



This is a repository copy of *Harnessing energies, resolving tensions: acknowledging a dual heritage for qualitative evidence synthesis*.

White Rose Research Online URL for this paper:
<https://eprints.whiterose.ac.uk/141952/>

Version: Accepted Version

Article:

Booth, A. orcid.org/0000-0003-4808-3880 (2019) *Harnessing energies, resolving tensions: acknowledging a dual heritage for qualitative evidence synthesis*. *Qualitative Health Research*, 29 (1). pp. 18-31. ISSN 1049-7323

<https://doi.org/10.1177/1049732318808247>

Booth, A. (2019). *Harnessing Energies, Resolving Tensions: Acknowledging a Dual Heritage for Qualitative Evidence Synthesis*. *Qualitative Health Research*, 29(1), 18–31. Copyright © 2018 The Authors. <https://doi.org/10.1177/1049732318808247>. Article available under the terms of the CC-BY-NC-ND licence (<https://creativecommons.org/licenses/by-nc-nd/4.0/>).

Reuse

This article is distributed under the terms of the Creative Commons Attribution-NonCommercial-NoDerivs (CC BY-NC-ND) licence. This licence only allows you to download this work and share it with others as long as you credit the authors, but you can't change the article in any way or use it commercially. More information and the full terms of the licence here: <https://creativecommons.org/licenses/>

Takedown

If you consider content in White Rose Research Online to be in breach of UK law, please notify us by emailing eprints@whiterose.ac.uk including the URL of the record and the reason for the withdrawal request.



eprints@whiterose.ac.uk
<https://eprints.whiterose.ac.uk/>

Harnessing Energies, Resolving Tensions: Acknowledging a Dual Heritage for Qualitative Evidence Synthesis

Abstract

Qualitative evidence synthesis (QES) encompasses more than 20 methods for synthesising qualitative accounts of research phenomena documenting real-life contexts. However, tensions frequently arise from the different heritages that shape QES methodology; namely, systematic reviews of effectiveness and primary qualitative research. Methodological innovations derive from either heritage or are stimulated when both are in juxtaposition; it is important to broker a rapprochement. This article draws on practical experience from a range of syntheses and methodological development work conducted with the Cochrane Qualitative and Implementation Methods Group. The legacy of both heritages is briefly characterised. Three stages of the QES process offer exemplars; searching/sampling, quality assessment and data synthesis. Rather than an antagonistic clash of research paradigms this dual heritage offers an opportunity to harness the collective energies of both paradigms. Future methodological research is needed to identify further applications by which this dual heritage might be optimally harnessed.

Keywords

qualitative research; qualitative evidence synthesis; systematic reviews; reporting standards

The systematic review is considered a building block for evidence based healthcare and evidence based policy (Tranfield et al, 2003). While the methodological origins for systematic review may be traced over several centuries (Petticrew, 2001) it has enjoyed momentum from the mid-1990s onwards. Early guidance focused on effectiveness barely acknowledging alternative models of review that accommodated different study questions, diverse types of evidence or variants in study design. Methods for synthesis of qualitative research did already exist (meta-ethnography, for example, dates from the late 1980s (Noblit & Hare, 1988)) but their uptake and methodological development were comparatively slow (Hannes et al, 2013). A decade after Noblit & Hare's book, Paterson and colleagues (1998) applied meta-ethnography techniques to forty-three qualitative interpretive research reports, describing their technique as "ethnographic meta-analysis", but tracing their heritage to Zhao (1991), thereby predating formal systematic review procedures.

During the late 1990s methods for incorporating qualitative research within systematic reviews typically mimicked the systematic review of effectiveness, at least up to the point of synthesis. All other stages of the process were shared across paradigms; a systematic review was understood to include: a focused question; a review protocol, searching of comprehensive sources and explicit search strategy; criterion-focused selection, uniformly applied; rigorous critical appraisal and narrative summary.

In this article I challenge assumptions underlying all these characteristics when synthesising qualitative research. For example, existence of a review protocol may inhibit review authors from using iterative methods of searching and synthesis. Similarly, pre-specifying a tightly-focused question could prevent review authors from identifying and refining the review question progressively, as characterised by grounded theory approaches from primary research (Finfgeld-Connett & Johnson, 2013). I locate this debate within the pragmatic context of ‘decision support’ (i.e. health technology assessments, rapid evidence assessments for government departments and reviews commissioned by the National Institute for Health Research) rather than within qualitative evidence syntheses undertaken as ‘knowledge support’ (Mays et al, 2005).

Qualitative evidence synthesis (QES) is an umbrella term, endorsed by the Cochrane Collaboration Qualitative Methods Group. The term is increasingly used to describe a group of review types that attempt to synthesise and analyse findings from primary qualitative research studies. A recent literature survey found that Cochrane reviews of qualitative evidence have used thematic synthesis (n = 8), framework synthesis (n = 5), narrative summary (n = 1) and narrative synthesis (n = 1) as well as more quantitative approaches including qualitative comparative analysis (n = 1) and content analysis (1 review) (Dalton et al, 2017). Non-Cochrane reviews identified for the same survey showed even greater variation; meta-ethnography, meta-synthesis, and thematic synthesis/thematic analysis were the most common variants and the popularity of these terms appeared to increase from 2011 (Dalton et al, 2017). Other terms used included variants of the three most common methods as well as content analysis, constant comparative approach, framework synthesis, interpretive description, narrative synthesis, among others. Qualitative evidence synthesis can address a

similar range of questions to those addressed by primary qualitative research but offers the added potential to explore contextual variations, as revealed by contributing studies, and to develop synthetic constructs that extend beyond individual study settings.

As a body of approaches, as argued elsewhere (Booth, 2001) and expanded below, QES draws upon features from systematic reviews of effectiveness as well as upon techniques from primary qualitative research. To situate QES within an appropriate methodological context, I first examine the heritage for each of these distinct strands of methodology. Second, I splice together the two heritages, while acknowledging differences in their underlying epistemology. Finally, I highlight the opportunities that this rich and diverse shared heritage offers to review authors.

Cochrane or Cock-eyed: challenging the default

In a 2001 conference paper, *Cochrane or Cockeyed?: How should we conduct systematic reviews of qualitative research?* (Booth, 2001), I provocatively challenged the then-default position that methods for systematic review, championed by the Cochrane Collaboration, could be applied wholesale and uncritically to newly emerging systematic reviews of qualitative research, thereby constraining opportunities to develop more appropriate methods for QES (Booth, 2001).

In challenging this assumption I argued for methodologies of qualitative evidence synthesis that are “more sympathetic to the paradigm within which they are conducted” (Booth, 2001). I further reasoned that it could be helpful to draw upon established techniques from primary qualitative research, for example theoretical saturation, in compiling a more appropriate methodology toolkit. In doing so I sought to resist a tendency

subsequently identified as “mission drift”; that is “in transposing methods best suited to systematic review of quantitative studies into qualitative ones” (Jones, 2004). Among exemplars of such mission drift Jones singled out “check-lists, ‘standards’, matrices, ‘hierarchies of evidence’ and other terminology borrowed from the arsenal of the quantitative camp [which] pepper qualitative ground like so many cluster bombs...” (Jones, 2004).

Tensions between the respective heritages of qualitative research and systematic reviews of effectiveness reviews had surfaced in a methodological review of *Qualitative research methods in health technology assessment* (Murphy et al, 1998). The research team argued that the positivistic, hypothetico-deductive systematic review approach was anathema to the qualitative research paradigm. While the team did not argue against the usefulness of systematic review methods *per se*, they did attempt to specify what was required for their successful use:

The topic being studied must be in a state of... ‘normal science’ where there is a high degree of consensus on the definition of problems and methods, where there are accepted means of defining these operationally which lead to a standard use of keywords and where the results come in forms that can be treated as equivalent or converted into a common currency (Murphy et al, 1998).

