system is an immanent feature.
Problems of heterogeneity multiply with more complex questions, with multiple outcomes, varying systems and different methodologies – different paradigms

Various approaches developed to review broad methods...

Moran-Ellis et al. (Qual Res 2006;6(1):45-59):

“Researchers who advocate the use of multiple methods often write interchangeably about ‘integrating’, ‘combining’ and ‘mixing’ methods [...] [This] obscures the difference between (a) the processes by which methods (or data) are brought into relationship with each other (combined, integrated, mixed) and (b) the claims made for the epistemological status of the resulting knowledge.”


‘Composite analysis’: retain integrity of each method – integrate findings rather than ‘mixing methods’

Noblit & Hare (Meta-ethnography: Synthesising Qualitative Studies, 1988):

Distinction between integrative and interpretive reviews

Lewis & Grimes (Acad Manage Rev 1999;24:672-90):

Meta-triangulation: building theory from multiple paradigms
Meta-narrative review – key citations


2nd(ish): Greenhalgh, Potts, Wong et al., Milbank Q 2009;87:729-88.

Meta-narrative review – key principles

Use a historical and philosophical perspective as a pragmatic way of making sense of a diverse literature

• Pragmatism
• Pluralism
• Historicity
• Contestation
• Peer review
Key questions (from Kuhn, “The structure of scientific revolutions”)

- What research teams have researched this area?
- How did they CONCEPTUALISE the problem?
- What THEORIES did they use to link problem with potential causes and impacts?
- What METHODS did they define as ‘rigorous’ and ‘valid’?

Application more post-Kuhnian than Kuhnian
Explore the literature

- **Research tradition A**
  - Theoretical basis
  - Quality criteria
  - Evaluate, summarise

- **Research tradition B**
  - Theoretical basis
  - Quality criteria
  - Evaluate, summarise

- **Research tradition C**
  - Theoretical basis
  - Quality criteria
  - Evaluate, summarise

