Author's response to reviews

Title: A randomised controlled trial of a blended learning education intervention for teaching evidence-based medicine

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How effective is blended learning in teaching evidence-based medicine? A mixed methods study

Dear Editor,

Thank you for your comments and that of the reviewers for the above titled manuscript.

Please find enclosed below point-by-point responses to the editorial and reviewer comments.

Please let me know if you need anything further. I look forward to your future correspondence.

Kind regards,

[Signature]

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Editor’s comments:

It has been brought to our attention that your manuscript is highly similar to an article you previously had published at BMC Medical Education:


1. Provide clarification whether there is any overlap with these papers and where that might lie.

The 2013 publication was a pilot study on this topic, as described in the protocol of this manuscript published in 2013 (http://www.biomedcentral.com/1472-6920/13/170).

Our current paper differs significantly in methodological design, from our pilot paper published in 2013. The 2013 paper was a cohort study, consisting only of graduate entry medical students. The ‘blended learning’ intervention consisted of a one-day ‘block’ workshop, which was supplemented by journal-club styled tutorials. EBM competency was assessed using the validated Berlin tool and a criterion-based assessment task.

Our current paper was a randomised controlled trial (RCT). This is the first RCT to examine the effectiveness of blended learning in evidence-based medicine (EBM). Participants in our current paper include undergraduate and graduate-entry medical students, as well as locally (Australia) and internationally (Malaysia) based students. Our ‘blended learning’ intervention differed significantly from the pilot study. In our current paper, students receiving ‘blended learning’ participated in a series of lectures/tutorials, online video materials, and most significantly, embedded teaching and learning activities with ‘bedside’ teaching. EBM competency was measured with the Berlin tool, but also our recently published, psychometrically validated, assessing competency in EBM (ACE) tool. Furthermore, student self-efficacy was measured using the validated Evidence-Based Practice Questionnaire (EBPQ).

Both papers utilised a qualitative component to triangulate quantitative data findings with that of qualitative feedback.

We have amended the title of our current paper to highlight the RCT component, and its methodological importance, in this context.


2. Clearly describe the novelty of the current paper i.e. novel data, novel findings, what advance the current paper has on your previous publication.

Our 2013 pilot paper concluded no significant difference between blended learning and didactic learning on student performance in EBM related tasks.

Our current paper offers level 1 RCT evidence, concluding no significant difference in EBM competency between students receiving the blended learning or comparison education approach. It provides further novel data by concluding that:

- Both the Berlin and ACE tools provide similar and consistent findings (first comparison of such EBM assessment tools);
- No difference in EBM competency was observed between undergraduate versus graduate entry student (first to offer such evidence);
- No difference in EBM competency was observed between students undertaking the medical degree at local versus internationally-based teaching hospitals (first paper to offer such evidence); and,
- Self-efficacy, attitudes and behaviour were significantly higher in students receiving the blended learning teaching approach.

Reviewer #2

Minor Essential Revisions

1. Despite my concerns about the concept of learning styles, the authors still want to use this term. In this case, they should at least state to which definition of learning styles they refer.

We have included a definition of learning styles as requested on line 124, page 7.