Reviewer's report

Title: Towards a methodology for cluster searching to provide conceptual and contextual "richness" for complex interventions: case study (CLUSTER)

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Reviewer: James Thomas

Reviewer's report:

This is an interesting paper, which documents procedures for identifying ‘clusters’ of papers and should be useful to many undertaking systematic reviews. I am not sure that it is sufficiently clear about where it is located within systematic review methodology or what its particular contributions are; and my comments are mainly aimed at clarifying these issues. I think the paper describes some unique and original innovations, which move the field on, so hope these comments help to bring these to the fore.

Major Compulsory Revisions (which the author must respond to before a decision on publication can be reached)

1. My main point, from which some of the more specific comments below flow, is that I think the paper needs to be clearer about: a) the specific methodological contribution that it is making (over and above what we already know about how to search); and b) which types of reviews should be using the CLUSTER approach – which in turn relates to where the paper is positioned in the systematic review methodology literature.

2. With regards to a) most of the techniques (e.g. in “berrypicking” (pages 9 and 10)) described are standard practice in many systematic reviews. Some of the new procedures in CLUSTER are not, and I wonder whether in giving more or less equal weight to the components of CLUSTER, the authors are understating the key methodological contributions that their new processes are making. For example, pages 5-6 outline a number of scenarios where ‘cluster searching’ may be useful – including the “kinship” example on page 6. I think that this situation is in an area of active methodological development, and the reader does need to know more. I don’t think reference 20 is sufficient here (though maybe the team has another methodological paper in preparation that covers this?), and we need to know more about the methodology that this use of cluster searching might support. This is one area of key methodological innovation to which the paper makes a contribution, so it deserves a more detailed description and rationale. In addition, the section on page 17 which outlines the ‘diffusion of innovations’ search is one of the key contributions of this paper, but it’s a bit hidden. I’d set this up well in advance with a discussion on searching for theory, the challenges it poses and the current state of the methodological literature (almost non-existent?!). This is a real innovation – so deserves more prominence – and I’ve not seen the ‘database’ of studies used in this way before either, so maybe
the utility of developing such databases could be discussed a bit more?

3. With regards to b) I got a bit confused on pages 9 and 10 regarding the types of reviews which the paper is addressing. The opening section described a range of review approaches, but this section seems to be focused on justifying berrypicking in the context of qualitative reviews; and the discussion says that "such data can prove valuable when integrating quantitative and qualitative evidence and, specifically, in supporting realist synthesis." I'm not sure whether you are saying that the technique is valid only in these reviews which pose 'particular challenges to a conventional systematic review paradigm', or more broadly than this. (Maybe it would be helpful to dispense with the idea that there is a conventional systematic review paradigm, or at least say that most of the approaches outlined at the beginning also lie outside it?)

4. I think the introduction in general might be rearranged a bit to focus on the key messages of the paper. For example, the opening sentence is fine – but it’s not really an introduction to this paper, which isn’t about acceptability or cost effectiveness. I don’t disagree with any of the statements or sentiments in the opening section, I just don’t think they introduce the paper as helpfully as possible; e.g. the quotation from Dixon-Woods and colleagues problematizes review questions, reproducibility and transparency, which are all tangentially related, but aren’t the main focus of the methodological points you’re making. At the moment, the introduction is a justification for doing the types of reviews that you’re doing – and including the types of study that you’re including etc. – all of which is fine. But the paper isn’t about synthesis: it’s about searching; so the introduction should deal more explicitly with the particular challenges that it’s addressing. (Maybe you don’t need the longer justification as to why these types of reviews are needed, as that’s been done elsewhere?) Also, the issue of sampling comes up later on (see also point 10): this is something that will be quite new to many readers, and so if we’re to make sense of it later, I think we need the arguments laid out earlier on.

5. Bearing in mind that this is not a systematic review methods journal, should the title identify the fact that this is about systematic reviewing / evidence synthesis? I think the opening sentence of the abstract might need tweaking in this regard, as it’s not clear to begin with that the paper is about searching in the context of a review.