**Meta-narrative map of underpinning traditions**

**Meta-narrative review (how to get started)**
<table>
<thead>
<tr>
<th>Research tradition</th>
<th>Disciplinary roots</th>
<th>Definition &amp; scope</th>
<th>General format of research question</th>
<th>EPR conceptualised as...</th>
<th>EPR user conceptualised as...</th>
<th>Context conceptualised as...</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health information systems</td>
<td>(Evidence-based) medicine, computer science</td>
<td>Study of storage, computation &amp; transmission of clinical data. Focus often on benefits of EPRs and how to achieve them</td>
<td>What is impact of technology X (EPR, DSS, etc.) on process Y (e.g. clinician performance) and outcome Z?</td>
<td>Container for information about patient; tool for aggregating clinical data for secondary uses</td>
<td>Rational decision-maker whose cognitive ability sets limits to what can be achieved without computers</td>
<td>Potential confounder which can be ‘controlled for’ if right study design used</td>
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<tr>
<td>Change management (within health services research)</td>
<td>(Evidence-based) medicine, social psychology, management</td>
<td>Study of achieving organisation-level change in Healthcare</td>
<td>How can we improve delivery of healthcare and sustain improvement?</td>
<td>Innovation that, if implemented widely and consistently, will improve process and outcome of care</td>
<td>‘Resistant’ agent who must be trained and incentivised to adopt new technologies and ways of working</td>
<td>External milieu of interacting variables that serve as barriers or facilitators to change efforts</td>
</tr>
<tr>
<td>Information systems (positivist)</td>
<td>Business studies, psychology, computer science</td>
<td>Study of how organisations do or do not adopt &amp; assimilate information systems</td>
<td>What factors (independent variables) account for success or failure (dependent variable) of information system X in organisation Y?</td>
<td>Unwelcome change, likely to be resisted, and which may fit poorly with organisational structures &amp; systems</td>
<td>Potential adopter who may engage with or resist change; member of group whose power base may be enhanced or threatened</td>
<td>External milieu of interacting variables that mediate or moderate the relationship between input and output variables</td>
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<td>Information systems (interpretivist)</td>
<td>Management, sociology, social psychology, anthropology</td>
<td>Study of how organisational members make sense of information systems &amp; thereby assimilate them</td>
<td>What meanings does information system X hold for members of organization Y? How to achieve accommodation between different views?</td>
<td>Socio-technical change that holds different meanings for different individuals and groups</td>
<td>Stakeholder whose ‘framing’ of the EPR is crucial to its assimilation. Agent whose creativity can be drawn upon in this effort</td>
<td>Scene &amp; setting for an unfolding story; webs of meaning in which organisational actors are suspended</td>
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<td>Information systems (technology-in-practice)</td>
<td>Organizational sociology, social psychology, philosophy</td>
<td>Study of how social structures recursively shape &amp; are shaped by human agency, &amp; role of technology in this</td>
<td>What is the relationship between organisational actors, technology X, and the organisation – and how does this change over time?</td>
<td>Itinerary and organiser whose physical &amp; technical properties structure &amp; support collaborative clinical work</td>
<td>Knowledgeable creative agent for whom social structures both create possibilities &amp; limit the possible</td>
<td>Generated &amp; regenerated through interplay of action &amp; structure. Does not study ‘technologies’ &amp; ‘contexts’ separately but technologies-in-use</td>
</tr>
<tr>
<td>Computer supported cooperative work</td>
<td>Computer science, software engineering, psychology, sociology</td>
<td>Study of how groups of people work collaboratively, supported by information technology</td>
<td>How can technologies support the work of multiple interacting people?</td>
<td>Contextualized artefact</td>
<td>Agent who works to local goals in collaboration with others &amp; creatively overcomes limitations of formal tools</td>
<td>External milieu or emergent property of action (constituted by &amp; inextricable from an activity involving people &amp; technologies)</td>
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<td>Critical sociology</td>
<td>Sociology, philosophy</td>
<td>Study of relationship between people &amp; social order, &amp; role of technologies in this</td>
<td>What social structures &amp; power imbalances are embedded in technology X, &amp; what impact does this have on social roles/relationships?</td>
<td>Implicated in micro &amp; macro power dynamics (because of link between knowledge &amp; power)</td>
<td>Constrained by dominant social Structures, which may be built into technologies by designers</td>
<td>Social &amp; material conditions into which the unequal social order is inscribed; more or less stable structure of macro social relations</td>
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<td>Empirical philosophy (actor network case studies)</td>
<td>Philosophy, sociology, linguistics</td>
<td>Study of sociotechnical networks: considers how relationships &amp; power shift within network</td>
<td>How has network, with its various relationships, work practices &amp; risks, changed as a result of technology X?</td>
<td>Actor in a network</td>
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<td>EPR &amp; its context together form the network; the one cannot be studied without the other</td>
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<tr>
<td>Systems approaches</td>
<td>Systems &amp; management research, drawing on cognitive psychology, CSCW &amp; ANT</td>
<td>Systems perspective</td>
<td>What role does the EPR play within a complex healthcare system?</td>
<td>Component of complex socio-technical system whose features &amp; properties may come together in unpredictable ways</td>
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<td>Complex, changing environment</td>
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Synthesis phase

Highlight similarities and differences in the findings from different traditions

Contestation between the disciplines is data (and leads to higher order constructs)

Offer conclusions of the general format “in circumstances such as X, don’t forget to think about Y”
**Summary**

- **Techno-utopianism**
  - Promoting *(health informatics)* or challenging *(technology-in-practice, CSCW)* it

- **Recursivity**

- **Different affordances of paper and electronic**
  - Health informatics stresses advantages of electronic; HCI/CSCW and technology structuration stress paper has advantages too

- **Records support work / nature of co-operative work**
  - Different participants’ view of others’ work / hidden work *(feminist critiques of hidden work)* and changed visibility
  - Different people do different things & EPRs help or hinder people differently
  - Impacts on power relationships

- **EPRs are not an agreed and agreeable common account, but communicative, boundary objects**
Thomas Kuhn
“The Structure of Scientific Revolutions” (1962)
Thomas Kuhn
“The Structure of Scientific Revolutions” (1962)

A discipline sees a repeated cycle of ‘crises’, leading to ‘paradigm shifts’, out of which emerges ‘normal science’.
Greenhalgh, Robert, Macfarlane et al.

Different disciplines separately develop a paradigm and conduct ‘normal science’.
Rise and fall of diffusion research in rural sociology
Rise and fall of diffusion research in health related fields
Greenhalgh, Potts, Wong et al.
Reflections

• The piles are subjective (but let’s not pretend ‘traditional’ systematic reviewing isn’t)
• Synthesis difficult
• Very different picture to traditional Cochrane/EBM approach
• Rich array of theories and methods
• Systematic, but interpretive
End of talk – turn off the computer.

Thank you for your attention.

Ask me questions.

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References:


