Reviewer's report

Title: Novel Refreshers for Cardiopulmonary Resuscitation: A Randomized Controlled Trial

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Reviewer: Suzie Kardong-Edgren

Reviewer's report:

Thank you for the opportunity to review this interesting use of technology for refreshing CPR knowledge and skills. The manuscript is well written. There are some things that could be added to enhance the manuscript which I will suggest.

1. Is the question posed by the authors well defined? No, but can be easily remedied.
2. Are the methods appropriate and well described? Yes
3. Are the data sound? Yes
4. Does the manuscript adhere to the relevant standards for reporting and data deposition? It will
5. Are the discussion and conclusions well balanced and adequately supported by the data? Need further development
6. Are limitations of the work clearly stated? Yes
7. Do the authors clearly acknowledge any work upon which they are building, both published and unpublished? Not for theory…
8. Do the title and abstract accurately convey what has been found? Might want to consider adding the word novel electronic refreshers to the title of the paper.
9. Is the writing acceptable? Yes

Major compulsory revisions

The abstract is much more clear than the manuscript on what you actually did, at this point. The study purpose is not clearly stated the first time in the paragraph, right before methods. The next time the study purpose is discussed it appears in the statistical analysis section under the heading hypotheses, and is now stated as hypotheses and …a secondary hypothesis is mentioned for the first time. Clearly stating the research questions or hypotheses early on will prepare the reader for what is to follow. As a reader, I should not be surprised later in the manuscript.

The study would benefit greatly from theory use. Why would you think these brief reminder sent electronically might work? I can think of at least 2 theories you could use to support your brief refreshers enhancing cognitive, psychomotor and affective skills. You sort of address theory in a paragraph under heading measures, but it is out of place there; it should be earlier and developed. Name
the behavioral theorists.

The idea that passive reading and refreshing could improve psychomotor skills seems very incongruous to this reader/researcher in CPR. Do you really mean that subjects would remember the sequencing, number of times to do what, when they refreshed or had to do CPR? I would consider fleshing out that assumption or reframing it a bit.

Third paragraph under Methods section- would be clearer if you said Using clear concise visual depictions, each of the 4 -5 refreshers reviewed the 5 …

In section for study conditions- It is not clear how many emails or cell phone calls were sent. Define a series, for both of your Trial 1 and 2 time periods.

I had to look up leptokurtic to know what it meant. You might want to include a few words explaining that your data was centered around the mean, in R/T the word leptokurtic, to make your results accessible to more readers. Most folks will probably not take the time to look up words.

The self efficacy tool had a 9 possible total, right? So your median was 3.6 and mean was 3.13- out of 9? That is pretty significant and should be discussed more, later in the paper. What is happening here? Right tool, no feeling of self efficacy at all? What? The same for behavioral intent...it is a 21 item tool and 2.89/21, right? Isn’t this amazing? How do you account of this? (If I read this incorrectly, please excuse me, but this is not what I would expect to see. More explanation/discussion is warranted.

The discussion section is weak and could be developed much more. Findings should be discussed in R/T your theory…which you alluded to but did not develop earlier. So develop it and then discuss it here. Younger, more education and white- meant they did better. Develop this thought line more in discussion.

The discussion about why web was effective was lacking. Develop this more.

The directions for future research as written had nothing to do with your independent variables. Future research should be addressing this use of technology I think, you went off on a tangent here. I do not see the same degree of thought and care in your discussion, as I do in your reporting of findings. This novel approach deserves better treatment.

Discretionary Revisions

Consider adding the word electronic to your title, so it more clearly addresses what you did. You might also have framed your three dependent variables in terms of cognitive, psychomotor and affective evaluation also.

I have no competing interests with this manuscript.

**Level of interest:** An article whose findings are important to those with closely related research interests

**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'