Reviewer’s report

Title: Investigating the self-study phase of an inverted biochemistry classroom - collaborative dyadic learning makes the difference

Version: 1 Date: 16 Jun 2018

Reviewer: Reviewer 2

Reviewer’s report:

"PEER REVIEWER COMMENTS: To view the full report from the academic peer reviewer, please see the attached file.

REVIEWER COMMENTS FROM REPORT: Adds nuanced knowledge to understanding how flipped or inverted learning methods work. Authors have tried to explain statistically why and how collaborative dyads are effective here. Important to have such research

ADDITIONAL REQUESTS/SUGGESTIONS:

Basic group rather than basis p. 7?

Worksheet rather than working sheet?

Need to explain Apos, Aneg, Kprim and what are phase 1 and 2 of the self-study and on-site phases (indicate on Fig 1)? Conditional knowledge is problem-solving tasks? Need to say a little more.

Statistical procedures seemed appropriate with care taken to estimate sample sizes required and checked for possible threats of non-randomness in the three treatments. Also the bootstrapping ensured rigor.

Scripted collaboration is a sound theory to base the explanations.

only 60% actually studied with a partner (possible threat?)

Minor adjustments for improving language fluency and English expressions eg on p. 13 lines 11 "prepared" = answered? "

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.
This reviewer has been recruited by a partner organization, Research Square. Reviewers with declared or apparent competing interests are not utilized for these reviews. This reviewer has agreed to publication of their comments online under a Creative Commons Attribution License attributed to Research Square and was paid a small honorarium for completing the review within a specified timeframe. Honoraria for reviews such as this are paid regardless of the reviewer recommendation.

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