In constructing their defence the team occasionally relied on a reductionist ‘caricature’ of systematic review methods:

...all professional judgements are eliminated by objective scoring systems that allow all results to be fed into a single matrix, which can then be analysed by

impersonal means. This approach works well under certain limiting conditions.

(Murphy et al, 1998)

Counterposing the two origins of the heritage antagonistically can imply that either variant is deficient, or simply “wrong”. Murphy and colleagues (1998) range their qualitative “Nottingham model” of analytic induction against the prevalent “York CRD model” of the systematic review of effectiveness. They variously cite the usefulness of candidate procedures from the qualitative heritage such as constant comparison and deviant case analysis in a first attempt to invoke the terminology of primary qualitative research when describing the procedures of qualitative evidence synthesis.

Towards a dual heritage for QES methodology

Rather than highlighting a sterile dichotomy, I propose a ‘dual heritage’ for QES methodology. ‘Dual heritage’ literally refers to having parents from different cultural (and/or ethnic) backgrounds. I use ‘dual heritage’ metaphorically to indicate the rich diversity accessed by QES in drawing upon the cultures, or research traditions, of both qualitative research and systematic reviews of effectiveness. Of course, qualitative research comprises multiple cultures and traditions, some almost as distant from each other as quantitative research is from qualitative research. However, I dip pragmatically into this methodological ‘gene pool’, the entire qualitative ‘genome’. In doing so I acknowledge that the heritage from systematic reviews of effectiveness is no less rich and diverse.

Metaphorical usage of ‘dual heritage’ while uncommon is not without precedent (e.g. Kvan, 2004). Thomas & Harden (2008) acknowledge this dual heritage:

When we started...reviews which included qualitative research in 1999, there was very little published material that described methods for synthesising this type of research. We therefore experimented with a variety of techniques borrowed from standard systematic review methods and methods for analysing primary qualitative research.

In contrast, Major & Savin-Baden (2010), from a social science research tradition, downplay the heritage from systematic reviews of effectiveness, stating that “a qualitative research synthesis, then, uses qualitative methods to synthesize existing qualitative studies to construct *greater* meaning through an interpretive process”.

This dual heritage has inevitably contributed to a confused ‘identity’ for the synthesis product. Some QES methods gravitate towards the systematic review of effectiveness branch of the heritage (e.g. meta-aggregation as practised by the Joanna Briggs Institute) while others, such as meta-ethnography, which originally developed outside such a heritage, now pursue such accoutrements as reporting standards (France et al, 2015). Recently, the tensions implicit in this dual heritage have resurfaced in this journal in accusations of “meta-synthetic madness” (Thorne, 2017). Such criticism implies that, rather than healthily drawing upon the rich complementary strengths of both heritages, the current breed of qualitative meta-synthesis resembles a Frankenstein’s monster uncomfortably stitched together from hastily assembled methodology parts. Thorne (2017) targets the familiar paraphernalia of the systematic review of effectiveness including the comprehensive search, reporting standards and the PRISMA diagram. In fairness, the same article also criticises near-industrial

quantities of meta-syntheses for their lack of fidelity, and thus paying only lip service, to rigorous qualitative synthesis methods.

In tracing a conciliatory path, whereby some appropriate QES techniques derive from the systematic review of effectiveness while others originate from primary qualitative research, I seek to extend this ‘dual heritage’ beyond mere simple ‘borrowing’. Recognising and acknowledging the individual and collective contributions from both heritages points a way forward to improved clarity and further methodological innovation. In helping a reviewer to navigate seemingly contradictory advice the ‘dual heritage’ model should lead them to generate solutions that satisfy the rigour required by review methods, coupled with sensitivity to the qualitative paradigm. Table 1, which was compiled from a separately-published review of methodological guidance documents (Booth et al, 2016), attempts to show how each heritage either influences specific methods within the QES toolkit and/or underpins the collective body of QES approaches. A more complete examination of the characteristics of the individual QES approaches is available in a publicly accessible report and associated journal publication (Booth et al, 2016). Different methodological approaches and solutions for common review issues can be seen to derive from and draw upon these two contrasting heritages to differing degrees. This article then builds upon tensions and creative energies present within this collective ‘dual heritage’ by examining three illustrative review stages of study identification (searching), quality assessment (critical appraisal) and synthesis.

Table 1 – Illustrative Processes from the two Heritages used by specific types of Qualitative Evidence Synthesis

Review Aspect (Commentators)	Illustrative Processes used by different types of Qualitative Evidence Synthesis	
	Systematic Review of Effectiveness Heritage	Primary Qualitative Research Heritage
Context for question (Oliver et al, 2005)	Strips away context, subsequently revisited as generalisability (e.g. meta- aggregation)	Explores context, studies are situated (e.g. meta- ethnography)
Review question (Dixon Woods et al, 2006)	Starts from fixed, predetermined question, using PICO format (e.g. meta-aggregation, thematic synthesis, framework synthesis)	Treats question as negotiable, emerging (e.g. meta-ethnography)
Sampling (Suri, 2011)	Employs comprehensive sampling (e.g. meta- aggregation, thematic synthesis)	Draws upon purposive, theoretical or maximum variability sampling (e.g. framework synthesis)

Search strategy (Noyes et al, 2008; Brunton et al, 2012))	Endeavours to be exhaustive (e.g. meta-aggregation, thematic synthesis)	Continues until theoretical saturation is reached (e.g. meta-ethnography, meta-narrative)
Search process (Pearson et al, 2011; Brunton et al, 2012))	Is prescribed by a protocol (e.g. meta-aggregation)	Is viewed as iterative (e.g. critical interpretive synthesis)
Quality assessment (Manning, 2011)	Involves application of uniform criteria (e.g. meta-aggregation, thematic synthesis, framework synthesis)	Treats quality as contested, both as a whole and in terms of appropriateness for particular types of qualitative research (e.g. meta-ethnography)
Assessment process (Hannes, 2011)	Used to include/exclude (e.g. meta-aggregation)	Used to moderate interpretations (e.g. thematic synthesis)
Synthesis approach (Dixon Woods, et al, 2006; Gough et al, 2012a; 2012b)	May be characterised as aggregative (e.g. meta-aggregation)	May be perceived as interpretative/configurative (e.g. meta-ethnography, critical interpretive synthesis)
Synthesis methods (Barnett-Page & Thomas,	Employs narrative synthesis (“epidemiology” of studies)	Uses framework analysis,

2009); Noyes & Lewin 2011b)	(e.g. meta-aggregation)	thematic analysis (e.g. thematic synthesis, framework synthesis)
Analysis (Gough et al, 2012b)	Maps study elements (e.g. meta-aggregation, thematic synthesis)	Explains or applies existing (or even creates new) constructs (e.g. framework synthesis or meta-ethnography)
Sensitivity analysis (Harden, 2008)	Explores differences in Population, Intervention, methods of outcome measurement and study quality (e.g. meta-aggregation or thematic synthesis)	Explores differences in context, thickness of detail, conceptual richness (e.g. meta-ethnography)
Approach to heterogeneity (Candy et al, 2011; Hannes & Harden, 2012))	Seeks to establish commonality, “averaging effect” (e.g. meta-aggregation or thematic synthesis)	Explores context as an explanation for difference (e.g. meta-ethnography)
Documentation (Flemming et al, 2017)	Utilises PRISMA structure and flow diagram (e.g.	Utilises diagrams, illustrative data extracts, schema,

	meta-aggregation, thematic synthesis)	conceptual models etc (e.g. meta-ethnography)
--	---------------------------------------	---

Study identification (searching)

Most researchers would recognise the comprehensive search for all potential studies that meet review inclusion criteria as a central operational principle for the systematic review of effectiveness. Over a decade ago, commentaries on searching for qualitative research studies would assume that comprehensiveness is equally prerequisite for QES. However, commentators on review methodologies with an interpretive intent began to question whether this was in fact the case (Weed, 2005; Pawson et al, 2005). For example, guidance from the Centre for Reviews and Dissemination (CRD), acknowledges:

no consensus as to whether the searches undertaken to identify qualitative studies need to be as comprehensive...as those undertaken to identify quantitative studies, although they should be as systematic, explicit and reproducible as possible (CRD, 2008).

