

Review: assumptions and challenges of 'evidence' synthesis

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Context: health services research, health professional education, some overlap with clinical research, higher education research.

Purpose: explore different types of evidence syntheses

- Provide a sense of how they are conducted
- Prompt some thinking about how they are invoked

1. Why reviews/evidence synthesis?
2. Systematic reviews (meta-analysis)
3. Realist synthesis
4. Qualitative synthesis (framework synthesis)
5. Making meaning

Literature review and evidence synthesis



Systematic review

Meta-analysis

Scoping review

Integrative review

Realist synthesis

Meta-ethnography

Meta-narrative reviews

Literature review: a broad term.

“Evidence” synthesis: a narrower term.

Evidence: implies data (qualitative or quantitative)

Synthesis: implies interpretive work to bring together

Research in its own right.

- Most significant in the clinical sciences and health/social services research.
- Means of contributing to clinical and health services decision-making.
- Also significant in educational research eg John Hattie's 'Visible Learning' work.
- Comes with significant rhetorical weight.

Ontic and epistemic assumptions

Role of theory

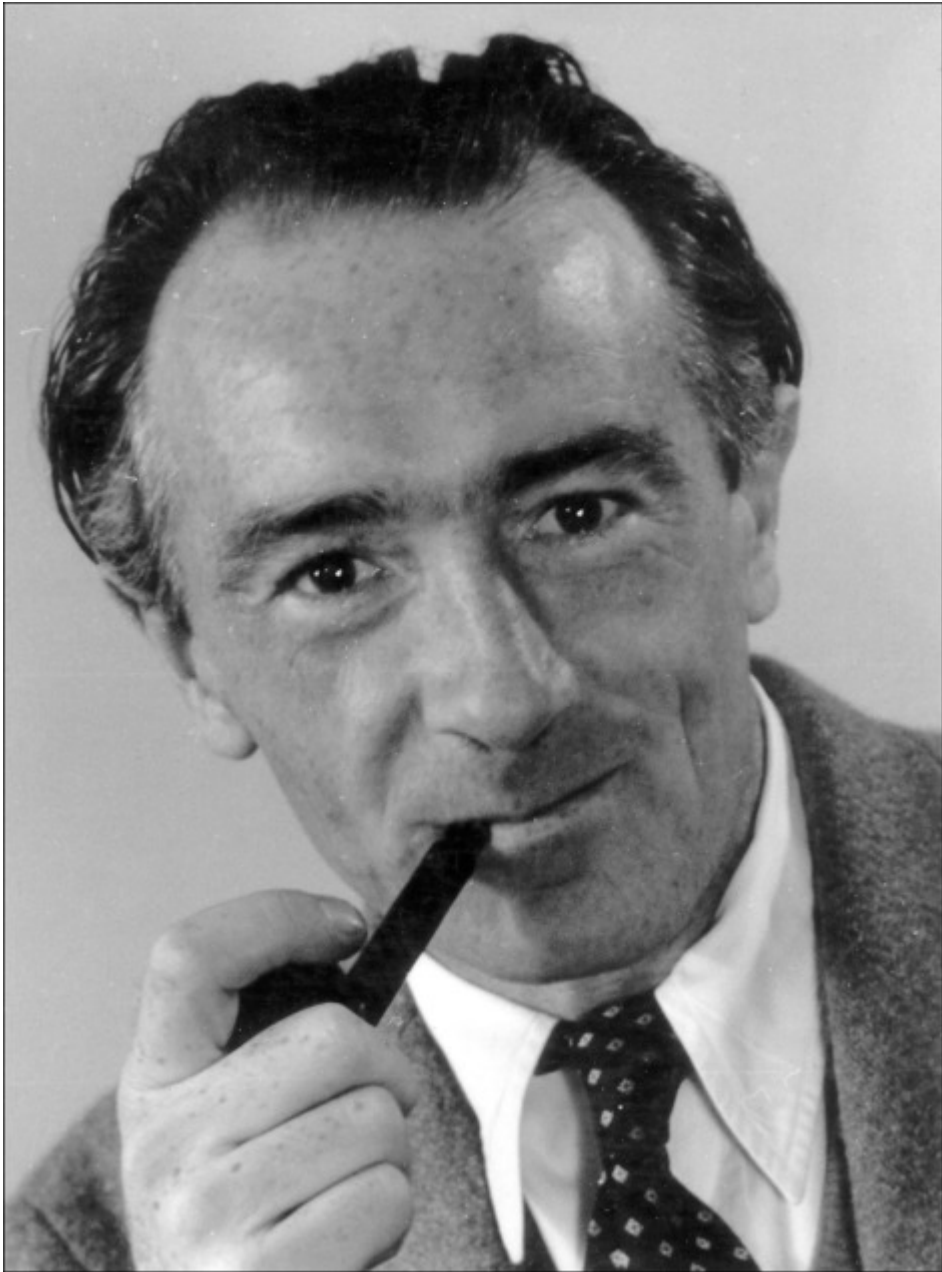
Rhetorical value

General critiques

Systematic reviews



What does “systematic review” mean to you?



“Antenatal corticosteroids for accelerating fetal lung maturation for women at risk of preterm birth...

