Reviewer’s report

Title: Fostering implementation of health services research findings into practice: A consolidated framework for advancing implementation science

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Reviewer: Peter Mendel

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Reviewer’s Report of Damschroder et al.:

“Fostering implementation of health services research findings into practice: A consolidated framework for advancing implementation science”

Overview:

This paper consolidates a wide and complex set of literatures for which the field of implementation research desperately requires synthesis. However, the paper in its current state is severely lacking in presentation, organization, and in development of certain dimensions of the framework it introduces.

In particular, the body of the paper focuses too much on how the authors picked and chose through various concepts in the literature for the CFIR framework, as opposed to defining and explaining the importance and application of the constructs (leaving this to a long and fairly unwieldy appendix). In this sense, the organization of the paper appears backwards. In addition, the many previous published frameworks cited in the paper have raised the bar of what the field needs—not merely another synthesis of implementation concepts but one which demonstrates how this particular arrangement of constructs has been usefully applied to empirical research and, ideally, improves on what is already available.

I encourage the authors to make the effort to revise the paper into a publishable article.

Major compulsory revisions:

1. (main paragraph on p.4): Justification at the end of this paragraph for the CFIR framework seems weak. Contrary to the claim in this last sentence, a number of papers attempt this synthesis—many that the article specifically reviews, as well as others that have been published, such as Fixsen et al. 2005, Glisson and Schoenwald 2005, and Mendel et al. 2008. As mentioned above, you need to justify the CFIR on what it adds or how it improves upon these other frameworks. In addition, the whole discussion in this paragraph on the nature of frameworks is a bit long-winded—I’d suggest simplifying and distilling the ideas.

2. Also as mentioned above, the body of the paper focuses too much on how the authors constructed the CFIR from various other published frameworks and literature. The first problem this poses is that the paper assumes a great deal of
familiarity on the part of readers with the models being discussed. For example, most readers will not know enough about the PARHiS and Greenhalgh et al. papers to understand (or even care) why certain portions of these articles were adapted or not (e.g., last paragraph on p.7, not enough detail given about these frameworks to understand the differences being talked about; also end of second paragraph p.11, many readers will not be familiar enough with the Greenhalgh et al. paper to understand this point).

The second problem is that most of the definitions and explanations of concepts, their importance and implications for implementation, and how they relate to each other, are relegated to the appendices. Appendix 1 in particular, although containing much useful information (I’d say the “meat” of what’s in the paper), is long and unwieldy. Not only is it intimidating in length, the “coding notes” do not seem very helpful without additional context, and I’m also concerned about the mixing of “theoretical” and “empirical” support (“theoretical” support seems more appropriate to include with the definitions and descriptions of the concepts, while “empirical” support should focus on evidence from studies). Similarly, the definitions in Appendix 2 (see references on p.11 and footnote ii) should be incorporated into the body of the paper in order to remind the general reader and help bring consensus on common terms in implementation research.

The third problem with the current organization of the paper is that what little definition of concepts are given in the body of the text are still rather detached from application. Thus, it would greatly help to expand and/or integrate the example applications given in the short section on pp.19-20 to more concretely demonstrate how the CFIR can be applied for different purposes.

In general, I suggest reorganizing the paper to present the “meat” of the CFIR framework up front (moving up and succinctly presenting the Appendix 1 & 2 definitions and descriptions), spend minimal time explaining the sourcing of concepts (relegating that discussion and material such as Table 1 to appendices or footnotes), then expanding the discussion of the MOVE! illustration to include more detail on how the CFIR guided that study and what it yielded (particularly compared to what the other off-the-shelf frameworks would have), and paying some additional attention to the application of the CFIR to the other three studies and phases of evaluation in Table 4.

3. (p.7, last third of page): The mention of “positivist” and “realist” labels are too cryptic; either needs additional explanation, or should be removed if the distinction is not central to understanding of the CFIR framework (or at least put in a footnote).

4. (p.8) Figure 1 is problematic for several reasons. First, while it is useful to attempt to depict the non-linear nature of implementation processes, this is not the same as randomness or “fuzziness”. In particular, the process arrows that do not connect any specific constructs, and the oddly shaped contours, make the figure difficult to follow and interpret.