In 2006 an analysis of 65 QES, published between 1988 and December 2004 found that forty-four of the 65 included reviews (68%) reported sufficient details of their search methods to permit identification of a sampling strategy (Dixon-Woods et al, 2007a). Thirty-seven reviews employed comprehensive sampling strategies from the heritage of the systematic review of effectiveness. In contrast six reviews used purposive sampling and one used opportunistic sampling, both characteristic of the primary qualitative research heritage. Although the majority of reviews favoured comprehensive search strategies such diversity

makes it legitimate to consider diverse sampling search strategies. In a subsequent analysis Hannes & Macaitis (2012) revisit the debate; while agreeing that search strategies must be systematic and explicit they acknowledge that “the need for comprehensive, exhaustive searches in qualitative research is questioned”. The authors observed that theoretical and purposive sampling may be justifiable as long as the ‘picture’ from retrieved studies incorporates “all likely insights” (Hannes & Macaitis, 2012). They conclude by supporting the need to determine “when and how these contrasting sampling philosophies are to be used appropriately” (Hannes & Macaitis, 2012)

Recent years have seen the *appropriateness of sampling*, not comprehensiveness (Table 2), becoming a quality marker for a well-conducted QES (Petticrew & Roberts, 2006). Rather than uncritical blanket adoption of comprehensive sampling review authors should recognise that for “a qualitative evidence synthesis, it is more critical that a search strategy is selected to match the intended purpose of the review” (Booth et al, 2013). Where the intent is interpretative (as with theory-generating synthesis methods such as meta-ethnography) the richness and diversity of the sample is key whereas for aggregative processes (such as meta-aggregation) the construction of a comprehensive sampling frame, analogous to that for a systematic review of effectiveness will be most appropriate (Benoot et al, 2016). Table 2 documents several cases where methodologists and authors of specific reviews have offered alternative sampling procedures as viable options for particular types of QES.

Table 2 – Alternative sampling methods described and used by authors of different QES synthesis methods

Synthesis Method	Sampling Method
Critical Interpretive Synthesis	Purposive Sampling (Dixon-Woods et al, 2006)
Meta-Ethnography	Purposive Sampling (Doyle, 2003)
Meta-Interpretation	Maximal Divergent Sampling (Corbin-Staton, 2009)
Meta-Narrative Synthesis	Purposive Sampling of key articles within different research 'traditions' (Barnett-Page & Thomas (2009)
Qualitative meta-synthesis	Comprehensive (representative) Sampling (Paterson et al, 2001)
Realist Synthesis	Comprehensive Sampling (Brunton et al, 2012); Purposive Sampling (Pawson, 2006b); Snowball Sampling (Pawson et al, 2004)
Scoping Review	Random Sampling (Brunton et al, 2010)

Although specific synthesis methods, such as critical interpretive synthesis and realist synthesis, already utilise purposive sampling methods there remains potential for more widespread exploration – for example, in increasing the likelihood that reviewers retrieve disconfirming cases (Booth et al, 2013). Alternatively, a review team might operationalize maximum variation sampling by accessing disciplines or schools of thought that emphasize diversity and dissonance (Booth et al, 2013). Major & Savin-Baden (2011) explicitly state that the purpose of the review must be aligned to its subsequent sampling strategy. Comprehensive sampling, they suggest, is most appropriate in breaking larger units down into their component parts or variables whereas interpretation of meanings across primary studies requires purposive sampling. Finally, constructing new meaning from existing evidence may well require purposeful sampling until theoretical saturation is reached.

While analogy with primary qualitative procedures such as theoretical saturation may offer a way forward for QES procedures we have to acknowledge that debates on how many interviews are enough and, more importantly, on how this theoretical point of saturation might be determined, continue to proliferate unresolved within the primary qualitative literature. QES do, however, offer a potential empirical testing ground within which such concepts might be explored without further data collection – syntheses conducted with different numbers of additional studies could be compared for their incremental information yield. Recently proposed concepts within primary qualitative research, such as “information power” (Malterud et al, 2016), may hold equal potential in tackling issues currently faced by QES. The added value of a dual heritage may be enhanced by using two complementary routes by which to explore and, ultimately, resolve this shared sampling problem.

Suri (2011) itemises the full range of sampling methods that hold potential for QES and suggests how these might be used. In the only worked example to date Benoot and colleagues (2016) demonstrate how to apply purposeful sampling techniques to a qualitative evidence synthesis in a systematic and transparent way. They conclude that, although purposeful sampling is a time- and resource-consuming activity requiring flexibility from the review team, it offers potential for the creation of a rich conceptual model. They identify an ongoing need for research comparing findings from a purposefully sampled qualitative evidence synthesis with one populated from an exhaustive sample of the literature.

Current interest in rapid review methods has seen renewed interest in issues of sampling. Methodologically, this challenge to comprehensive sampling presents an opportunity to develop methods that are sensitive to the primary qualitative research heritage. Purposive or theoretical sampling may allow the reviewer to select articles for “inclusion on the basis of particular criteria such as rich description or conceptual clarity”. Purposive sampling can be detected in qualitative meta-synthesis (Finfgeld, 2008), critical interpretative synthesis (Dixon Woods et al, 2006) and meta-ethnography (Doyle, 2003).

Thomas & Harden (2008) propose that “the results of a conceptual synthesis will not change if ten rather than five studies contain the same concept, but will depend on the range of concepts found in the studies, their context, and whether they are in agreement or not”. They echo Booth (2001) in suggesting that “‘conceptual saturation’ might be more appropriate when planning a search strategy for qualitative research” while acknowledging that it was not yet clear how such principles could be applied in practice.

By sympathetically acknowledging legitimate alternatives to comprehensive sampling, the dual heritage model opens up the potential to incorporate procedures derived from the heritage of primary qualitative research. In profiling the use of appropriate sampling techniques, sympathetic to the heritage of primary qualitative research, the search process may counteract “loss of analytical rigor, with the foregrounding of replicable search strategies replacing the analytical practices of qualitative synthesis” (Frost et al, 2015).

Quality assessment (critical appraisal)

Quality assessment of qualitative research represents a methodological “splicing point” where the dual heritages of the systematic review of effectiveness and primary qualitative research meet in discomfoting juxtaposition. Epistemological and practical differences surface at every level, from what is meant by “quality” through whether quality assessment is appropriate at all (Dixon-Woods et al, 2004; Garside, 2013; Carroll & Booth, 2015). Debate extends to the role of checklists (Barbour, 2001; Dixon-Woods et al, 2007) and the appropriate response when studies fall short of minimal quality (Carroll et al, 2012).

While debates on quality assessment of qualitative research generate much friction (Carroll & Booth, 2015), they also hint at future rapprochement. Systematic reviews of effectiveness customarily use “sensitivity analysis” to examine the impact of study quality on the confidence that can be placed on review findings. Essentially this procedure examines what study findings look like both with and without the inclusion of poorer quality studies. Similarly, testing the contribution of individual qualitative studies to an overall QES, through ‘qualitative sensitivity analysis’, offers a way to challenge, and thus ultimately reinforce, the

integrity of the synthetic findings from a QES. Thomas and colleagues first report conducting a 'sensitivity analysis' of findings from three of eight included qualitative studies that met half or less of their quality criteria reporting that findings from these lower quality studies did not contradict those from higher quality studies (Thomas et al, 2004). They concluded that the "synthesis would have come to the same conclusions with or without their inclusion". On the basis of this experience they resolved that they would, in future "exclude poorer quality studies from the synthesis". Subsequently, they "excluded only studies which had significant flaws and used 'sensitivity analyses' to assess the possible impact of study quality on the review's findings (Thomas & Harden, 2008). At the same time Noyes & Popay (2007) observed that studies with 'thin' description offer "little, if any, explanatory insights and no opportunity for generalizing". In contrast those employing 'thick' description hold "greater potential for explanation and generalization to other settings and/or social groups". Our own team further contends that, even though excluding poor quality studies may have minimal impact on the overarching synthesis, the review team must ensure that particular disciplines or perspectives are not omitted or neglected by applying an arbitrary quality threshold (Carroll et al, 2012).

