Reviewer's report

Title: A non-randomised trial of video and written educational adjuncts in undergraduate ophthalmology

Version: 1 Date: 13 Sep 2019

Reviewer: Andrew G Lee

Reviewer's report:

Please include all comments for the authors in this box rather than uploading your report as an attachment. Please only upload as attachments annotated versions of manuscripts, graphs, supporting materials or other aspects of your report which cannot be included in a text format.

Please overwrite this text when adding your comments to the authors.

This is an interesting report that adds to the evidence base that the provision of relevant pre-learning materials to increase student engagement and to hopefully improve outcomes in medical education. In this non-randomised study, the authors attempt to quantify the educational gains, and relative efficacy of video and written pre-learning materials, in ophthalmology undergraduate teaching.

On strength of the study is that the sample size was relatively large (for ophthalmology) and 98 final year medical students were contacted prior to their three-day ophthalmology placements at a single British tertiary ophthalmology unit.

Participants completed a simple knowledge test, a questionnaire estimating the time they spent preparing for the placement and a self-reported knowledge score. The limitations for self assessment and the concordance rate of external versus internal reports of knowledge and time should be described as a limitation in the discussion section.

At the conclusion of each placement participants completed a challenging knowledge test, a clinical skills test and repeated self-reported knowledge scores and 86.7% of students receiving specified materials claimed to complete pre-placement work compared to 69.7% of those receiving learning outcomes alone (p=0.05). The key word is "claimed" and the discussion should include information on the potential sources of bias and the possible impact on their results created by this self reporting method.

As would be expected, students receiving the learning materials scored higher in tests of knowledge (p<0.001), 74.8% (72.4-77.2%) versus 63.6% (95%CI 59.3-67.9%) and skills (p=0.04), 86.9% (83.9-89.9%) vs 81.3% (77.2-85.4%). The power calculations and assumptions for measuring a "clinically significant difference" (rather than just a statistically significant difference) should be provided in the methods section and discussed in more detail in the limitations section.
Also as expected, students using video resources (especially for a visually oriented specialty like ophthalmology) outperformed students using written materials in their visual acuity assessment test ("a picture is worth a thousand words").

The authors conclude that providing pre-placement learning materials improves undergraduates' commitment and achievement and that written materials better facilitate knowledge acquisition while video materials preferentially promote skill acquisition. These conclusions while valid seem obvious and I would suggest that the authors consider more discussion on practical implementation and how their process overcomes existing barriers in the status quo and can save time, money, or resources. I don't believe that any educator would disagree that pre-placement teaching and learning is beneficial to the learners downstream and would produce downstream improvements in performance (i.e., to do well you have to prepare and study). I think that the benefit of this paper is demonstrating how preplacement saves time, money, and educational resources and is superior to the status quo otherwise we will have yet another paper that proves what we need to do and that it works but not how to get there efficiently, cost-effectively, and sustainably.

**Are the methods appropriate and well described?**
If not, please specify what is required in your comments to the authors.

Yes

**Does the work include the necessary controls?**
If not, please specify which controls are required in your comments to the authors.

Yes

**Are the conclusions drawn adequately supported by the data shown?**
If not, please explain in your comments to the authors.

Yes

**Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?**
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I am able to assess the statistics

**Quality of written English**
Please indicate the quality of language in the manuscript:

Acceptable

**Declaration of competing interests**
Please complete a declaration of competing interests, considering the following questions:
1. Have you in the past five years received reimbursements, fees, funding, or salary from an organisation that may in any way gain or lose financially from the publication of this manuscript, either now or in the future?

2. Do you hold any stocks or shares in an organisation that may in any way gain or lose financially from the publication of this manuscript, either now or in the future?

3. Do you hold or are you currently applying for any patents relating to the content of the manuscript?

4. Have you received reimbursements, fees, funding, or salary from an organization that holds or has applied for patents relating to the content of the manuscript?

5. Do you have any other financial competing interests?

6. Do you have any non-financial competing interests in relation to this paper?

If you can answer no to all of the above, write 'I declare that I have no competing interests' below. If your reply is yes to any, please give details below.

No competing interest

I agree to the open peer review policy of the journal. I understand that my name will be included on my report to the authors and, if the manuscript is accepted for publication, my named report including any attachments I upload will be posted on the website along with the authors' responses. I agree for my report to be made available under an Open Access Creative Commons CC-BY license (http://creativecommons.org/licenses/by/4.0/). I understand that any comments which I do not wish to be included in my named report can be included as confidential comments to the editors, which will not be published.

I agree to the open peer review policy of the journal