I also note that the dependent variables discussed on pp.9-10 are nowhere included in the figure. It would be useful to give more specificity to the steps of the implementation process in the text and the figure, describing how some steps in
implementation process (e.g., tailoring of an intervention, initial adoption) serve as dependent variables for various process outcomes (such as avoidance, compliant use, committed use) that affect patient care and health outcomes, which I think are more important outcomes of the implementation process than the effects on the intervention (or innovation) itself, as currently depicted in Figure 1. Although the latter are also important, this could be depicted simply with a loop back to the innovation (see, e.g., Mendel et al.’s Figure 2).

A last minor comment on Figure 1: just looks odd to me to have External Context on the bottom of the figure, rather than on top.

5. (p.8, top): What does “full assimilation” of an intervention mean?

6. (p.8, Table 1): Besides considering moving Table 1 to the appendix as suggested above, I would suggest eliminating the “I/D” designations in the “Strength & Direction of Evidence” column, since the paper does not discuss the implications of whether a construct is used as an independent or dependent variable. Also, what does the “N/A” for Execute (under IV. Process) mean (not applicable, or not available)?

7. (p.9, Table 2): In line with comments above, I suggest making this the main table, since it provides descriptions of each of the main categories and sub-categories in the CFIR. You might even expand it a bit to address some of the dimensions that you’ve stuffed into sub-categories—mainly to illustrate the range of constructs included in these buckets and why its logical to group them together.

I also suggest dropping the column on “Applicable Change Theory(s)” from the table, since a) the column is too sparsely populated, b) would require more explanation of these theories and how they relate to the constructs in their respective rows, c) raises additional complications, since some theories will serve to show relationships between constructs (rows in the table) as opposed to solely being tied to one or another. Here again, one or two concrete examples of how a theory would be applied within the CFIR to explain the direction of effects or relationships among constructs would be more helpful than cryptic references of several theories in the table.

8. (p.9, second paragraph starting with “Our goal...”): this paragraph is not very convincing and feels tagged on. It’s probably not needed here anyway, since it’s just a restatement of earlier justifications without any additional insight (such as giving more detail on how the CFIR meets these overall goals).

9. (p.10) “success or failure” too black-and-white, too dichotomous for the outcomes interested in, wouldn’t you agree? (see also mention of “success” on p.15, last paragraph) Seems more appropriate to talk in terms of degree of implementation (e.g., see concept of implementation intensity, both depth and breadth, in Pearson et al. 2005).

10. (p.10): the sentence starting “The definition of “committed use” will depend...” is too cryptic. A short example would be helpful here.
11. (p.10): the sentence beginning “Conceptually, use of the intervention or practice should conform to pre-specified goals or protocols...”: here I would say “ideally”, since often such pre-specified goals or protocols are vague at best, and it’s often up to the evaluators to divine what these are; indeed the level of specificity of such goals or protocols is a highly variable attribute that differs across interventions.

In the next few sentences on “fidelity”, I suggest more forcefully stating how one person’s “fidelity” is often another’s “innovation” or “tailoring” of the intervention, which raises interesting questions of who’s doing the tailoring (developers of the intervention vs those implementing it), and whether such modifications to the original intervention design are “successful”, “adaptive”, or even necessary to implement an intervention within a particular context, as well as whether they affect the essence of the scientifically validated components of an intervention (if it has any). I believe Fixsen et al. have a discussion of these issues that could be cited.

12. (pp.11-12): “design quality and packaging”: I’d be more interested in what these terms refer to, than in where you got the concepts (which again can be given in footnotes, appendices, etc).

13. (p.12): “We combined political directives into intentional spread strategies...”: I don’t agree with conflating these two concepts. If anything, “political directives” is the more inclusive construct.

Similarly, later on p.12, I strongly disagree with conflating formal structure and informal networks, especially since the overall label of this category (“network and communications”) emphasizes the latter. It is important to create categories that logically group constructs, but at the same time allows for explaining key distinctions without conflating concepts. See also the discussion of “readiness for change” (p.14, second paragraph), which appears to conflate a number of important constructs.