Qualitative sensitivity analysis does not yet represent a viable procedure for all types of QES. Over a decade ago Dixon-Woods and colleagues (2006) recognised that "how a sensitivity analysis for an interpretive synthesis could be undertaken is unclear". They make the compelling argument that once a paper has contributed to the development of concepts and theories, it may be difficult "to simply extract it to see what the synthesis would look like without that paper" (Dixon-Woods et al, 2006). Furthermore, they argue that constructing more interpretive synthetic findings (third-order constructs) may make it more challenging

to map findings to individual contributing papers. The challenge of how exactly to operationalise qualitative sensitivity analysis therefore remains an important focus for future research (Dixon-Woods et al, 2006).

In an empirical study within her PhD thesis Garside (2008) extends our understanding by observing that, *for both meta-ethnography and meta-study*, “the most conceptually developed study report contributed most to the review”. This observation suggests that quality assessment and synthesis phases may operate independently. However, it raises further methodological challenges as to how a review team might operationalize “conceptual richness” and “thickness of description” consistently and objectively (Booth et al, 2013b). This illustrates how a technique derived from systematic reviews of effectiveness, namely sensitivity analysis, has served as a catalyst to methodological debates that are fundamental to how primary qualitative research assesses quality.

Data synthesis

Synthesis represents “the stage of a review in which evidence extracted from different sources is juxtaposed to identify patterns and direction in the findings, or integrated to produce an overarching, new explanation or theory which attempts to account for the range of findings” (Mays et al, 2005). This distinction between aggregative (through juxtaposition) and interpretive (also referred to as configurative) (Gough et al, 2012a; 2012b), maps well to the continuum from methods influenced by the systematic review of effectiveness (e.g. meta-aggregation) through to meta-ethnography, an essentially interpretive method which makes no claims to a systematic review heritage. Dixon Woods and colleagues (2007), arguing for an ‘organic, creative and interpretive approach to conducting reviews of complex literature’,

highlight how methods drawn from the primary qualitative research heritage might be used to tackle methodological issues not accommodated by the template of the systematic review of effectiveness. Their End of Project Report identified a specific “need to...establish a set of principles and processes that might inform interpretive syntheses, as distinct from the kinds of aggregative syntheses that systematic review methodology has traditionally produced...”(Dixon-Woods et al, 2007b).

QES data synthesis methods may be broadly characterised as those that (i) use QES methods (such as meta-aggregation) that resemble methods first developed for systematic reviews of effectiveness, (ii) those that reinterpret primary qualitative research techniques such as thematic analysis (in thematic synthesis) and framework analysis (in framework synthesis), and (iii) those that evoke specific procedures from primary qualitative research (such as the reflexivity present within critical interpretive synthesis) or a shared epistemology for the whole review (as in observed similarities between meta-ethnography and formal grounded theory).

Thematic synthesis and framework synthesis, two of the most common methods for qualitative synthesis, both derive from a primary qualitative research heritage (Booth, 2001). Thomas and Harden’s inductive synthesis approach, ‘thematic synthesis’, includes: free line-by-line coding of the findings of primary studies; the organisation of ‘free codes’ into related areas to construct ‘descriptive’ themes; and the development of ‘analytical’ themes. Descriptive themes remained close to the primary studies, analytical themes extended beyond the primary studies to generate new interpretive constructs, explanations or hypotheses (Thomas & Harden, 2008). Similarly, framework synthesis can be traced to framework

analysis, developed by qualitative researchers (Ritchie & Spencer, 1994) for “research that has specific questions, a limited time frame, a predesigned sample (e.g. professional participants) and a priori issues (e.g. organizational and integration issues) that need to be dealt with” (Srivastava & Thomson, 2009). Frameworks can be derived from stakeholders or from the published literature and may represent a conceptual model, a policy framework or a logic model (Baxter et al, 2010; Rohwer et al, 2016; Rehfuss et al, 2017). Thus, a method with origins in primary qualitative research offers a flexible structure for data extraction and analysis within diverse types of systematic review (Booth & Carroll, 2015a). Drawing on accepted methods of qualitative analysis of primary research data not only stimulates methodological innovation but also, paradoxically, helps the review team to be systematic (in the literal sense of using a research “system”) and explicit (Harden et al, 2004).

The influence of the primary qualitative research heritage is also clearly discernible in recent moves among those producing QES to manifest the same procedures relating to reflexivity espoused by the primary qualitative research community. Attempts to acknowledge the researchers' influence throughout the research process, in this way, may not only contribute to emerging expectations within QES but may even provide a stimulus for challenging more widely the primitive procedures for handling conflicts of interest and risk of bias within systematic reviews of effectiveness where brief statements of financial interest are considered sufficient for documenting potential researcher interest.

Discussion

This “mixed heritage model” bears many hallmarks of the pragmatic school of thought, which maintains that “a false dichotomy exists between qualitative and quantitative approaches and that researchers should make the most efficient use of both [approaches] in understanding social phenomena” (Creswell, 1994). We have previously harnessed such pragmatism, reconciling systematic reviews of effectiveness and primary qualitative research, when mixing deductive and inductive approaches within the “best fit framework synthesis method” (Carroll et al, 2011; Carroll et al, 2013).

The three exemplars, searching/sampling, quality assessment and synthesis, taken together offer insights into how the dual heritage of QES continues to evolve. Literature searching for qualitative research studies challenges the notion that a comprehensive search strategy is appropriate. At the same time, it reaffirms that selection of an appropriate sampling strategy must be centre stage when judging whether a particular review is ‘fit for purpose’. Quality assessment reveals the richness of the ‘dual heritage’ as a procedure derived from systematic reviews of effectiveness, namely sensitivity analysis, is “transformed” to explore study quality for an interpretive, ‘configurative’ (Gough et al, 2012a; 2012b) review product. As mentioned above, this dual heritage further contributes to data synthesis through (i) QES methods that resemble methods first developed for systematic reviews of effectiveness, (ii) QES methods that reinterpret primary qualitative techniques within the specific context of synthesis, and (iii) QES methods that evoke specific qualitative procedures (such as reflexivity) or a shared epistemology for the whole review. In actuality the dual heritage model is even more pervasive than this impacting on

whether the review question should be fixed or negotiable (Eakin & Mykhalovskiy, 2003), the iterative nature of searching (Brunton et al, 2012; Finfgeld-Connett & Johnson, 2013), and the presentation of results (Harden et al, 2004) (Table 1).

Systematic reviews of effectiveness primarily impose form through “internal” structures (described by Pawson as “the quart-into-pint-pot task of presenting the mass of data into to an intelligible set of summary matrices and tables” (Pawson, 2006a)). In contrast, QES may be best served by accessing “external” theoretical models or conceptual frameworks as structures for data extraction and analysis (Oliver et al, 2012). Nevertheless, these contrasting approaches witness increasing rapprochement as qualitative synthesis submits itself to software templates while systematic reviews of effectiveness increasingly acknowledge the contribution of theory (Noyes et al, 2016).

Structurally, and implicitly, QES reporting standards acknowledge the contrasting heritages (Flemming et al, 2017). ENTREQ (Tong et al, 2012) mirrors closely the generic PRISMA reporting standard for systematic reviews and meta-analyses while the forthcoming eMERGe guidance for meta-ethnography (France et al, 2015) seeks to be sensitive to uniquely qualitative issues. Study reporting impacts throughout the review process; experience from other reporting standards indicates that progress in reporting may advance methodological understanding.

