Reviewer’s report

Title: Healthcare Information Systems: The Cognitive Challenge

Version: 0 Date: 17 May 2017

Reviewer: Karen Dunn Lopez

Reviewer’s report:

The authors manuscript is a debate style manuscript using case studies as examples to illustrate their central argument that cognitively focused design is superior to technically focused design for electronic health records. I begin by noting that I support their primary argument. However as written I do not think the authors have developed a strong case for this. Citations are needed throughout to support their claims. Below I provide an overview of the strengths of the manuscript and opportunities for improvement:

1. Abstract- The abstract is fairly clear and compelling.

2. Article Structure- The overall article structure is unclear. The background and significance section is followed by a challenge section that is not clearly stated. Perhaps a subheading: technology focused design in electronic health records would improve the clarity. After the second case study there is a section called overview but it is not clear what it is an overview of. The next subheading "facing the challenge" is also unclear perhaps because the challenge is not clearly articulated. The second set of case studies would benefit from a clearer sub heading title as well. This is followed by a discussion but no conclusion.

3. Background and Significance-This section gives a reasonable broad introduction. Citations are needed to strengthen and support. In particular, cites for

P 1 S4

P2 S2-3

P3 S1-3

This section would also be strengthened by a clear purpose statement.

4. Case study 1- This case study is not particularly strong or generalizable to many organizations. I believe there are stronger case studies that would better support their argument. If this case study remains, it would be improved by defining: unscheduled evacuations including a clearer explanation of the implications for nonmilitary readers, situation awareness and why it is important and what they mean by comprehensive cognitive analysis.

5. Case Study 2-This case study is somewhat more illustrative but uses only one cite when much has been written about the NHS electronic record system that could be included.
6. Facing the Challenge-This section could be clarified. This includes a definition of usability and usability paradigm (p. 4 P2) and an explanation of the methods used by cognitive systems engineers. The text box on P4 illustrates the different between rule based and dynamic control but is not referenced in the text or titled. The top of p5 is a good explanation of macro and micro cognitive processes, some explanations like this would aid in the first part of the paper. At the end of this discussion they appear to be discussing data visualization to enable rapid cognition for which there is a considerable amount of research to cite, but they do not mention it by name.

7. Case Study 3-This case study is more detailed than the first two with convincing details. Definitions are needed for mental effort. I also believe there are opportunities to make more concise and retain the clarity and depth.

8. Case Study 4-This case study is also more developed than the first 2. I suggest the authors define cognitive interviews.

9. Discussion-The discussion seems repetitive in places and does not tie to the literature as it should.

X. Surprising Omission-I am surprised there was no mention of user center design and the evidence that support this method.

**Are the methods appropriate and well described?**
If not, please specify what is required in your comments to the authors.

No

**Does the work include the necessary controls?**
If not, please specify which controls are required in your comments to the authors.

Unable to assess

**Are the conclusions drawn adequately supported by the data shown?**
If not, please explain in your comments to the authors.

No

**Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?**
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

Not relevant to this manuscript

**Quality of written English**
Please indicate the quality of language in the manuscript:
Acceptable

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