Author's response to reviews

Title: Tutoring in problem-based learning medical curricula: the influence of tutor background and style on effectiveness

Authors:

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Author's response to reviews: see over
The Editor, BMC Medical Education

Dear Sir,

Thank you for sending reviews on our manuscript “Tutoring in problem-based learning medical curricula: the influence of tutor background and style on effectiveness”. There was a striking difference in the both the number and nature of the reviewers’ comments, with some being contradictory. Nevertheless, we have addressed all the points raised with the objective of ensuring that any changes made are compatible with both reviews and also the aims of the study.

Our detailed response is provided with this letter.

Yours faithfully

Michele Groves
<table>
<thead>
<tr>
<th>Reviewer 1: Patricia Margaret Anne Lyon</th>
<th>Authors’ response</th>
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<tbody>
<tr>
<td><strong>Minor essential revisions</strong></td>
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<tr>
<td>1. Substitute “scales” in place of “categories of behaviour” and “characteristics” on p. 6, 10, 11</td>
<td>All revisions listed have been addressed.</td>
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<tr>
<td>2. Description of the six scales in the “Instrument” section (p.6)</td>
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<tr>
<td><strong>Discretionary revisions</strong></td>
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<td>Provide examples of items for each scale.</td>
<td>These have been added to the description of the scales on p.6</td>
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<td><strong>Reviewer 2: Sammy Azer</strong></td>
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<td><strong>Major Essential Revisions</strong></td>
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<td>Point 1(a). “…. what does ‘student’ mean in this sentence?” (page 2, results)</td>
<td>Most of point 1 appears to refer to the Abstract and the reviewer’s concerns are dealt with clearly and in full in the main body of the text. I.e. the bottom of page 5 reads “12 basic science PhD students, one of whom was also medically qualified”. Although the authors feel this description of the tutors’ qualifications and terms-of-appointment to be clear and accurate, the phrase in the Abstract “student and casual tutors” has been changed to “non-staff tutors”. As well, the following sentence has been added to the Subjects section in the Methodology: “Thus, tutors were classified on the basis of both qualifications (clinical versus non-clinical) and type of appointment (staff versus non-staff)”</td>
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<td>Point 1(b). “… I am still not sure if “non-staff tutors” are the ‘postgraduate student PBL tutors’ or are part of them. The problem is that this point is not addressed under the “method …. The term “casual” and the term “student” were not mentioned under method”</td>
<td>Again, the reviewer’s comment refers to the Abstract and the point is dealt with in the main body of the text. I.e In the Method section, a full description was given of the tutors, namely “….. Additionally, 14 held full-time staff appointments (two clinicians, seven basic scientists and five “others”), 14 were employed on a casual basis (five clinicians, 8 basic scientists and one teacher), and 12 basic science PhD students, one of whom was also medically qualified.” Given the accuracy of this description and the changes already made in response to Point 1(a), no further change will be made.</td>
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<td>Point 1(c). “The definition of groups is not clear and very confusing”</td>
<td>The composition of the groups was described in the text as “comprising tutor and ten students [p.5]…[and being] structured to ensure minimum variation between groups with regard to age, gender, academic background and nationality” [p.6]. No change will be made in response to the reviewer in light of the accuracy and completeness of this description.</td>
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<td>Point 1(d). “the word ‘and’ was repeated three times in a sentence”</td>
<td>The authors were unable to find this sentence – no change has been made</td>
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<td>Point 2. “The authors need to provide the references of these studies [introduction, page 3, referring to “most of the studies”].</td>
<td>The reference index to these studies was provided at the end of the discussion of these studies’ findings on page 4. However, the authors have now changed the text to include an earlier reference index, namely “Most of the studies”...”</td>
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<td>Point 3. “It is not clear to the reader who ‘considered’ a group of PBL as experts or non-expert or made them “seen as.” “The statement of ‘mixed findings’ is not at all clear and needs to be clarified.”</td>
<td>It was assumed that the readers of this paper would be involved in medical education and would therefore be familiar with much of the literature on PBL, and aware of the lack of consensus therein. The first sentence of para 3, p.3 indicates that “Most of the studies that have looked at the characteristics of skilled PBL tutors have compared the effectiveness of content experts with that of non-experts as measured either by student satisfaction or academic achievement”. It goes on to elaborate on the meaning of expertise within the context of medical curricula (pp. 3 and 4). No change will be made in response to the reviewer in light of the accuracy and completeness of this (referenced) description.</td>
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<td>Point 4(a). “It is not clear to the reader what the definition of this term [effective] is....”</td>
<td>In para 2 of the introduction, the text spells out the aspects of PBL tutoring required for ‘effectiveness’, namely “A major feature of PBL is that learning is student-centred in that students take responsibility for identifying and addressing their own learning needs, and tutors are required to facilitate this rather than adopt the position of content expert. Facilitation requires understanding of the learning process and primarily involves monitoring of student learning and promotion of optimal group function. In this way, effective tutors act as a role model for students. The student-centred learning approach of PBL means that for tutors, content knowledge should be subordinate to group facilitation skills.” No change will be made in response to the reviewer in light of the accuracy and completeness of this description.</td>
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<td>Point 4(b). “Did the authors .... place a clear definition for the word “effective” [in the questionnaire].”</td>
<td>As the reviewer notes, use of the word “effective” without definition would have been confusing. However, the questionnaire did not include the word. To clarify, the text (p.7, para 2) now reads: The items were randomised in the order in which they occurred in the questionnaire except for the last item which asked students to rate how well the tutor played his/her role overall. This last item was thus considered to be a measure of the tutor’s overall effectiveness.</td>
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<td>Point 4(c). “The six categories stated in the tables need to be clearly stated that they constitute part of this “effectiveness” and how from this, the “overall effectiveness” was calculated.”</td>
<td>As the text clearly points out, the questionnaire explored “tutoring style with respect to Knowledge of Subject Matter and Skill in Facilitation”, and then goes on to elucidate clearly the conceptual basis for the different scales used. For clarification, sample questions from the instrument used have now been added to the explanation of each of the six scales.</td>
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<td>Point 5. “What is the basis behind their study?” ... “How will this study add to our understanding of the group perception about</td>
<td>On pp. 4 and 5, the text points out that the study was interested in looking at “the relationship between students’ perception of overall effectiveness, particular tutor behaviours, clinical qualifications and academic appointment”, and thus was aimed at “comparing the tutoring style and perceived overall...”</td>
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**PBL tutors?**

