Author’s response to reviews

Title: Proposing a re-conceptualization of competency framework terminology for health: a scoping review

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Response to reviewer comments have been tabulated and provided in a document as Supplementary Material. They are further included below.

REVIEWER ONE
Comment 1. What was the mnemonic strategy used to elaborate the exploratory questions, following the Mnemonic Strategy: PCC (Population, Concept, Context) (JBI, 2015)?

Response 1. No mnemonic strategy was used to elaborate the exploratory questions due to the broad nature of our question, not being delimited to a specific population or target sector with concept-mapping across multiple contexts and settings. The authors used an aetiological approach i.e.; they express the pathway of enquiry required to address the research question. This includes formulating review questions, defining suitable inclusion and exclusion criteria, performing searches, selecting studies for inclusion, extracting data, and so on.

Comment 2. According to the paper (p.3), only one author was responsible for the research. However, JBI (2015) guidelines indicates that extraction should be performed by two independent researchers. Why was the search done by only one author? Such decision points to an important methodological limit to be presented at the end of the paper.

Response 2. The paper is not a JBI review, however the authors do acknowledge that data extraction being conducted by one author does present a limitation. This is now included in a new section on Limitations, which has been added to the Discussion.
The authors sought to mitigate the risks of a single author conducting data extraction through the validation process described on pages 7-8. This involved two additional authors conducting independent data extraction for both publications already reviewed by the first author, as well as additional publications that had not been reviewed. Completion of this process did not reveal discrepancies in findings that would signal concern for the papers for which only one author conducted extraction.

Comment 3. Figures 4 (unreadable in PDF) and 5 present a number of studies higher than the 70 selected. Why is that?

Response 3. The authors will ensure that Figure 4 is clear in the resubmission of the article.

Because the data presented in Figure 4 (publication dates) did not require any data extraction, it was feasible for the authors to include all 623 publications included post title and abstract screening (publication dates were automatically generated by Endnote). This has now been made clear through the additional explanatory text below Figure 4.

Figure 5 (and the newly added Figure 6) only include the 70 publications that were included post-full text review (the x axis is % of records, not number of records). This is reflected in the statement above Figure 5: “…health-related competency frameworks represented 40% of the 70 records that underwent qualitative analysis…”, and the titles of the figures have been amended to explicitly state the number of records being captured.

Comment 4. What were the reasons for the exclusion of the original 3,532 articles? On page 3, the authors report the selection of 70 articles from a number of 623. However, it is not understood if all 623 articles were fully read. Then, they present the reasons for the exclusion; however, it is not clearly understood if they were from the initial 3532 articles or from the subsequently 623. The reasons for the inclusion / exclusion of the data could be better explained.

Response 4. 4155 articles were screened by title and abstract, using the inclusion/exclusion criteria described. Of the 623 articles that were including following this process, a sample of 97 were selected (using steps 1-3 described on page 7 and displayed in the results tree on page 9), which were all fully read. An additional 10 from the 623 were included via the validation process, meaning that 107 articles were full read in total. Of all of these, 37 were excluded, resulting in 70 being included.

This is now better articulated in the Methods section on page 7 and Results on pages 8-9, and the results tree has been amended to better depict the number of articles that were fully read.

Comment 5. As no previous filters were used, it is important to present a synthesis regarding the characteristics of the included studies, such as affiliation / origin of the authors, countries where the studies were developed, language of publication, journals, method types, etc.

Response 5. A table synthesising the characteristics of the included articles, including countries, publication dates, and sector has now been added (Table 1, page 9-10). Method types were not included as the vast majority of articles were not conducive to method-classification.
Comment 6. In figures 4 and 5, there is a growth of publications since 2010, especially in the health field. Can you point out which is the reason for such growth?

Response 6. The authors can only speculate as to why there was such a stark increase in the number of publications from 2005. This is broadly described on page 19, where it is attributed to the expansion of competency frameworks beyond education and employment and the increased uptake of competency frameworks across more countries. The seminal 2010 Lancet Commission report on health professions education and called for competency-based education and training approaches for the health field. Additionally, competency-based education approaches have only become practically integrated into health professions education since the 1990s; and the growth in publications is aligned with the time delay from early applications to emerging evidence for its benefits and applications. The authors have now also pointed to the potential link in growing interest in competency frameworks with the WHA resolution on workforce and the subsequent launch of Workforce 2030 (see page 19).