Similarly, the dual heritage is further seen in the development of systematic approaches for making recommendations. The recent development of the GRADE-CERQual approach (Lewin et al, 2015), is strongly influenced by the GRADE approach for systematic reviews of effectiveness, and yet GRADE-CERQual components, such as

adequacy, coherence and relevance, are uniquely sensitive to longstanding considerations from primary qualitative research.

Towards Reconciliation

The ‘dual heritage’ concept represents a pragmatic response to challenges faced when delivering reviews for decision support. In attempting to reconcile the traditions of the systematic review of effectiveness and of primary qualitative research I have identified four different “models” by which this dual heritage might interact within a specific QES. While caricaturing these models risks oversimplification, it does help to identify how the diverse approaches within the two heritages might combine to make a more robust and useful synthesis:

The alternatives model: the two heritages offer genuine methodological choices. For example, a review team may strip out contextual details from included studies and extract only descriptive variables into tables, analogous to the work that precedes meta-analysis. Alternatively, where contextual variation is essential to interpretation they may choose to situate individual studies and explore context. Similarly, the review question may be fixed and prespecified, as in the Population-Intervention-Comparison-Outcome (PICO) and Setting-Perspective-Interest, phenomenon of-Comparison-Evaluation (SPICE) formulations (Booth, 2016). Equally, it may be valid for the review question to emerge iteratively from the data as with primary grounded theory approaches (Barnett-Page & Thomas, 2008). Within a QES a review team would seek internal coherence so that the alternative chosen is applied consistently through consecutive stages of the same review.

The sequential model: the two heritages may surface at different stages of the review process. For example, a QES may start by comprehensively sampling the literature, as per the systematic review of effectiveness, to construct an overall sampling frame. Subsequently the sampling strategy may employ purposive or theoretical sampling approaches from qualitative research, in order to explore particular interpretations or productive lines of inquiry. Within a QES a review team would seek to demonstrate the appropriateness of the specific strategy chosen to that corresponding stage of the review.

The transformative model: a tool or technique is developed within one heritage, for example sensitivity analysis, and is “translated” or re-interpreted within a new methodological context. The intention is not to replicate the source “method” but to address commonalities by developing an analogous counterpart. Such a transformation seeks to satisfy the rigour and transparency required by systematic reviews of effectiveness in a way that remains sensitive to the heritage of primary qualitative research. Within a QES a review team would seek to acknowledge similarities with the source method while conveying a nuanced understanding of the quintessential differences between the contrasting paradigms.

The synergistic model: the two heritages work together, with each contributing to an end product that is greater than the sum of its parts. For example, the PRISMA standards of reporting (derived for the systematic review of effectiveness) (Liberati et al, 2009) contribute auditability while methods of presenting thematic analysis (from the primary qualitative research heritage) enrich the synthesis product (Pope et al, 2007). Working side

by side the two heritages co-produce a refined product that draws from each tradition. Within a QES a review team would document the strengths and limitations from each heritage before endorsing the relative advantage of a method derived from both heritages.

Clearly the challenge is not to privilege one model as a dominant influence; instead the richness of both heritages is best exploited by making judicious choices, whether for specific stages of the review process or for a review in its entirety. No single model captures the variety with which both heritages can contribute to viable pragmatic QES methods and yet all recognise the strengths of both individual traditions together with the collective contribution that, together, they can make.

Towards a future Research Agenda

Substantive methodological issues remain to be explored:

I. The field needs more empirical work on sampling alternatives to comprehensive searching and their implications for the rigour of the resultant synthesis (e.g. comparing the interpretive value of the resultant synthesis from a purposive sampling approach versus a similar review that includes a comprehensive and exhaustive sample of studies).

II. Researchers need to investigate the utility of supplementary search techniques to complement protocol-driven searches for qualitative syntheses (Cooper et al, 2017a, 2017b) (e.g. studies focused on the value and yield of diverse search techniques in terms of their impact on the findings of the final review).

III. Review teams need to conduct prospective investigations of the differential effect of primary study quality on the robustness of qualitative syntheses. Such investigations can help us to better understand what exactly study quality means (e.g. studies to explore how to explore conceptual richness or “thickness of description” within qualitative research within the specific context of a synthesis).

IV. Further work is required to explore systematic methods and strategies for identifying and assessing theories and models (Booth & Carroll, 2015b; Noyes et al, 2016), particularly as the basis for framework synthesis (e.g. studies on how to evaluate the utility of specific models and theories such that use of theory becomes comparably robust and systematic to other aspects of the review process (Lorenc et al, 2012)).

V. Publishers and journalologists (i.e. academics who empirically explore challenges associated with current journal publication systems) need to evaluate of reporting standards for primary qualitative research (COREQ (Tong et al, 2007)) and for qualitative syntheses (ENTREQ (Tong et al, 2012), eMERGe) (e.g. to repeat methodological surveys (Dixon Woods et al, 2007a, Hannes & Macaitis, 2012; France et al, 2014; Dalton et al, 2017) to monitor the effect of such standards).

While these issues are important for QES in general, two emerging contexts provide a specific backdrop to future research. First, increasing interest in the evaluation of complex interventions requires the development of more flexible, iterative and creative approaches

to the exploration and integration of issues identified from the qualitative evidence base (Shepperd et al, 2009). Second, increasing time and resource pressures are shaping an expanding range of “rapid” review products shaping a need for methods of synthesis that optimise rigour and relevance (Laupacis & Straus, 2007) and that evaluate the consequences of pragmatic methodological choices (Schünemann & Moja, 2015).

Conclusion

Having traced the influence of the dual heritage through the QES process, I advance three propositions, namely that:

(i) Qualitative evidence syntheses have much to gain from drawing upon the traditions and methods of primary qualitative research in tackling and overcoming practical methodological challenges

(ii) Once a ‘dual heritage model’ is legitimized, through further review and empirical methodological research, the way becomes clear to challenge further key assumptions from the systematic review of effectiveness ‘template’, leading to further methodological innovation.

(iii) Migration of methods will not necessarily be uni-directional from systematic review methods to qualitative synthesis. Interest in complex interventions, in the role of context and in theory-informed approaches means that systematic review methods for diverse types of studies have much to gain from qualitative evidence synthesis and, ultimately, from primary qualitative research.

Taken as a whole the accelerated progress of QES provides a refreshing antidote to former paradigm wars, still evident in isolated outbreaks, within primary research. The

initial challenge raised by the *Cochrane or Cockeyed* paper (Booth, 2001) was deliberately provocative, raising more questions than answers. With increasing acknowledgement of complementary insights from patients, carers, service users and clinicians, as captured in qualitative research (Jones, 2004), the discourse is now more constructive. Faced with a dual heritage, of methods for systematic review of effectiveness and primary qualitative research techniques, exponents of QES may select judiciously from competing techniques, adapt from the richness of both traditions or maintain an open dialogue around viable alternatives. We agree that “placing [quantitative/qualitative] approaches in opposition does a great disservice by detracting from the contribution to be made by each, including what each can contribute to the other” (Wolcott, 2001). Instead, rapprochement of the two heritages requires that we recognise the unique contribution of each source. We echo other authors in recognising “that such reviews are, to some extent, methodologically *sui generis* [*i.e. specific only to their own kind*] and cannot be governed *solely* [Italics added] by concepts imported either from SRs of quantitative evidence (e.g. comprehensiveness) or from primary qualitative research (e.g. saturation)” (Lorenz et al, 2012). In so doing we assert that QES will harness a dual heritage rich for exploration for many years to come.