6. I understand the need to make some space for the argument, and that this sometimes entails making distinctions between types of reviews, but I did wonder whether the limitations of conventional reviews were overstated from time to time. Many of the search techniques described are certainly not confined to qualitative metasynthesis, and are found in many ‘quantitative’ systematic reviews. I think if there were fewer artificial distinctions being made of this sort, then we could focus more on what is genuinely new in the paper.

7. Relating to the above, I think the ‘protocol – based searches’ which are mentioned throughout are a bit of a straw man. They come in (quite correctly) for criticisms in terms of their limitations, which are fine, but I don’t know anyone who
actually approaches searches like this. Any decent systematic review will conduct protocol-based systematic searches, but as part of this process will include the kinds of citation ‘chasing’, website searching and author contact that the authors of the paper describe – which of course may well be stated in the protocol. I think it’s easy to make the point that systematic reviewers can do better than a poor search, but many do; to some extent the reiteration of the weaknesses of a fairly soft target is deflecting from the contributions this paper is making, over and above standard practice.

8. Regarding protocols, I think some balance is needed regarding the fact that ‘protocols’ are usually referred to in negative terms, but they actually do have some uses (!). They are associated with procedural objectivity, which is sometimes inappropriate in the types of review the authors describe, but they have utility beyond this. They are useful tools to help review teams to plan ahead at the outset and enable them to gain a common understanding about the project they are about to embark upon. When published, or otherwise circulated, they are a valuable means of getting feedback and input into the review from a wider audience. I see many reviews presented where people have got into a real mess, with a review timetable and scope spinning out of control; the act of writing a protocol can protect against this, as it forces the reviewer to think carefully before jumping into searching. (Some of these reviews that got into difficulties aimed to be ‘realist’, and so I do think that the general negative depiction of protocols in papers to support realist synthesis may be particularly unhelpful.)

9. On page 8 there are a lot of questions and issues raised in terms of what we don’t know. The reader (at least this one!) then holds these in their minds and looks to see how they are going to be answered in the paper – but mostly they are not; i.e. the paper isn’t an empirical investigation to answer the questions raised here. I don’t know how they might be re-framed, but maybe some rewording is needed in order to focus readers’ expectations in the right place?

10. p. 10 “under such circumstances berrypicking utilises the purposive sampling approach that characterises primary qualitative research.” I think this is an area that the paper might make a distinctive contribution, but it’s getting a bit lost in the middle of this paragraph. Rather than the depiction of berrypicking techniques as being something different to ‘quantitative’ reviews (which I’m not convinced they are), the mention of a ‘purposive’ sampling approach is clearly quite different to many reviews, and deserves more elaboration. This, it seems to me, is the key point of difference, not the claim that quantitative reviews don’t conduct citation checks or author contact etc. (or the implication that you can’t state in a protocol that you’re going to be doing this). In terms of cluster searching, what does the concept of purposive sampling mean? In order to address this, we need to introduce different approaches to sampling earlier in the paper. Also, the sampling strategy is something that lies ‘above’ the cluster search, as it will determine the selection of which clusters should be identified (e.g. concepts such as maximum variation; MSDO / MDSO might be relevant here).

11. I didn’t quite follow the distinction being made between searcher and subject
expert (page 10). Maybe it would be worth outlining the working practice which
this refers to, as I think most searches are either carried out by information
specialists and reviewers working closely together, or by the reviewers
themselves.

12. In the same paragraph I was a little thrown by the turn away from
berrypicking, as I had thought that this was being advanced as a way of finding
clusters?

13. “The key is to keep track of and account for these shifts…” Also important is
whether or not the searcher is consistent in the way they follow leads and
changes in direction – and how this is ensured? (Else the search process
becomes capricious and lacking in credibility.)

13. The CIMO acronym should be spelled out. (page 12)

Minor Essential Revisions (such as missing labels on figures, or the wrong use of
a term, which the author can be trusted to correct)

p.20 typo “searching may be it may”

p.22 typo “typical project may compares unfavourably”

**Level of interest:** An article of importance in its field

**Quality of written English:** Acceptable

**Statistical review:** No, the manuscript does not need to be seen by a
statistician.

**Declaration of competing interests:**

I declare that I have no competing interests