Author's response to reviews

Title: Evidence based practice in clinical physiotherapy education: A qualitative interpretive description

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Dear Prof Deborah Saltman, dear reviewers,

Thank you for the opportunity to submit a revised version of our manuscript. We appreciate constructive criticism and helpful feedback from the referees. All reviewers’ comments are addressed in detail below, in the order of the reviewers’ remarks and comments.

**Reviewer 1 (Kay Caldwell)**

1) Minor essential revisions: 'Participants' - would be beneficial to describe the type of sample e.g. voluntary, convenience.

   **Reply:** We refer to our sample as a “purposive” sample, first sentence under the subheading “Participants”, top of page (p. 7).

2) Minor essential revisions: Each direct quote used in presenting the findings should have a unique identifier and this should be consistently applied across the total sample

   **Reply:** We have now added a reference to the number and type of participants, and to the number of the interview behind each direct quote (e.g. Student 1, Interview 2).

3) Minor essential revisions: Correct the inconsistency whereby it is stated in the text (section: 'Participants' paragraph 2) it is stated that 3 of the participants were men, yet the table states 5

   **Reply:** The correct number of men is 5, and the inconsistency has been corrected.

4) Discretionary revisions: Include the aim of the study in the text as well as the abstract
Reviewer 2 (Karin Hannes)

1) Major revisions: Last paragraph introduction: While I agree that teaching intervention can be considered a complex intervention, I don’t see how this is relevant to your research goal, which is exploring the struggle from students to apply it. I am not sure what the aim is in the introduction. Do you want to make the point that delivering an evidence-based curriculum is complex and do we need input from the stakeholders on why that is so?

   Reply: We agree that the concept complex intervention is not relevant to our research goal. As such, we have now deleted this part from the manuscript. We have revised the introduction section (p. 3-5), and focus on EBP in clinical education. Hopefully, you will find the aim of the introduction clearer.

2) Major revisions: Last paragraph introduction continue: Do you want to gain insight in what aspects hinder or facilitate a successful application of EBP by students? You seem to suggest that students ‘struggle’. That is okay, but should we not leave a certain openness to detect what they adopted as well? Or is it the interplay between the curriculum and the application that is the focus of your study (and as such relevant in the introduction)?

   Reply: Our main focus in this article is students’ application of EBP during their clinical placement. Although our findings showed that students struggled to apply EBP, we agree that we need to leave a certain openness to detect what they adopted as well. We have therefore rewritten the result section; now referred to as “findings”. We now try to emphasize, to a greater extent than before, that students made an honest effort to “attempt EBP”.

3) Major revisions: Last paragraph introduction continue: This whole paragraph creates the expectation that you want to receive information from those involved in the act of teaching, in order to improve or adapt the teaching act or initiate change on the level of teaching. The next sentence then actually talks about the use of evidence. Use in what? In classroom or practice settings, in assignments, in learning periods during training, in practical sessions? What constitutes education here?

   Reply: We recognize that this paragraph was unclear. We have revised most of the introduction section, please see previous and next comment.

4) Major revisions: Last paragraph introduction continue: The context paragraph suggests that you only want to focus on clinical placements. It is my impression that the introduction does not really provide a convincing case for this. It could be more focused towards the relevance of integrating EBP in vocational training environments.
Reply: As mentioned above, yes, we want to focus on clinical placements, or more accurately; students’ beliefs, attitudes and experiences related to EBP during clinical placement. We agree that the former version of the introduction was not enough focused towards this, and therefore, we have now revised most of the introduction focusing on previous literature that have investigated the impact of, and/or perception of undergraduate health care students (any type of health care professions) related to clinically integrated teaching of EBP.

4) Major revisions: The context is generally well written and understandable.

Reply: Some minor changes have been made, because we have gained more accurate knowledge about the previous teaching situation at Bergen University College (e.g. hours of lessons/lectures). The essence of this section is the same as before.