Declaration of Conflicting Interests

The author declares no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

References

Barbour, RS (2001) Checklists for improving rigour in qualitative research: a case of the tail wagging the dog? *BMJ*, 322(7294), 1115-7. doi: 10.1136/bmj.322.7294.1115

- Barnett-Page, E, & Thomas, J (2009) Methods for the synthesis of qualitative research: a critical review. *BMC Medical Research Methodology*, 9:59. doi: 10.1186/1471-2288-9-59.
- Baxter, S, Killoran, A, Kelly, MP, & Goyder E (2010) Synthesizing diverse evidence: The use of primary qualitative data analysis methods and logic models in public health reviews. *Public Health*, 124: 99-106. doi: 10.1016/j.puhe.2010.01.002.
- Benoot C, Hannes K, Bilsen J. The use of purposeful sampling in a qualitative evidence synthesis: A worked example on sexual adjustment to a cancer trajectory. *BMC Medical Research Methodology*. 2016 Feb 18;16(1):21. doi: 10.1186/s12874-016-0114-6.
- Booth, A (2001) Cochrane or cock-eyed? How should we conduct systematic reviews of qualitative research? In: *Proceedings of the Qualitative Evidence-based Practice Conference, Taking a Critical Stance*. Coventry University, May 14 2001. Booth A & Carroll C (2015a) How to build up the actionable knowledge base: the role of 'best fit' framework synthesis for studies of improvement in healthcare. *BMJ Quality & Safety*, 24(11), 700-708.
- Booth A (2016) Searching for qualitative research for inclusion in systematic reviews: a structured methodological review. *Systematic Reviews*, May 4;5:74. doi: 10.1186/s13643-016-0249-x.
- Booth A & Carroll C (2015) Systematic searching for theory to inform systematic reviews: is it feasible? Is it desirable? *Health Information & Libraries Journal*, 32(3), 220-235.

- Booth A, Carroll C, Ilott I, Low LL & Cooper K (2013a) Desperately Seeking Dissonance: Identifying the “Disconfirming Case” in Qualitative Evidence Synthesis. *Qualitative Health Research* 23 (1): 126-141.
- Booth A, Harris J, Croot E, Springett J, Campbell F & Wilkins E (2013b) Towards a methodology for cluster searching to provide conceptual and contextual "richness" for systematic reviews of complex interventions: case study (CLUSTER). *BMC Medical Research Methodology*, 13, 118.
- Booth, A., Noyes J, Flemming K, Gerhardus, A., Wahlster, P., Van Der Wilt, G.J., Mozygemba K, Refolo P, Sacchini D, Tummers M, Rehfuss E. (2016) Guidance on choosing qualitative evidence synthesis methods for use in health technology assessments of complex interventions [Online]. Available from: <http://www.integrate-hta.eu/downloads/>
- Booth A, Noyes J, Flemming K, Gerhardus A, Wahlster P, van der Wilt GJ, Mozygemba K, Refolo P, Sacchini D, Tummers M, Rehfuss E (2018). Structured methodology review identified seven (RETREAT) criteria for selecting qualitative evidence synthesis approaches, *Journal of Clinical Epidemiology* Jul; 99:41-52. doi: 10.1016/j.jclinepi.2018.03.003.
- Brunton G, Stansfield C & Thomas J (2012) Finding relevant studies. In Gough D, Oliver S, Thomas J. *An Introduction to Systematic Reviews*. London: Sage Publications, 107-135.
- Brunton, G, Wiggins, M & Oakley, A (2010) *Becoming a Mother: A research synthesis of women's views on the experience of first-time motherhood*. ESRC End of Award Report, RES-000-22-2250. Swindon: Economic and Social Research Council.

- Candy, B, King, M, Jones, L, Oliver, S (2011) Using qualitative synthesis to explore heterogeneity of complex interventions. *BMC Medical Research Methodology*. 11, 124. doi: 10.1186/1471-2288-11-124.
- Carroll C & Booth A (2015) Quality assessment of qualitative evidence for systematic review and synthesis: Is it meaningful, and if so, how should it be performed? *Research Synthesis Methods*, 6(2), 149-154. doi: 10.1002/jrsm.1128.
- Carroll C, Booth A, & Cooper K (2011) A worked example of "best fit" framework synthesis: a systematic review of views concerning the taking of some potential chemopreventive agents. *BMC Medical Research Methodology*, 11, 29. doi: 10.1186/1471-2288-11-29.
- Carroll C, Booth A, Leaviss J & Rick J (2013) "Best fit" framework synthesis: refining the method. *BMC Medical Research Methodology*, 13, 37. doi: 10.1186/1471-2288-13-37.
- Carroll C, Booth A, Lloyd-Jones M (2012) Should we Exclude Inadequately reported Studies from Qualitative Systematic Reviews? An Evaluation of Sensitivity Analyses in Two Case Study Reviews, *Qualitative Health Research*, 22 (10): 1425-1434. doi: 10.1177/1049732312452937.
- Centre for Reviews and Dissemination (CRD) (2008) *Systematic Reviews: CRD's Guidance for undertaking reviews in health care*. University of York: Centre for Reviews and Dissemination.
- Cooper C, Booth A, Britten N & Garside R (2017a) A comparison of results of empirical studies of supplementary search techniques and recommendations in review

methodology handbooks: a methodological review. *Systematic Reviews*, 6(1), 234.
doi: 10.1186/s13643-017-0625-1.

Cooper C, Lovell R, Husk K, Booth A & Garside R (2017b) Supplementary search methods were more effective and offered better value than bibliographic database searching: a case study from public health and environmental enhancement. *Res Synth Methods*. 9 (2), 195-223. doi: 10.1002/jrsm.1286.

Corbin-Staton, AP. (2009) Contexts of Parental Involvement: An Interpretive Synthesis of Qualitative Literature Using the Meta-Interpretation Method. Dissertation Submitted to Faculty of the Graduate School of Education and Human Development of The George Washington University in partial fulfillment of requirements for degree of Doctor of Education.

Creswell, JW (1994). *Research Design: Qualitative and Quantitative Approaches*. London: Sage.

Dalton J, Booth A, Noyes J & Sowden AJ (2017) Potential value of systematic reviews of qualitative evidence in informing user-centered health and social care: findings from a descriptive overview. *Journal of Clinical Epidemiology*, 88:37-46. doi: 10.1016/j.jclinepi.2017.04.020.

Dixon-Woods, M, Bonas, S, Booth A, Jones, DR, Miller, T, Sutton, AJ, Shaw, RL, Smith, JA, & Young, B (2006) How can systematic reviews incorporate qualitative research? A critical perspective. *Qualitative Research* 6, 27-44. doi: 10.1177/1468794106058867

- Dixon-Woods, M, Booth A & Sutton AJ (2007a). Synthesizing qualitative research: a review of published reports *Qualitative Research*, Aug 7: 375-422. doi: 10.1177/1468794107078517
- Dixon-Woods, M, Booth A, Jones, D, Miller, T, Shaw, R, Smith, J, Sutton, A, Young, B (2007b), How can systematic reviews incorporate qualitative research? ESRC End of Project Report. ESRC. Available from: <http://www.esrc.ac.uk/my.../4816fee1b170-4406-a759-c129eacc2ed7> Accessed on: 18/07/2012.
- Dixon-Woods, M, Cavers, D, Agarwal, S, Annandale, E, Arthur, A, Harvey, J, Hsu, R, Katbanna, S, Olsen, R, Smith, L, Riley, R, & Sutton, AJ (2006) Conducting a critical interpretive synthesis of the literature on access to healthcare by vulnerable groups. *BMC Medical Research Methodology*, 6:35. 10.1186/1471-2288-6-35
- Dixon-Woods, M, Shaw, RL, Agarwal, S, & Smith, JA (2004) The problem of appraising qualitative research. *Qual Saf Health Care*, 13(3), 223-5. doi: 10.1136/qshc.2003.008714
- Dixon-Woods, M, Sutton, A, Shaw, R, Miller, T, Smith, J, Young, B, Bonas, S, Booth A, & Jones, D (2007) Appraising qualitative research for inclusion in systematic reviews: a quantitative and qualitative comparison of three methods. *Journal of Health Services Research & Policy* 12(1), 42-7. doi: 10.1258/135581907779497486
- Doyle LH (2003) Synthesis through meta-ethnography: paradoxes, enhancements, and possibilities. *Qualitative Research* 3 (3): 321-344. doi: 10.1177/1468794103033003
- Eakin, JM. & Mykhalovskiy, E (2003) Reframing the evaluation of qualitative health research: reflections on a review of appraisal guidelines in the health sciences. *Journal of Evaluation in Clinical Practice* 9, 187–194. doi: 10.1046/j.1365-2753.2003.00392.x

