Reviewer's report

**Title:** A multi-disciplinary evaluation of educational methods used to teach quality improvement to students - what is most efficacious to inform curriculum development within pre-registration nursing? A protocol for systematic review.

**Version:** 2  
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**Reviewer:** Paul Shekelle

**Reviewer’s report:**

This is a protocol to perform a systematic review of methods used to teach quality improvement to students. The goal is to inform nursing student curriculum development, but the scope of this review is all learners, all professions, from 1950 onwards in some cases.

This is an extraordinarily ambitious review, particularly for one that has no external funding and is going to rely solely on volunteered time. I myself am very skeptical of the value of going back to 1950 to look for evidence and for looking across all disciplines. As the authors note in their introduction, theory suggests that active and experiential learning is more effective than passive learning, and I am having hard time seeing the relevance of the experience of manufacturing executives from 60 years ago seeing to improve the quality of their production to nurses in 2014 seeking to reduce catheter-associated blood stream infections or in-facility falls, beyond the obvious similarity of some of the statistical techniques (statistical process control methods, for example) which the authors already know of. I would think that the vast majority of the information that is going to be useful to these authors is going to be found in the past 10 years or so, and in the health sciences literature. The authors, of course, are free to go ahead and attempt their original plan, but I would suggest having a low threshold to revise their protocol to focus on the highest yield sources for their material.

The next question I have is whether or not the authors have reason to think that identifying what is "quality improvement" in the curriculum or educational materials may be not-as-straightforward as it may seem. It seems like they can take of of two routes: they accept anything that the original publication self-identified as "quality improvement" teaching methods; or they have some explicit inclusion/exclusion criteria, that are defined much more precisely than the current "a QI educational intervention" text in the inclusion/exclusion section of the manuscript, since recognizing when something is a "QI education intervention" is the issue at hand. And then the authors may need to do some inter-rater reliability testing on this, since there is evidence that the larger question - how in published studies can we reliably identify an intervention as a QI intervention? = has been found to be not as reliably scored as one might think.

A third question I have concerns the context. Right now the data collection form as lines for "hindering" and "facilitating" contextual factors. How will the authors
deal with the situation where most of their included studies don't identify anything in either of these two categories? Will nothing be collected about the context of the study? It seems like some standardized contextual variables should be looked for in each article, if only to demonstrate their absence from most published studies. And then the contextual variables chosen for standardized data collection should be informed by some kind of evidence-base, either theoretical or empirical.

The synthesis of whatever is found is going to be quite tricky, and the Data Synthesis section of the protocol is at best only a general framework for what might be done. I think the authors are going to need to give readers some additional specifics of how they plan to relate studies from 30, 40 or 50 years ago done in fields like business, aerospace, etc., to the issue of nursing curricula today. Right now I don't see it.