14. (p.15): The paper needs much better justification and explanation of why “organizational citizenship” is included, especially since it’s sourcing was different than the rest of the concepts in the CFIR (i.e., it didn’t come from other models in the lit review or personal experiences). First of all, what is “organizational citizenship” (only a few readers will be familiar with the term), and how does it effect implementation to a degree that it warrants placement in the framework ex machina? A better approach might be to subsume “organizational citizenship” within another dimension already included in the CFIR (say, Culture) and invite researchers to explore it within that domain. Please also provide a citation for organizational citizenship (even a general one, such as Smith et al. 1983 or Manville & Ober 2003).

15. (p.15): I was very encouraged by the inclusion of “Process” into the framework. Implementation process is an area that needs much more attention in implementation research, especially within healthcare. But the topic could use much more development in the body of the paper itself. Again, I suggest pulling
much more of the underlying concepts out from the appendices into the body of the paper. A thoughtful discussion of implementation process and the methodological issues involved in attempting to better study it (such as the necessity of longitudinal qualitative and quantitative techniques) would be much more useful than statements like “by its very nature, defies definition—it is like water running through your hands”. I also fundamentally disagree with that statement: social processes can be rigorously studied, both quantitatively and qualitatively; it’s just that health services research in particular hasn’t done it very well.

16. (p.16, top paragraph): Add a citation for “the importance of engaging key stakeholders strategically in the process”.

You can also cite Van de Ven et al. 1999 (which is already included in the paper as citation #22) here for the incremental, spiral nature of implementation (similar to their observation of the “non-linear” nature of the innovation process).

17. (p.16, middle paragraph): Again, define “formative evaluation” in the text, rather than merely referring to a definition in a table.

18. (pp.18-19): This discussion is not very helpful for what are truly difficult methodological issues in implementation research. Examples from actual research might help to make these issues and possible solutions more concrete and explicit.

19. (p.20): The paper needs a stronger, more compelling conclusion. Perhaps this will be more clear after addressing some of the comments above, especially those related to better describing the unique contributions of the CFIR framework.

Minor essential revisions:

20. (p.4): comma or semi-colon needed before “but too little detail”

21. (p.6): in second quotation, “seek” should be “seeks”

22. (p7): need a paragraph break somewhere on this page.

23. (p.10): “we want to see” seems like awkward phrasing

24. (p.12, middle of page): “affect” should be “effect”

25. (p.18, middle of page): “herculean undertaking”, “elegant exterior” seem awkward

26. In general, the tables need a great deal of formatting help. The Excel spreadsheet formats are very difficult to read, especially when printed out (i.e., small fonts, hard to follow information across rows and columns without gridlines, etc.)

Discretionary revisions:
27. (p.7, first paragraph): This paragraph has a good initial overview of different implementation frameworks and models. Other recent implementation frameworks mentioned above that might be helpful in addressing these reviewer comments include:

   Fixsen et al. 2005—although their main manuscript is not peer-reviewed, it has been applied by others in peer-reviewed articles, and I wouldn’t be surprised if they have referenced it in one of their published papers.

   Glisson and Schoenwald 2005—an implementation framework developed out of child mental health interventions.

   Mendel et al. 2008—a dissemination and implementation framework based mostly on studies of mental health quality improvement, with discussion of community-participatory approaches.

28. (p.8): I believe you can use Fixsen et al. as a citation for core vs periphery of interventions, if you need it.

29. (p.10, second par): “skill and enthusiasm of stakeholders using the intervention” seems more like part of the internal context and should be discussed in relation to that.

30. Table 3: This table is a candidate to be dropped, since a) it’s mainly a restatement of Stetler et al., and b) doesn’t really demonstrate how the CFIR can or has been used for each of these evaluation stages, and c) the main point of it (that the CFIR can help with different forms of evaluation, formative or otherwise) can be stated much more succinctly in the text. Probably best to just incorporate this table into Table 4.

References:


implementation of the chronic care model in quality improvement collaboratives, Health Services Research, 40(4): 978-96.


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.