- Finfgeld-Connett D & Johnson ED (2013) Literature search strategies for conducting knowledge-building and theory-generating qualitative systematic reviews. *Journal of Advanced Nursing*, 69(1):194-204. doi: 10.1111/j.1365-2648.2012.06037.x.
- Finfgeld-Connett D (2008) Meta-synthesis of caring in nursing. *Journal of Clinical Nursing*, 17, 196-204. doi: 10.1111/j.1365-2702.2006.01824.x
- Flemming K, Booth A, Hannes K, Cargo M & Noyes J (2017) Cochrane Qualitative and Implementation Methods Group Guidance Paper 6: Reporting guidelines for qualitative, implementation and process evaluation evidence syntheses. *J Clin Epidemiol*, 97:79-85. doi: 10.1016/j.jclinepi.2017.10.022.
- France EF, Ring N, Thomas R, Noyes J, Maxwell M, Jepson R. A methodological systematic review of what's wrong with meta-ethnography reporting. *BMC medical research methodology*. 2014 Dec;14:119. doi: 10.1186/1471-2288-14-119.
- France EF, Ring N, Noyes J, Maxwell M, Jepson R, Duncan E, Turley R, Jones D, Uny I. Protocol-developing meta-ethnography reporting guidelines (eMERGe). *BMC medical research methodology*. 2015 Dec;15(1):103. doi: 10.1186/s12874-015-0068-0
- Frost J, Garside R, Cooper C, Britten N (2015). Meta-Study as Diagnostic. *Qualitative Health Research*, 26(3):307–19. doi: 10.1177/1049732315619381
- Garside R (2013). Should we appraise the quality of qualitative research reports for systematic reviews, and if so, how? *Innovation: The European Journal of Social Science Research*, 27(1):67–79. doi: 10.1080/13511610.2013.777270

- Garside, R (2008). A comparison of methods for the systematic review of qualitative research: two examples using meta-ethnography and meta-study [PhD]. Exeter: Peninsula Postgraduate Health Institute, Universities of Exeter and Plymouth.
- Gough, D, Oliver, S & Thomas, J (2012a) *Introducing Systematic Reviews* in Gough, D, Oliver S & Thomas J. *Introduction to Systematic Reviews*. London: Sage.
- Gough D, Thomas J, & Oliver S. (2012b) Clarifying Differences between Review Designs and methods, *Systematic Reviews*, 1, 28. doi: 10.1186/2046-4053-1-28.
- Hannes K, Booth A, Harris J & Noyes J (2013) Celebrating methodological challenges and changes: reflecting on the emergence and importance of the role of qualitative evidence in Cochrane reviews. *Systematic Reviews*, 2, 84. doi: 10.1186/2046-4053-2-84.
- Hannes, K & Harden, A. (2012) Multi-context versus Context-specific qualitative evidence syntheses: combining the best of both. *Research Synthesis Methods*, 2(4), 271-278. doi: 10.1002/jrsm.55
- Hannes, K (2011) Chapter 4: Critical appraisal of qualitative research. In: Noyes J, Booth A, Hannes K, Harden A, Harris J, Lewin S, Lockwood C (editors), *Supplementary Guidance for Inclusion of Qualitative Research in Cochrane Systematic Reviews of Interventions*. Version 1 (updated August 2011). Cochrane Collaboration Qualitative Methods Group. Available from URL: <http://cqrmg.cochrane.org/supplemental-handbook-guidance>
- Hannes, K, & Macaitis, K (2012) A move to more systematic and transparent approaches in qualitative evidence synthesis: update on a review of published papers. *Qualitative Research*, 12 (4), 402-442. doi: 10.1177/1468794111432992

Harden A (2008) Critical appraisal and qualitative research: exploring sensitivity analysis.

In: NCRM Research Methods Festival 2008, 30th June - 3rd July 2008, St Catherine's College, Oxford. (Unpublished)

Harden A, Garcia, J, Oliver, S, Rees, R, Shepherd, J, Brunton, G, & Oakley, A. (2004)

Applying systematic review methods to studies of people's views: an example from public health research. *Journal of Epidemiology & Community Health*, 58(9), 794-800. doi: 10.1136/jech.2003.014829

Jones, K. (2004) Mission drift in qualitative research, or moving toward a systematic

review of qualitative studies, moving back to a more systematic narrative review. *The Qualitative Report*, 9(1), 95–112. Retrieved July 9th, 2018, from [Retrieved from http://nsuworks.nova.edu/tqr/vol9/iss1/6](http://nsuworks.nova.edu/tqr/vol9/iss1/6) .

Kvan, T. (2004) The dual heritage of CAAD research, *International Journal of*

Architectural Computing, 2 (1), 11-17. doi: 10.1260/1478077041220214

Laupacis, A & Straus, S. (2007) Systematic reviews: time to address clinical and policy

relevance as well as methodological rigor. *Annals of Internal Medicine*, 147(4), 273-4. doi: 10.7326/0003-4819-147-4-200708210-00180

Lewin S, Glenton C, Munthe-Kaas H, Carlsen B, Colvin CJ, Gülmezoglu M, Noyes J,

Booth A, Garside R & Rashidian A (2015) Using Qualitative Evidence in Decision Making for Health and Social Interventions: An Approach to Assess Confidence in Findings from Qualitative Evidence Syntheses (GRADE-CERQual). *PLOS Medicine*, 12(10). doi: 10.1371/journal.pmed.1001895.

Liberati, A, Altman, DG, Tetzlaff, J, Mulrow, C, Gøtzsche, PC, Ioannidis, JP, Clarke, M,

Devereaux, PJ, Kleijnen, J, & Moher D (2009) The PRISMA statement for reporting

- systematic reviews and meta-analyses of studies that evaluate healthcare interventions: explanation and elaboration. *BMJ*, 339, b2700. doi: 10.1136/bmj.b2700.
- Lorenc, T, Pearson, M, Jamal, F, Cooper, C. & Garside, R. (2012) The role of systematic reviews of qualitative evidence in evaluating interventions: a case study. *Research Synthesis Methods* 3, 1–10. doi: 10.1002/jrsm.1036.
- Major, C & Savin-Baden, M (2010) *An Introduction to Qualitative Research Synthesis: Managing the Information Explosion in Social Science Research*. New York, NY: Routledge.
- Major, C. & Savin-Baden, M. (2011) Integration of qualitative evidence: Towards construction of academic knowledge, *Qualitative Research*, 11(6), 1-19. doi: 10.1177/1468794111413367
- Malterud, K., Siersma, V.D. and Guassora, A.D. (2016) Sample size in qualitative interview studies: guided by information power. *Qualitative Health Research*, 26(13), 1753-1760. doi: 10.1177/1049732315617444
- Manning, N (2011) Chapter 8 – Conclusion. In Hannes K and Lockwood C (eds) *Synthesizing Qualitative Research: Choosing the right approach*. London: Wiley Blackwell, 161-172.
- Mays N, Pope C & Popay J (2005) Systematically reviewing qualitative and quantitative evidence to inform management and policy-making in the health field. *Journal of Health Services Research and Policy*, 10(Suppl 1), 6–20. doi: 10.1258/1355819054308576