4) Major revisions: There are some lines of arguments that are inconsistent throughout the paper. The authors state that it is their aim to ‘explore’ beliefs, experiences and attitudes. However, further on their ‘hypothesis’ is that students may lack qualifications. This feels like providing the answer in advance, which is unlikely to match an explorative study. It is quantitative logic applied to qualitative work. It seldom works out.

Reply: Initially we wrote: “Thus, we hypothesised that students might lack the necessary qualifications to adequately apply EBP during clinical placements and that actions might be required to improve this.” We agree that this is like giving the answer in advance. Since we did not have such a fixed idea beforehand, we have now tried to modify the text: “Thus, it was uncertain if and how students applied EBP, and if they were positive and confident with using EBP in real patient situations”.

5) Major revisions: The design, participant and data collection part are well written and contain all relevant aspects.

Reply: We removed the introductory part in the beginning of the method section, and this resulted in some minor changes under the heading “data collection”.

6) Major revisions: The fifth paragraph is subject to conceptual confusion. The term member check is used here to refer to feeding back the observer notes to the participants. I can see the relevance of member checking to check whether analytical interpretations of researchers are correct and match those of the participants. But I cannot see the relevance of feeding back notes on group dynamic aspects of a focus group. These notes tend to be descriptive rather than interpretive. At least, I suppose it is on group dynamics, since the interviews were transcribed verbatim...
Reply: Initially we wrote that “…résumé of each interview that was e-mailed to the participants of the focus group for comments (member check).” We now emphasise that participants received summaries of main issues that were brought up during the discussion. Our aim was to give participants the opportunity to respond if issues were missing that they would have liked to discuss.

7) Major revisions: The use of the term triangulation is also confusing. I suppose the authors mean method triangulation. However, previous parts seem to suggest that the interviews were done for geographical rather than methodological reasons. .. This is inconsistent.

Reply: We see that this term is confusing, and since mixing of focus groups and individual interviews were done for geographical reasons, we have deleted this sentence.

8) Major revisions: The potential disadvantage reported is only relevant if it actually happened and may be discussed. In general terms, the authors seem to suggest that the notes were taken on the group dynamic aspects, which is a broader term that covers the task. Did they take notes on non-verbal behavior as well? I don’t see any discussion on how these notes have been used in the analysis. This information should be added.

Reply: These notes, or summaries were only descriptive summaries of issues from the discussion; they were not related to group dynamics. However, they were useful summaries, and were used during the immersion in the data (no added to the analysis section).

9) Major revisions: Generating large categories such as the ones reported on p 10 does not match with the label ‘first-level’ coding, that generally does not refer to major categories generated from the data, but rather to open coding processes that initially stay close to the text. I find the use of this term confusing. From what I see the authors just re-used the topics addressed in their interview guide and placed all codes underneath them. I suppose this is step 2, the development of a template? This is, in fact, a very deductive way or organizing data and does not fit with the initially described inductive approach in the design section. The major categories seem to have been chosen up front, and the information from the transcripts has been fitted in here. The least that could be said is that the authors used a hybrid approach to data-analysis and a clearer rationale for this would be welcome.

It becomes even more confusing when the authors report themes in the results section (better is to speak of findings) that are somehow unrelated to the categories created. This seems to suggest that the initial categories were unhelpful from a conceptual point of view (?). When and how the authors moved from major categories to major ‘themes’ is a bit unclear.

Reply: We see that these terms can be confusing, and perhaps they can be used differently within different traditions (?). Anyhow, we have revised the section about
analysis, and added more information about the use of template analysis; see in particular the following extract from the revised analysis section, starting last paragraph p. 9 (p. 9-10):

“We followed the template approach as developed by King [29] and described by Crabtree and Miller [30]. This approach involves constructing a hierarchical structured list of codes in the form of a template, representing themes identified in the transcripts; higher-level codes representing potential broad-based themes and lower-level codes representing more narrowly focused themes [29]. Furthermore, main questions from the interview guide can be used as a starting point for constructing higher-level codes, and additional questions and probes as lower-level codes. Defining a number of codes or themes relevant to the aim of the project a priori is normal in template analysis [31]. However, these themes are tentative, and researchers are open to modifying or deleting them as the template is developed, as opposed to coding categories used in quantitative content analysis [31]. Thus, through reading and analysing the transcripts, a code could be added, because an issue in the transcripts relevant to the aim of the study is not covered by a code, or a code could be deleted because researchers do not see the need to use it [29]. Codes could also be re-defined at a higher or lower level [29]. Codes that cut across the hierarchical organization are so called “integrative themes” [31, p. 334].”

