Reviewer's report

Title: Reinforcing Outpatient Medical Student Learning Using Brief Computer Tutorials: The Patient-Teacher-Tutorial Sequence.

Version: 1 Date: 24 March 2012

Reviewer: Norman Berman

Reviewer's report:

Major Compulsory Revisions
None

Minor Essential Revisions
The fact that the results were significant for only one of the two examples studied, should be addressed and explained in the limitations.

The authors suggest that they have improved the teaching of conceptual knowledge, which is not strongly supported by the data. It is difficult to know what exactly was assessed, but it may have been more fact than concept. The authors report that the tutorials were focused on declarative knowledge, so the data do not really support that "concepts" were either taught or learned.

The manuscript is excessively long, and there is room for significant revision to tighten and add focus.

Discretionary Revisions
Studying declarative knowledge is appropriate, and should not be considered a limitation. It is, in fact, a strength, as the study is assessing what would reasonably be impacted. I suggest that the authors remove this as a limitation, and address the reasoning for their study design in the methods or background.

Comments
1. Is the question posed by the authors well defined?
The research question is clearly stated, and appropriate background is provided to explain the basis for the question.

2. Are the methods appropriate and well described?
Overall the methods are well described and appropriate. Inclusion of some higher level validity evidence (Rpb and Cronbach’s alpha) for the outcome measure is a strength, particularly for a study of this size. Good study design with RCT appropriate, and minimizing confounding.

3. Are the data sound?
In general, yes.
The study is well designed and the analysis appears appropriate. The biggest weakness of the study is the difference in results between the 2 study conditions, with a non-significant result for sequencing in one condition.

4. Does the manuscript adhere to the relevant standards for reporting and data deposition?
   Yes

5. Are the discussion and conclusions well balanced and adequately supported by the data?
   In general, yes.
   The authors suggest that they have improved the teaching of conceptual knowledge, which is not strongly supported by the data. It is difficult to know what exactly was assessed, but it may have been more fact than concept. The authors report that the tutorials were focused on declarative knowledge, so the data do not really support that "concepts" were either taught or learned. The authors refer to a distributed cognition framework which may use the PTT sequence, and the results support this. However, it is possible that a different sequence would be superior. For instance, there are reasons to believe that the tutorials as "pre-learning" may be even more valuable.

Overall, the report is not of major importance, but is a valuable addition to our knowledge of effectively integrating CAI.

6. Are limitations of the work clearly stated?
   Studying declarative knowledge is appropriate, and should not be considered a limitation. It is, in fact, a strength, as the study is assessing what would reasonably be impacted. I suggest that the authors remove this as a limitation, and address the reasoning for their study design in the methods or background. Had the authors attempted to show that the intervention was improving clinical reasoning, or if they were attempting to assess clinical reasoning, I would have been critical of such an effort.
   The limitation mentioned above, that the results were significant for only one of the two examples studied, should be addressed in the limitations.
   The other limitations reported are reasonable.

7. Do the authors clearly acknowledge any work upon which they are building, both published and unpublished?
   Yes

8. Do the title and abstract accurately convey what has been found?
   Yes

9. Is the writing acceptable?
   Overall, yes.
   The manuscript is excessively long, and there is room for significant revision to
tighten and add focus.

**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 have no competing interests