Each horizontal line represents the results of one study, while the diamond represents the combined result ...

Corticosteroids given to women who are about to give birth prematurely can save the life of the newborn child...

This simple intervention has probably saved thousands of premature babies.”



<https://community.cochrane.org/news/cochrane-logo-review-gets-update>

Features of systematic review

- a clearly stated set of **objectives** with **pre-defined eligibility criteria** for studies
- an **explicit, reproducible** methodology
- a **systematic search** that attempts to identify **all studies** that would meet the eligibility criteria
- an **assessment of the validity** of the findings of the included studies, for example through the assessment of **risk of bias**
- a **systematic presentation, and synthesis**, of the characteristics and findings of the included studies.

https://handbook-5-1.cochrane.org/chapter_1/1_2_2_what_is_a_systematic_review.htm

Ontic assumptions: “positivist”, natural world, assumption that reality is “out there”.

Objective measurement is possible (phenomena exist outside of their contexts)

Epistemic assumptions: knowledge can be shared via these universal means

Rhetorical value?

- “Evidence-based practice”.
- “Culture of no culture” –“timeless truths” preferred (Taylor 2003).

- Tends to represent knowledge as truth rather than *theory* or interpretation.
- Tends to privilege *process* over judgement.

An education example ...

Learning Empathy Through Simulation

A Systematic Literature Review

Margaret Bearman, PhD;