We now also emphasise that we focused on these integrative themes, and hopefully the relationship between codes in the initial template and themes in the findings now becomes clearer.

10) Major revisions: The results section, to my opinion, is rather flat in the sense that it highlights some ‘events’ and what people did or did not do. These are connected through citations. There is little researcher activity on the conceptual level and none of the researcher statements really goes into the believes that people have, or the attitudes they display or what they actually experienced or felt as the result of some of these events happening during training. To me, the analysis does not completely fulfill the promised goals of the study. I am still searching for something that would make me want to read this, a new insight, an interesting researcher statement that induces reflection on the current system of vocational training for the target group, a more profound comparison between beliefs, attitudes and experiences of students versus trainers and academic mentors in the result section. It might help to tabulate it and include this sort of comparative matrix in the article.

Reply: As mentioned above, we have now revised the result section, and we hope that we are closer at fulfilling our promised goals. We have tried to better clarify how we have compared statements between the participant-categorise, and have also illustrated how the integrative themes we present relate to the aim of our study. Please see “finding” section, in particular the introduction to it and Figure 1.

11) Major revisions: In the analysis part the authors mention that they generated themes and patterns. I can’t find any patterns in the results nor the discussion section. There is an attempt to define three themes, but there is nothing on how they actually relate to each other. This should be dealt with on the analytical level. As it stands, the article merely seems to validate findings from other qualitative studies conducted on the topic (students or non-students)
without giving new insights. The role model idea is very interesting though and could be expanded on in the discussion section. The role model seems to refer to the practical expertise that is copied by students, rather than modeling EBP. This is an interesting lead. Why is that so and what opportunities does it create in the context of EBP. There is more to this than just another story about lack of time, skills, manpower and resources. These are actually just ‘distracters’ and do not touch the level of beliefs or attitudes.

Reply: Please see comment above; and figure 1 that aim to illustrate the themes and patterns we identified. We have also expanded a bit on the role model idea in both the result and discussion section (see in particular the theme “novices in clinical practice”) – and tried to rearrange the discussion section to make the point about modelling clearer.

11) Major revisions: I don’t feel qualified to judge the first part of the discussion. In the limitations parts the authors actually state that they focused on behaviour and hoped that this would reveal important information on beliefs and attitudes. Where did this technique lead to in the end? In other words, what events and behaviour show us some of their beliefs and attitudes and in what sense? I find it odd that what is portrayed as central in the aim does not fully reveal itself in the paper. This issue should be dealt with in potential revisions.

I believe there are plenty of things that could be addressed in order to improve the quality of the article and to increase its scientific value.

Reply: We now hope to show that students attempting EBP and emphasising a need for EBP role models, indicate that they believe in EBP, and are positive toward EBP. At the same time, all participants share ambivalent attitudes towards EBP; resulting in prioritizing practice experience over EBP (perhaps a more convenient options for novices in clinical practice), possibly indicating a theory-practice gap.

12) Minor revisions: First and sixth sentence of second paragraph in introduction is unclear or incorrect. Second sentence third paragraph incorrect or needs a comma or ‘and’.

Reply: This section has now been deleted.

13) Minor revisions: Last part of the second paragraph refers to studies on barriers from various disciplines, but mainly include physiotherapists as a target group. Broaden references to include psychiatrists, nurses, medical, dentists etc. or adapt the piece accordingly. Some of the references are old. Newer studies exist from researchers mentioned in the reference list, that have particularly focused on barriers to implementation of EBP. The barriers that are listed are universal. Some studies do include issues particularly relevant to physiotherapists that would be more attractive to readers, for example the one from Karin H et all.

