Reviewer’s report

Title: Impact of student choice on academic performance: cross-sectional and longitudinal observations of a student cohort

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Reviewer: Simon Riley

Reviewer’s report:

I agree with the authors that this paper does address an important question whether the provision of choice in medical curricula (called Student Selected Components [SSCs in the UK]) can have an influence on academic performance. It is a difficult study to design with a range of potential confounding factors. This study is well designed with a large cohort size and starts to examine this question in detail, by looking at the academic performance of students who exert a greater degree of autonomy in making choices.

I have some points that should be considered and addressed/clarified:

Minor essential revisions:

1. The authors discuss and briefly define a view of “self-proposal”, but is this a student coming up completely independently with their own idea, and having to find their own supervisor and work up a feasible project, or is there any degree of students being able to see what has been self-proposed in the past, and being able to in some ways follow the path of a previous student or link into an existing project? They also indicate there is no “obligation” on students to self-propose, but self-proposal may be forced upon students if the choice is limited to a greater or lesser degree, and particularly if there are insufficient places in the choice menu for every student. From table 2 it seems that about 30-40% of students never self-propose – this could be that there is a broad spectrum of excellent opportunities already within the set menu and it is not necessary to self-propose. This process needs to be described in more detail and critically discussed.

2. More information on figures - Figure 1 Is this Gantt type chart proportionate to the time spent on each SSC each year? The explanation in the text is helpful (para4 in background) in some regards, but the Figure legend needs a bit more information to explain the relative contribution of SSCs within each year and the contribution that SSCs provide to the Dundee curriculum overall – this can be expressed as both time commitment, and the contribution to the overall assessment for each year.

3. Insert supplementary tables - I suggest it would be useful to include both Tables 1 and 2 as fully integrated into the text and not as supplementary information. This will provide a much better integration of the results into the text. For clarity, Table 1 the grade columns should be given a label.

4. For non-UK based readers, it may be useful to provide couple of overview
references to provide more background on the SSCs and their delivery.

5. The standard setting procedures detailed in the methods only indicate they are set to the borderline pass/fail – what about satisfactory/excellent – is there also a measure of excellence in this process?

**Discretionary revisions**

1. Exam performance and academic ability are not necessarily the same – and the wording throughout the m/s makes this assumption, which the authors should consider. In this domain SSCs project work and student choice, there is potentially/likely a subgroup of students who perform particularly well academically, although this is not reflected in such good scores in other types of assessment. The authors can consider expanding their somewhat brief discussion with an extra section that considers that students learn optimally in different ways, with a range of different assessment methods reflecting performance in different skills.

**Level of interest:** An article of importance in its field

**Quality of written English:** Acceptable

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

'I declare that I have no competing interests'