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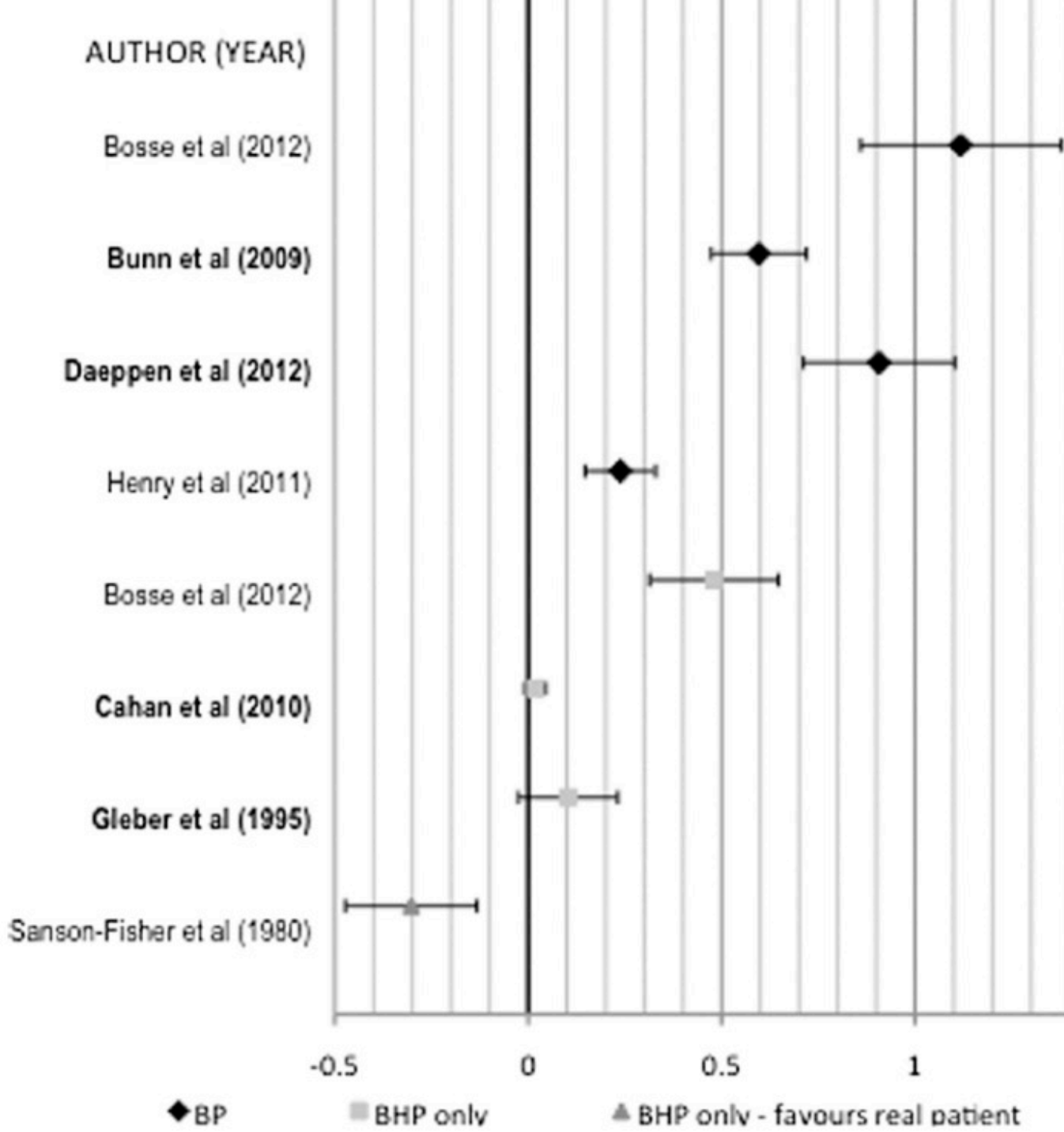
Louise M. Allen, B NutrDiet (hons);

Brett Williams, PhD

Summary Statement: Simulation is increasingly used as an educational methodology for teaching empathy to preservice health professional students. This systematic review aimed to determine if and how simulation, including games, simulated patients, and role-play, might develop empathy and empathetic behaviors in learners. Eleven databases or clearing houses including MEDLINE, EMBASE, CINAHL, PsychInfo, and ERIC were searched for all articles published from any date until May 2014, using terms relating to (i) preservice health professional students, (ii) simulation, and (iii) empathy. Twenty-seven studies met the inclusion criteria, including 9 randomized controlled trials. A narrative synthesis suggests that simulation may be an appropriate method to teach empathy to preservice health professional students and identifies the value of the learner taking the role of the patient.

(Sim Healthcare 10:308–319, 2015)

Key Words: Simulation, Empathy, Role-play, Communication skills, Simulated patients.



No pre-post (bias)

Why not do the meta-analysis?

Outcome measures radically different (how do you define or measure empathy?)

Study arms are not the same.

Simulation experiences are substantively different.

“... the danger of combining incommensurable results”



<https://www.leeds.ac.uk/educol/documents/00002182.f>
Photo by Christine Wehrmeier on Unsplash



“Clarity bordering on stupidity...”

Maclure (2005) appropriating Breton on systematic reviews in education

Realist synthesis





“I am some kind of realist... But I am against direct realism, naïve realism and epistemological complacency...”

