Reviewer's report

Title: Using a conceptual framework during learning attenuates the loss of expert-type knowledge structure.

Version: 3 Date: 16 May 2006

Reviewer: William D Wattenmaker

Reviewer's report:

General

I continue to believe that there are positive aspects to this manuscript. As noted in my previous review, the attempt to discover cognitive strategies that will facilitate learning, memory, and the development of expert knowledge structures in medical students is clearly important. The results are consistent with the finding that the use of diagnostic schemes or frameworks during learning can be a valuable strategy to use in medical education, and that the benefits of using diagnostic frameworks is that they provide organization and highlight relations between concepts.

Alternatively, as I also noted in my previous review, I have several concerns. Many of these concerns became more pronounced as a result of the revisions that the authors made which brought the problems into clearer focus. One of these concerns is that participants were not randomly assigned to conditions and thus we do not know whether the benefits that were observed are attributable to the use of diagnostic frameworks or some other subject-specific characteristic. The results are also based on an extremely small number of subjects - especially in the condition which did not use a diagnostic scheme during learning. In the revision, the authors acknowledge these problems in a direct, straightforward manner. I also still have concerns about the specifics of the sorting task and the criterion used to differentiate expert and novice sorts. Although the authors attempted to clarify these issues in the revision, I found the discussion added more confusion than clarification, and indeed the sorting task was a very different type of task than what I interpreted and what was described in the first manuscript.

After reading the revision, and thinking about the problems raised above, I do not feel that there is any clear or new result or information that is learned from this research. Instead, the manuscript raises interesting issues, and has suggestive results that if proven to be valid in subsequent research would be significant. Thus the positive aspect of the manuscript is that it might inspire additional research that will provide a more definitive answer to the question of whether the use of conceptual structures and diagnostic schemes in medical education increase the likelihood that expert knowledge structures will be learned and maintained over long periods of time.

Whether this positive is enough to warrant publication is clearly an editorial decision. One possibility would be to ask the authors to do the research that would provide more definitive results, and the other possibility is to publish the present manuscript in the hope that it will inspire others, or perhaps the authors, to do the essential research that is needed to provide clearer results.

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

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

Discretionary Revisions (which the author can choose to ignore)
(See above)

What next?: Reject because too small an advance to publish
Level of interest: An article of importance in its field

Quality of written English: Acceptable

Statistical review: No

Declaration of competing interests:

"I declare that I have no competing interests."