Comment 7. In the conclusions, the authors should present the limitations of the study.

Response 7. A limitations paragraph has now been added (see page 28).

Comment 8. Table 4, which is very interesting, is not listed in the paper.

Response 8. The glossary that is presented in Table 4 is referred to in the Discussion on page 23, however the explicit reference to the table was not included. This has now been rectified.

Comment 9. 70 records were selected, but in the references, not all appear. Why is that? My suggestion is to present a synoptic framework with all the data from the selected records

Response 9. The suggestion of adding a synoptic table including all articles is well received and has been included as Table 1 (see pages 9-10). As a result, all 70 publications are now included in the reference list.

REWIEVER 2

Comment 1. The methods are well structured, but steps 1-3 in Aim 2 can be more clearly presented. It is difficult to see how the selection matches with the figure 1. Is the denominator 623? I would be helpful to include the numerator and even the denominator if it differs. Detail added to Aim 2 on page 4 should potentially be added to figure 1 on page 5.

Response 1. The selection process has now been described in more detail on page 7 and 8, and the results tree (Figure 1) has been amended.

Comment 2. I'm unable to see figure 4 on page 9. Ensure formatting is correct for the publication process

Response 2. The authors will ensure that Figure 4 is clearly legible when the article is re-submitted.
Comment 3. Various statements refer to references without including them. Please add for the following sentences:
 a. p 9, lines 23-26 "Frameworks apply the terms..."
 b. p 9, lines 26-28 "There is a tendency for..."
 c. p 9, lines 51-52 "Some frameworks focus solely..."
 d. p 10, lines 6-9 "Indeed, health-related competency..."

Response 3. References have now been added for all the statements a-d.

Comment 4. Three sentences with substantial information should be broken down to 2 or more sentences for clarity.
 a. p 11, lines 5-9 "However, in its definition..."
 b. p 11, lines 31-38 "Two highly influential conceptualisations…"
 c. p 13, lines 27-32 "Hager and Gonczi and ten Cate's..."

Response 4. Sentences a-c have been re-worded/structured for improved clarity. Specifically:
 a. “However, in its definition of competence, reference is made to a specific level of proficiency, which is a feature associated with a dichotomous conceptualisation of competence characteristic of a functional approach. Specifications of an expected level of proficiency portray a standard by which one can be measured against and are associated with employment-related applications, such as regulation.”
 b. “Two highly influential conceptualisations have emerged from the education and employment sectors, which have defined this topic area with seemingly incongruent views to competency. They consider competency as either ‘behavioural’ (continuous and evolving, underpinned by the accumulation of attributes and linked to performance in general), or ‘functional’ (related to the performance of a specific occupation or activity and concerned with a definitive end point of being ‘competent’).”
 c. “Hager and Gonczi and ten Cate’s propositions are similar in so far as they both suggest that competence is underscored by a concept of integrated attributes and tasks. They differ however in that Hager and Gonczi posit that tasks should be described in general terms only with the emphasis being on the capabilities that underlie their successful performance, whereas ten Cate focuses attention on discrete tasks that are observable and measurable, leaving the underlying competencies to inference.”

Comment 5. Describe durable where it first arises- p 12, line 4. Currently it is defined on p 18.

Response 5. The description for ‘durable’ has now been moved to where it first appears (page 23) as suggested.

Comment 6. The proposed features of the re-conceptualized CF terminology for health are very nicely presented on pages 11-13. I strongly recommend that the authors include examples of application, such as from the WHO Rehabilitation Competency Framework in which the re-conceptualized terms were applied.
Response 6. The authors agree that the addition of examples for each of the features described in the discussion would greatly assist readers. These have been added (with the exception of feature four, which already includes an example), but as abstract examples, rather than from a specific competency framework as the WHO Rehabilitation Competency Framework and the Competency Framework for Universal Health Coverage, which both apply this conceptualisation, have not yet been published.

Comment 7. Feature 4, 'Conduciveness to translation,' is an extremely important point to include for broad application of a re-conceptualized approach to CF terminology, the recommendation made by the authors, after all.

Response 7. NA

Comment 8. In the discussion section, the authors should comment on the limitations of applying sampling methods to the selection of the sample

Response 8. A limitations paragraph has now been added, which includes the limitations arising from both the sampling method and the data extraction being conducted by one author.