Reply: The introduction section has been completely revised, and we now do not focus on barriers among clinicians. However, we have ensured to broaden our references
when it comes to studies related to EBP and undergraduate health care students. In addition, we refer to barriers among clinicians in the discussion section, and here we have broadened references to include psychiatrists, nurses, GPs and dentists (last paragraph p. 19, second page 20).

14) Minor revisions: The last two sentences of the intro section basically state the same argument.

Reply: These sentences are now deleted.

15) Minor revisions: What’s the content of the written assignment mentioned?

Reply: In the revised version we describe the content of the written assignments, or patient reports as follows: “In these patient reports students had to describe a patient situations and their clinical decisions; they had to use literature, but not necessarily research evidence, as arguments for their decisions.” (p. 6)

16) Minor revisions: It is irrelevant to mention focus groups at the start of the method section if you mention them again in your data collection paragraph. The text could go without this introduction. The aim has been described elsewhere.

Reply: We have now deleted this part.

17) Minor revisions: Explain condensation. It is a rather abstract term that does not reveal what has actually been done.

Reply: In the revised version we do not use the exact term “condensation”. However, we do describe the following in the analysis section (p.10):

“…In addition, we were able to identify several integrative themes that cut across this hierarchal template, due to the process of first condensing, or summarising the data, and further reflecting on the organisation: did the text really represent the codes in the template, did alternative interpretations emerge and were any issues missing from the discussions. Furthermore, comparing and contrasting the coding within and between the interviews with the different participant-categories enabled a more holistic analysis where we identified the final patterns and themes within the overall data set.”

Here we add “summarising” behind the term “condensing” to emphasise the meaning of this term in this context.

18) Minor revisions: I don’t particularly ‘like’ the use of italic to highlight themes, but that is a matter of personal flavour.
Reply: We have no special preferences, and themes are therefore not highlighted in the revised version.

19) Minor revisions: Could a better label for attempting EBP be ‘attempts to apply/implement EBP or Efforts to work evidence-based’

Reply: We appreciate this suggestion, and have therefore adopted the label “attempt to apply EBP” (referring to students, plural).

20) Minor revisions: One citation that speaks to us is generally enough to make a point. The others just add the same type of idea to the researchers statement and take up space that could better be used to expand on the topic or the phenomenon discussed. P 14, to me, only the last item from student B would do the trick as well.

Reply: We see the logic of this comment, and have therefore ensured that we use only one citation in the revised version, except for one place in the result section were we wanted to emphasise discussion (p. 17).

21) Minor revisions: Conceptual confusion: P 3: Is it the teaching that should be evidence-based (didactical level?) or is it the content of the teaching process that should be evidence-based? Is it the whole curriculum that should be evidence-based or is it an integration of the five-step program in the curriculum, either as separate course models or as part of another course?

Reply: I believe this is with reference to a statement from the National Health care plan for Norway that states that teaching should be evidence based. In this document it is referred to both curriculum, and content of teaching (not the integration of the five steps). This part is now deleted, as we saw making the introduction section more broad, to be relevant for all health care professionals (in light of the response concerning broadening the reference to barrier studies).

22) Minor revisions: Role modelling as one of the modes used is characterized as a social-cultural learning theory, but in fact is originally behavioristic and based on Bandura’s theory (?). The second mode is not clear to me. Is it knowledge rather than skill based and does it refer to the use of examples in class?

Reply: We have deleted the part about socio-cultural learning theory from the introduction section. Regarding the second mode, this is about role-models e.g. CIs or
other persons (preferably in clinical practice) using evidence in their routing practice, so that students (and others) can see that this is actually a routine practice. I now see that this is not very clear in the introduction section. Due to the way we now have revised this section, this part is also deleted.