- Murphy, E, Dingwall, R, Greatbatch, D, Parker, S, & Watson, P. (1998) Qualitative research methods in health technology assessment: a review of the literature. *Health Technology Assessment*, 2(16). doi: 10.3310/hta2160
- Noblit, GW, & Hare, RD. (1988) *Meta-ethnography: Synthesizing Qualitative Studies*. Newbury Park, CA: Sage Publications.
- Noyes J, Hendry M, Booth A, Chandler J, Lewin S, Glenton C & Garside R (2016) Current use was established and Cochrane guidance on selection of social theories for systematic reviews of complex interventions was developed. *Journal of Clinical Epidemiology*, 75, 78-92. doi: 10.1016/j.jclinepi.2015.12.009.
- Noyes, J & Lewin, S (2011b) Chapter 6: Supplemental Guidance on Selecting a Method of Qualitative Evidence Synthesis, and Integrating Qualitative Evidence with Cochrane Intervention Reviews. In: Noyes J, Booth A, Hannes K, Harden A, Harris J, Lewin S, Lockwood C (editors), *Supplementary Guidance for Inclusion of Qualitative Research in Cochrane Systematic Reviews of Interventions*. Version 1 (updated August 2011). Cochrane Collaboration Qualitative Methods Group. Available from URL <http://cqrmg.cochrane.org/supplemental-handbook-guidance>
- Noyes, J & Popay J. (2007) Directly observed therapy and tuberculosis: how can a systematic review of qualitative research contribute to improving services? a qualitative metasynthesis. *Journal of Advanced Nursing*, 57: 227-43. doi: 10.1111/j.1365-2648.2006.04092.x
- Noyes, J, Popay, J, Pearson, A, Hannes, K & Booth A on behalf of the Cochrane Qualitative Research Methods group (2008) *Qualitative research and Cochrane*

reviews. In: Higgins, JPT and Green, S (eds) *Cochrane Handbook for Systematic Reviews of Interventions*. Chichester: Wiley.

Oliver S, Harden A, Rees R, Shepherd J, Brunton G, Garcia J, & Oakley A. (2005) An Emerging Framework for Including Different Types of Evidence in Systematic Reviews for Public Policy. *Evaluation*, 11:428-446. doi: 10.1177/1356389005059383

Oliver, S, Dickson, K, & Newman, M (2012). Getting started with a review. In Gough, D, Oliver, S, & Thomas, J. *An Introduction to Systematic Reviews*. London: Sage Publications.

Paterson, BL, Thorne, S, Canam, C, & Jillings, C. (2001) *Meta-study of qualitative health research: a practical guide to meta-analysis and metasynthesis*. London: Sage Publications.

Paterson, BL, Thorne, S, Dewis, M (1998) Adapting to and managing diabetes. *Image Journal of Nursing Scholarship*, 30(1), 57-62. doi: 10.1111/j.1547-5069.1998.tb01237.x

Pawson, R, Greenhalgh, T, Harvey, G, & Walshe, K (2004) *Realist synthesis: an introduction*. Manchester, UK: ESRC Research Methods Programme.

Pawson, R, Greenhalgh, T, Harvey, G, & Walshe, K (2005) Realist review—a new method of systematic review designed for complex policy interventions. *Journal of Health Services Research & Policy*, 10 (Suppl 1), 21–34.

Pawson, R. (2006a) *Evidence-based policy: a realist perspective*. London: Sage Publications.

- Pawson, R. (2006b) Chapter 4 - Realist Synthesis: New Protocols for Systematic Review. In: Pawson R Evidence-based policy: a realist perspective. London: Sage Publications, 73-104.
- Pearson M, Moxham T, & Ashton K (2011) Effectiveness of search strategies for qualitative research about barriers and facilitators of program delivery. *Evaluation & the Health Professions*, 34(3), 297-308. doi: 10.1177/0163278710388029.
- Petticrew, M, & Roberts, H. (2006) *Systematic Reviews in the Social Sciences: A Practical Guide*. Oxford: Blackwell: p. 130.
- Petticrew, M. (2001). Systematic reviews from astronomy to zoology: myths and misconceptions. *BMJ: British Medical Journal*, 322(7278), 98.
- Popay J, Rogers A, & Williams G (1998) Rationale and standards for the systematic review of qualitative literature in health services research. *Qualitative Health Research*, 8, 314–351. doi: 10.1177/104973239800800305
- Pope C, Mays N, & Popay J (2007) Interpretive approaches to evidence synthesis. In Pope, C., Mays, N. & Popay, J, *Synthesising Qualitative and Quantitative Health Evidence: A Guide to Methods*. Maidenhead: McGraw Hill, 72-94.
- Rehfuess EA, Booth A, Brereton L, Burns J, Gerhardus A, Mozygemba K, Oortwijn W, Pfadenhauer LM, Tummers M, van der Wilt G-J & Rohwer A (2017) Towards a taxonomy of logic models in systematic reviews and health technology assessments: a priori, staged and iterative approaches. *Research Synthesis Methods*. 9(1):13-24. doi: 10.1002/jrsm.1254.
- Ritchie, J. & Spencer, L (1994) Qualitative data analysis for applied policy research in A. Bryman and R. G. Burgess [eds.] *Analyzing qualitative data*, [Publisher]: 173-194.

- Rohwer A, Pfadenhauer L, Burns J, Brereton L, Gerhardus A, Booth A, Oortwijn W & Rehfuss E (2016) Logic models help make sense of complexity in systematic reviews and health technology assessments. *Journal of Clinical Epidemiology*, 83:37-47. doi: 10.1016/j.jclinepi.2016.06.012.
- Schünemann, H. J., & Moja, L. (2015). Reviews: Rapid! Rapid! Rapid! ...and systematic. *Systematic Reviews*, 4(1), 4. doi: 10.1186/2046-4053-4-4
- Shepperd, S, Lewin, S, Straus, S, Clarke, M, Eccles, MP, Fitzpatrick, R, Wong, G, Sheikh, A (2009) Can We Systematically Review Studies That Evaluate Complex Interventions? *PLoS Med*, 6(8):e1000086. doi: 10.1371/journal.pmed.1000086.
- Srivastava, A. & Thomson, SB. (2009) Framework Analysis: a Qualitative Methodology for Applied Policy Research. *Journal of Administration and Governance* 72 (2009). Available at SSRN: <https://ssrn.com/abstract=2760705>
- Suri, H (2011) Purposeful Sampling in Qualitative Research Synthesis, *Qualitative Research Journal*, 11(2), 63–75. doi: 10.3316/QRJ1102063
- Thomas, J, & Harden, A. (2008) Methods for the thematic synthesis of qualitative research in systematic reviews. *BMC Medical Research Methodology*, 8(1), 45. doi: 10.1186/1471-2288-8-45
- Thomas, J, Harden, A, Oakley, A, Oliver, S, Sutcliffe, K, Rees, R, Brunton, G, & Kavanagh, J. (2004) Integrating qualitative research with trials in systematic reviews. *BMJ*, 328, 1010-1012. doi: 10.1136/bmj.328.7446.1010
- Thorne S. Metasynthetic madness: What kind of monster have we created? *Qualitative health research*. 2017 Jan;27(1):3-12. doi: 10.1177/1049732316679370

- Tong A, Flemming K, McInnes E, Oliver S, & Craig J (2012) Enhancing transparency in reporting the synthesis of qualitative research: ENTREQ. *BMC Medical Research Methodology* 12:181. doi: 10.1186/1471-2288-12-181.
- Tong A, Sainsbury P, & Craig J (2007). Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *Int J Qual Health Care*, 19(6):349-57. doi: 10.1093/intqhc/mzm042
- Tranfield, D, Denyer, D, & Smart, P (2003) Towards a methodology for developing evidence-informed management knowledge by means of systematic review. *Brit J Management*, 14(3), 207–22. doi: 10.1111/1467-8551.00375
- Weed, M (2005) “Meta interpretation”: a method for the interpretive synthesis of qualitative research. *Forum: Qualitative Social Research*, 6(1), art.37. Available from: <http://www.qualitative-research.net/fqs-texte/1-05/05-1-37-e.htm>.
- Wolcott, HF (2001) *Writing up Qualitative Research*. Thousand Oaks: Sage Publications.
- Zhao, S. (1991) Metatheory, metamethod, meta-data-analysis: What, why, and how? *Sociological Perspectives*, 34, 377-390. doi: 10.2307/1389517

Author Biography