Effectiveness of Year 1 PBL tutors based on academic qualifications and appointment category; and second, to determine which of six specific tutor styles contributed most to students’ perception of effective tutoring. Three hypotheses were tested, namely whether “a) clinicians would be seen as more effective tutors than non-clinicians; b) full-time academic staff would be seen as more effective tutors than non-staff (casually-employed) tutors; and c) students would view subject matter knowledge as a more important determinant of effective tutoring than group facilitation skill.

For completeness, the following sentence has been added to the text:

“It is hoped that this study will provide a useful contribution to the PBL literature specifically by allowing both PBL tutors and their students to increase their understanding of the PBL process and how it may be applied optimally in medical education.”

The reviewer's concern with the definition of effectiveness is dealt with in the previous point.

**Point 6 in toto**

The text reads: “Participating tutors were evaluated by their PBL groups at the end of each teaching term”. Prior to each term, tutors commit to being available for the entire 11 weeks and it is therefore, uncommon for students to be exposed to more than one tutor within this time. Students were not asked to evaluate the tutors who “filled in” on the rare occasions a tutor might have been absent.

The text specifically states (p.4) that the UQ “employs a range of PBL tutors over three teaching terms of about 11 weeks each”. The phrase “(for five hours of PBL tutorials each week)” has been added to the text.

**Point 7. “The needs of students with a biomedical background and their views about what will make “an effective PBL tutor” will be different from students with a social science degree. Accordingly, it will be more accurate if this study addressed the views of individual students rather than the whole group…”**

As stated in the Introduction, the role of the PBL tutor is to facilitate student learning not to ‘teach’ in the traditional didactic sense of the word. Certainly it is possible that students from different academic backgrounds might have differing views about tutor effectiveness. However, the PBL process, and the tutor’s role in it, is explained to students at the beginning of the program. Consequently, any differences in student opinion about their tutor’s effectiveness is more likely to be due to differences in preferred learning approach than in academic background.

The group was used as the experimental unit because, as the text explains, students were allocated to groups in such a way as to ensure “minimum variation between groups with regard to age, gender, academic background and nationality [p.6]…and there was therefore “relatively little variation between PBL groups compared to the variation between students within each group” [p.8]. That this was a legitimate way to analyze the data is borne out in the standard deviations for each scale.

For the reasons stated, no changes will be made.

**Point 8 in toto**

The authors feel that the Discussion section expresses the study’s findings in a balanced and accurate way – a view that is supported by the other reviewer of this paper. Specific concerns, such as the
definition of groups and staff versus non-staff tutors, are already explained earlier in the Methods section and do not require repeating.

Nevertheless, several amendments to this section have been made in an effort to further improve clarity.

**Point 9. Table 1.**

The purpose of this table is given in the first sentence of the Results section. The terms “reliability”, “corrected model” and “grand mean” are commonly used in statistical analyses and an explanation of them is not within the purpose of this paper. However, the title of the Table has been amended to make it more precise.

**Minor essential revisions**

Point 1. “The authors need to expand a little on the PBL training”

A description of the training undertaken by prospective PBL tutors is beyond the scope of this paper. The statement was made simply to make the point that all tutors have undergone training in the theory and practice of PBL to ensure that all are aware of the requirements of their role and how it differs from conventional discipline-specific tutoring. Consequently, no change has been made.

Points 2 and 3. “Subjects” section response rate

An explanation of how the response rate was calculated has been added to the text.

Point 4. “Instrument”

A more detailed explanation of why this instrument was chosen has been added to the text, along with examples of items for each scale.

Point 5. Concerns about the instrument

As stated in the text, the questionnaire was developed and validated at Maastricht University by international experts in PBL - an important consideration in the choice of instrument. In order to preserve the integrity of the questionnaire, it has not been modified for use in this study. Consequently, no change has been made.

Point 6. Student versus group perception

Although the experimental unit was the PBL group as a whole, each consisted of the averaged responses of the students within the group. To use terms such as “group perception” implies falsely that there was only one response from each group based on group discussion of each item in the questionnaire. Consequently, no change has been made.

Point 7. Cronbach’s alpha……”

This is a standard statistical method of calculating the reliability of a set of test responses, and is similar to other terms such as Pearson’s correlation coefficient. As such, no reference is required.

Point 8. “Explanations of the table and methods used in the statistics should all be added under the table”

The authors have followed the accepted practice of explaining the methods used in the Methods section and of explaining the tables in the Results section. Thus, further explanations under the table would be redundant and no change has been made.

**Discretionary revisions**

Point 1.

The title of Table 2 has been amended to “Comparison of the six scales of tutor style by gender, age, qualifications and appointment”.