Reviewer’s report

Title: Designing clinical practice feedback reports: Three steps illustrated in Veterans Health Affairs long term care facilities and programs

Version: 0 Date: 13 May 2019

Reviewer: Gratianne Vaisson

Reviewer's report:

Thank you for the opportunity to review this paper. The authors applied User-Centered Design to audit and feedback interventions with specific operationalizations that they offer for use by others in the audit and feedback field.

Major comments:

1. The authors wrote that they "extend" step 2 of Witteman and colleagues' framework of user-centered design, "Develop/refine prototype," by adding steps related to "requirements", "measures", "data", and "display." This is not an extension; it is an operationalization of this step for audit and feedback. This is a potentially useful contribution to the field of audit and feedback, but why focus only on operationalizing step 2? Operationalization of user-centered design steps to audit and feedback could be applied to the whole cycle of the user-centered design process.

1b. Related to the above, the authors may wish to note that Witteman and colleagues' synthesis specifically omitted the requirements specification stage in other frameworks (namely ISO 9241-210: Human centred design for interactive systems) to allow for the inclusion of co-design methods. The authors may wish to (re-)consult the ISO reference for further information.

2. Exiting user-centered design cycle does not "ideally happen only after there are no issues identified that would change the major structure of the report." Exiting is about the design solution satisfying user requirements in terms of usability (executing the tasks when using the product but also answering user objectives that can include perception and emotions tied to the product). This may indeed occur when there are no more issues identified that would change the major structure of the report.

3. Page 12: Characteristics of participants in the design of each site are lacking. It would also be good to have site characteristics (such as number of health professionals, number of patients or any other site specifics that may explain differences between requirements and subsequent design.)

3b. Related to the above, on page 13 "We compared and contrasted characteristics of site contexts and participants to form generalizable traits of users across sites and to identify contextual differences that reports would need to accommodate." Could the authors describe the differences between sites?

4. The authors write on page 17: "At the conclusion of the design process we began delivering practice
feedback reports to facilities at the 4 demonstration sites and following up with calls to these sites to request additional feedback that would allow for minor improvements to the report design." Using user-centered design typically implies longer-term surveillance during a specific period of time to check performance of the product, assess whether user needs and requirements were satisfied, and detect problems that may not have been detectable without such follow-up. Was this done in this study? Particularly given the submission to Implementation Science, it would be useful for readers to better understand the authors' plans for continued surveillance post-implementation.

5. On page 20, the authors write: "Ongoing feedback report adaptation incurs a cost that has not been evaluated, and may not be feasible in smaller-scale interventions that cannot afford to hire a design team. We note that the method is feasible to implement on a small scale, with a single person conducting design team activities, for example iterating prototypes in a spreadsheet." The authors may wish to reflect on whether a design team with experts is truly necessary. Involving a few users and observing them interacting with the report is one approach that does not typically require a lot of money.

6. Step 2. Develop/refine prototype: Figures 3 and 4 present the first and last version of the prototypes. Could the authors present the 12 prototypes (possibly in appendix) and explain the differences between them (ideally within the main manuscript)? It would help understand the results.

Minor comments:

7. Overall, the heavy use of acronyms makes the manuscript more difficult to follow and less readable than it could be. The authors may wish to consider avoiding acronyms except for key acronyms in the study (e.g., UCD).

Background:

8. Page 4: The authors write: "Our objective is to describe such a process that builds on prior studies and focuses on the context of large-scale A&F interventions." To which prior studies are they referring? Could they describe them a little, telling the reader what was needed and what they expect to bring to the field? This would help better put their research in context correctly.

9. Page 4: The authors mentioned, "The purpose of using feedback reports in this context is to promote adoption of new practices and to identify opportunities for improvement." Did they measure any outcomes regarding adoption of new practices after reports were adopted in practice? Later sections (including discussion and conclusion) do not seem to discuss it. Having a user-centered design might be expected to be more efficient.

Methods:

10. Page 5: Describing Step 1, understand user, the authors note: "Designing a useful and appropriate feedback report requires the designer to have an understanding of the purpose of the report and the people who will use it." Later, the authors comment on contextual factors. These should be mentioned here, as they are part of the framework they reference. Note that the framework synthesizes other literature such as ISO 9241-210 Human centred design for interactive systems, which specifically notes, "Characteristics of users, tasks, equipment, and the environment (physical and social) in which the product is used." The step "understand user" does not solely refer to users' characteristics.

Results:

11. Page 11: what does "life-threatening event" refer to? There is a lack of explanation/clarity (possibly
partly because of all the acronyms) regarding patient conditions and the program here.

12. Page 11: "One site was geographically close." Which location?

13. Page 13: was there an interview guide for the process of interviewing, "teams to understand the context for GoCCs, professional roles, Veterans' care processes and environments, and the activities involved in conducting GoCCs"?

14. Page 14: The following is somewhat vague: "We used anecdotes from our observations to support several types of refinements in our understanding, including recognizing false assumptions and establishing ranges of user needs and preferences (Additional File 1, Example 1)." It would be helpful for readers' understanding to have more details in the main text.

15. Step 2. Develop/refine prototype: It would be helpful to have examples of quotes from field interviews embedded in the text to better understand the team discussions and refinements needed.

Discussion:
16. Did the authors consider conducting formal evaluations (e.g., a factorial experiment) to test some design aspects while implementing in different sites? Why or why not? Could they comment on this?

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