

Response to reviewers in relation to their comments on the previously submitted version of 'Predicting supervisor capacities to foster higher forms of learning through undergraduate medical student research'

The author(s) would like to express their thanks to the JoSoTL editors and the two reviewers who provided the comments leading to the many improvements to the original version of the manuscript 'Predicting supervisor capacities to foster higher forms of learning through undergraduate medical student research' which are highlighted below.

Purpose, background, methodology, format, style and organization

Response to comments from reviewer A

The author(s) accepted that the quality of the presentation of the purpose of the study was open to improvement in terms of offering a coherent structure and natural flow. Correspondingly, they have restructured the layout of the previous introductory material through introducing aims early on and immediately after each primary aim, providing the exact form(s) of the multiple hypothesis tests for which results are to be presented later. Furthermore, the author(s) have now subdivided the introduction section into subsections explaining the context for the model of student research to be explored (subsection A) followed by an explanation of the rationale for considering each chosen indicator of higher forms of learning (subsections B1 to B4). They have also presented the topics of sub-sections B1 to B4 in parallel with those of the later methods and discussion sub-sections, but for the use of merging of topics into single subsections. They have used merging in the latter sense (as, for example, with subsection E of the discussion section) where this has been a need to avoid repetition of closely connected ideas or overlapping findings. This alignment of subsections across the introduction, results and discussions sections now makes the mapping of rationale, methods and interpretation of findings much easier. Also, the author(s) have reduced the content of the original subsection 'Pedagogical rationale' to avoid the reader losing sight of the above alignment through being carried too deeply into particular background material.

Response to Reviewer B

Reviewer B's comments in relation to background content prompted the author(s) to engage in a thorough discussion with specialists in learning theory, further to personal searching, to

confirm that “learner-centred behavioural science” is not a recognized notion in academia. Despite this confirmation, the authors considered it worthwhile to improve the breadth and depth of their content on learning theory by reflecting on transformative learning and the ideas of Henri Tajfel and other researchers on social identity theory. In the former case, they exposed the close affiliation between Illeris’s notion of *accommodation* and Barnett’s notion of *supercomplexity* (p. 9). By contrast (pp. 9 -10), they highlighted the need to cross the boundaries assumed by social identity theory to arrive at a learning environment which is more amenable to preparing learners for managing supercomplexity. The reviewer’s recommendations therefore provided the basis for a richer explanation of where supercomplexity is situated in relation to other related concepts found within social psychology and learning development.

The reviewer’s reference to “specific professional pathways to effective application of pedagogy” inspired the author(s) to consider practical approaches for responding to the study finding that staff employment category may be a barrier to constructivist learning among undergraduate medical students. This involved recognition of existing good practice on enhancing pedagogical skills of research supervisors through online and face-to-face activities. The authors have also highlighted the potential for pursuing synergies between such activities and the findings forthcoming from the current study, subject to the availability of adequate funding. (p. 30)

For ease of reference, the reviewer’s itemized comments pertaining to format, style and organization are presented below together with the corresponding responses, which are tagged with ‘AR’ to denote ‘author(s) response’.

P. 3...I don't understand the insertion of the italicized section

AR: Italics were used to distinguish the clause as a response option from one of the survey questions. While italics have been retained for this purpose, the author(s) recognize that the additional step of having inserted a line space before and after this clause was a step too far in terms of achieving the above purpose. The clause has therefore been shifted and embedded within the main text of section B.3 (p.13).

p. 4...comma needed after 'supercomplex world'

AR: The author(s) have very carefully checked and verified that no occurrence of the above expression on the reviewed p.4 lent itself to the above correction.

p. 4...right under sentence noted above, please re-think the use of the indefinite 'it.' This is a problem later in the paper as well. The use of

this indefinite pronoun is problematic in all forms of scholarly writing.

Even here, in a later section, you employ this term with a variety of

antecedents in close proximity - one to the other. This is further

confusing to an already complex comprehension process for your reader.

AR: There was only one occurrence of 'supercomplex world' on p. 4 and the sentence which followed immediately after it was, 'It is not merely the link to professional practise, however, which enables interdisciplinarity to enhance student learning.' The author(s) had difficulty in appreciating why their use of the "indefinite it" in this sentence, by way of example, and other sentences throughout the manuscript could give any cause for confusion. So as to avoid too repetitive a style or one which is less accessible to readers whose first language is not English, the author(s) have, however, restructured the wording of sentences so as provide an alternative to using the indefinite it. On the other hand, as part of the process of providing more focused content in the early sections of the manuscript, the particular sentence highlighted above no longer appears in the manuscript.

p. 4 Remove quotation marks from your block quote section(APA form)

AR: The quote was removed from the manuscript during the process of presenting more focused and structured ideas.

