Reviewer’s report

Title: Making sense of implementation theories, models and frameworks

Version: 1 Date: 29 November 2014

Reviewer: Jo Rycroft-Malone

Reviewer’s report:

Thank you for the opportunity to review this manuscript. I enjoyed the content and think that there is real potential in the contribution the manuscript could make and it will be of interest to those engaged in both implementation practice and research.

Major compulsory revisions.

The following are offered as ways that I think the contribution of the manuscript could be strengthened:

Some of the comments that are made about theory and frameworks reflect the way that the nomenclature has been used in implementation science - but not how these issues are discussed in the literature about theory itself. It would strength the paper to refer back to some of the literature about theory and theory development - not just in relation to implementation science.

A comment is made about the qualities of a theory - my understanding is that a robust theory should be able to explain causal relationships - and this might relate to people calling what they offer theories and models without a level of confidence or testing re causal relationships. For example, there is some sloppiness in the literature about the way people describe frameworks as models - when in fact they are frameworks because the causal relationships between the different elements within them have not been established - and therefore to call it a model is a step too far. I think the inclusion of some general literature about theory and theory development will help clarify some of these points.

I think it would be worth being much clearer up front about the fact there is often a distinction re implementation practice and implementation research. This point is particularly relevant to the category 'action theories'

more detail on how got to the categories

There needs to be further clarity about how this overview of frameworks/models/theories was undertaken. Was a particular approach used to undertake the review and the categorisation? This will be important for the readers to understand the decision making underpinning what models have been chosen, why and to provide a clearer rationale for the statements made within the text.

I was interested in some of the statements made about the context to some of
the different frameworks/models - e.g. the action models come from a 'nursing RU/' perspective - it would be worth unpacking this a bit more - e.g. you state further on - 'Thus, they are founded on common sense rather than solid empirical research that demonstrates that adherence to the prescribed steps and/or the proper sequence actually improves implementation outcomes' The Knowledge to Action framework and the Quality Implementation Framework were both developed from a review of theory, so this sentence might be misleading in the context of how some of these frameworks came about. Providing more details consistently throughout about the context of these frameworks will provide clarity. This relates to the following point...

You make the point in the summary - each framework and model comes with its assumptions, which is absolutely right - even if authors don't always make these explicit. I do think where it is possible, making the epistemological and ontological assumptions of the frameworks and models included in the text more explicit would help the reader contextualise the statements you make about them, and also from a practical point of view will help those who might use the frameworks/models/theories make an assessment of their relevance to their particular implementation challenge.

To add further depth and clarity it would be worth providing more detail about how some of the models and frameworks were developed - there is some detail given about some, but not about others. I am bound to pick on the obvious example of relevance to me(!) - but the statement about how the PARIHS framework was developed and over time refined has been through a process of both inductive AND empirical work. I make this point because it highlights the need for a level of detail and potential accuracy that is missing in places within the manuscript.

Additionally, the contribution of the paper would be strengthened if a summary is given about how (some of) the different frameworks have been used and/or tested. There are some reviews completed about some now that could provide the basis for this. This would also provide the opportunity to add a level of critique/analysis that hasn’t been fully realised in the manuscript.

You hint at it at the end of the manuscript - that there are different types of theory - those that are explicit, such as the ones that you have outlined in the text - and those that are developed more inductively and are more implicit by using particular approaches to implementation practice and research. Re my point earlier about referring to more general literature about theory development, I think it would be important to flag up much earlier on in the manuscript that theory can be conceived in these different ways. There has been more attention on explicit theory use in the literature, but with the increasing use of different research approaches, such as realist evaluation, there will be more implicit theories emerging from practice based knowledge.

**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 am none of the authors of the PARIHS framework.