Donald T Campbell (1988) cited in Pawson et al 2013 (The science of evaluation)

Realist review

What works, for whom and under what circumstances?

Evidence-based exploration of interventions.

Explicitly draws from theory.

Context-mechanisms-outcomes.

Aims to recommendations that make a difference.



Example: Ajjawi et al (in preparation) Unpacking How Feedback Works for Undergraduate Learners: what works for whom, how and in what circumstances?

Examining feedback in classroom tasks in higher education

Use of Self-Determination Theory as a frame – autonomous motivation framed by feelings of competence, relatedness and autonomy.

58 articles included: context, mechanism, intervention and outcomes extracted.

Example of outcome: Students who have a sense of relatedness (M) increases motivation and facilitates increased learning, evaluative judgement or self-efficacy; [O]; when there is lack of [relatedness] (M) leads to reduced learning, evaluative judgement and self-efficacy (O)

Ontic assumptions: “post-positivist”, naturalistic assumption that reality is “out there” and follows cause and effect but many things are unknown.

Epistemic assumptions: what knowledge we have should be interpreted and shared because we need to make decisions.

Knowledge can be encapsulated in ‘mid-range theories’.

Rhetorical weight

Realist reviews are 'new kids on the block' ...

Bridge the 'qualitative' and quantitative divide?

Or accepted by neither?

Critique

Manages better with quantitative data/mixed methods data than qualitative data alone.

Assumptions of causality and mid-range theories.

Hard to divide into CMOs.

Difficult to make big interpretive leaps (data may simply not be there).

Qualitative synthesis



Qualitative synthesis looks at means of combining the results of qualitative studies (Bearman and Dawson 2013).

Diverse, fluid, struggles with the questions of how to combine studies in a way that takes account of their context.

Multiple methods.

Often associated with systematic searches...

Meta-ethnography

Grounded theory

Thematic synthesis

Meta-narrative reviews

Critical interpretive synthesis

Framework synthesis

(Barnett-Page & Thomas 2009)



Example: framework synthesis (Dixon-Woods 2011)

Bearman, Tai, Henderson, Esterhazy & Molloy in preparation

“The overall aim of this review is to enhance current feedback pedagogies in PhD supervision by using a sociomaterial framework to synthesise the literature and distil the most salient aspects of productive or challenging feedback practices found within PhD supervision.”

We developed a deductive framework based on our expert knowledge of feedback, the feedback literature, and highlighting the social and material.

We conducted a broad search and our inclusion criteria covered the quality of the data.

The findings and discussion of the 56 included papers constituted the “data” of an analysis.

“Supervisors, through their engagement or disengagement with feedback, controlled candidates’ access to the tacit standards of the discipline, department and institution. The ephemeral nature of verbal feedback contrasted with reified textual comments. While many supervisors aimed for candidates to become less reliant on feedback over time, this did not necessarily translate to practice. Our findings suggest that balancing power dynamics might be achieved through focussing on feedback materials and practices rather than the personal supervisor-candidate relationship.”

Ontic assumptions: tend towards the notion that reality is constructed or at least heavily interpreted.

Epistemic assumptions: tend towards the notion that knowledge is highly situated, possibly co-constructed by the research process.

Analysis: can be framed by theory.

Analysis challenges

If context and purpose are inextricably intertwined in the interpretation, how can this be accounted for?

Distance from the data: interpretation of interpretations?

Does this matter?

Rhetorical challenges

Every approach requires justification.

The contestable nature of qualitative synthesis makes it difficult to have positive reviewers.

The slight dissonance between the systematic search approach and the highly interpretive synthesis.

Making meaning



Making sense of the literature

Very easy to be caught up in the mechanics of process.

In my view, the authorial interpretation is critical to making a worthwhile evidence synthesis irrespective of *approach*.

This interpretive work “synthesis” is critical to review quality (Bearman 2015)..

Onus on the reader.

What is valued and by whom?

Widely variant approaches.

Parallel audiences?

Thoughts?

Questions?

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