P. 6....4th paragraph - 'therefore' ought be set off with commas

AR: During the process of reducing usages of the indefinite it and presenting material in a sequential manner, the authors have reworded the relevant sentence without the need for a 'therefore'. The revised sentence now appears in the first paragraph of section B.2 (p. 12).

P.7...more comma problems - review

As with the issue raised above in relation to 'therefore', what is referred to as 'comma problems' is a matter of style in relation to felt need of use of commas for bracketing. The author(s) recognize that there is a danger of overkill with comma usage. However, recognizing the international scope of the readership, the authors have changed the original clause "The primary aim of the current study was to investigate within the context of short-term research projects the statistical evidence" to read "The primary aim of the current study was to investigate, within the context of short-term research projects, the statistical evidence". This revised clause now appears on p. 3 of the manuscript.

**awkward break between pgs 7 & 8

AR: The reviewer's concern about a page-break occurring within the original sentence prior to the introduction of the itemized list no longer applies as the relevant content was reworded and relocated during the process of defining more easily identifiable study hypotheses.

P 9...pronoun-antecedent disagreement error - supervisor's / their

AR: Actually, it is open for debate as to whether it is acceptable in the English language to use 'their' in the sense 'his or her' to refer to a person in the singular. However, during the process of improving the clarity of the relevant sentence more generally, the authors have replaced 'their' by 'supervisor'. The new sentence now appears on p. 5.

p 9paragraph 2 - separational commas needed in 2 places

AR: There was indeed a comma needed after 'variables' in the first sentence of the second complete paragraph on p. 9. However, the relevant paragraph was removed during the process of structuring pedagogical rationale in terms of chosen indicators of higher forms of learning.

*** Special note about Presentation of statistical data in the body ***

Please consider pie charting, tabling, or otherwise visually graphing out at least portions of your reportage. Many tools exist to enhance and empower the presentation of data in such a way as to truly impact the capture and comprehension of its impact.

AR: The author(s) have replaced several of the original tables in the manuscript by percentage stacked bar charts indicating frequencies and percentages. This has assisted in making the presence or absence of monotonic trends more apparent (see, for example, the observations made immediately below Figure 2 on p. 21) and in highlighting a case whether observed differences across supervisor age categories invited further research given the absence of statistical significance and the need for more data for extreme age-groups (see interpretation on p. 27 of Figure 1b)).

p22...again, an awkward spatial break

AR: an unintended line break appeared towards the bottom of the page. However, this problem was resolved during the process of restructuring the layout of content.

pp 24 - 26...too many its

AR: The author(s) have assumed here that the reviewer is continuing to take issue with use of the indefinite it. For convenience, they list these usages below together with their current status in the revised manuscript.

p. 24

'It is interesting to note that': replaced by 'Interestingly' (first

sentence of section C, p. 28)

p. 26

'it is possible': the authors have restructured the original sentence, commencing "Given that supervisory experience", to avoid use of the indefinite it and presented this original sentence as two new sentences to make the content more accessible. The two new sentences now appear as the first two sentences of the first complete paragraph on p. 33.

'It may be optimal': the original sentence, commencing 'Correspondingly', has been restructured to avoid use of the indefinite it and presented as two new sentences to make the content more accessible. The two new sentences now appear on p. 33 as the last two sentences of section E.

Findings

Response to Reviewer A

The authors accepted the need to acknowledge in a less cursory manner the relevant content of the General Medical Council (GMC) guides *Strategic Options for Undergraduate Medical Education* (2006) and *Tomorrow's Doctors* (2009) and to include more in depth consideration of this content early on. They have addressed these needs on pp. 10 – 11 of subsection *B.1* of the introduction section through explaining precisely how GMC concerns about current graduate outcomes express their implicit approval of preparing undergraduate medical students for a supercomplex world .

Coverage

Response to reviewer B

This study and its predecessors are extensive in their pursuit of supervisor-based factors for enabling undergraduate medical student research to achieve higher forms of learning through research. Within the revised version of the discussion section, the authors have explicitly highlighted ideas for involving student-based response data in numerous places. For example, at the end of subsection C. (p. 28), they observe that,

To support research in learning development, a longitudinal study in which student and supervisor response data are linked could explore the student factors associated with students being perceived by their supervisors as having progressed to or maintained advanced stages of learning.

Within subsection E of the discussion section they also provide an extensive account of intended follow-on work based on existing student response data while highlighting a key outcome measure of interest together with a range of potential predictive variables which they have identified for analysis using these data. The authors also suggest additional factors for future research *including student self-efficacy* and *inherent capacity of student to trust supervisor* in relation to the outcome measure *student capacity to engage in risk-taking activities*.