Reviewer’s report

Title: A proof-of-concept framework for the preference elicitation and evaluation of health informatics technologies: the online PRESENT patient experience dashboard as a case example

Version: 1 Date: 24 Feb 2019

Reviewer: Baki Kocaballi

Reviewer's report:

The paper reports on the use of Discrete Choice Experiment to inform design of online dashboards in healthcare settings. Although this work is potentially important, I have some major concerns about the study design and its contributions. I'll briefly explain them in the following paragraphs.

Main contribution of the study is not presented clearly. The following is what the paper claims to do: "This paper sets out to propose, define and implement a customization and evaluation framework for an online software dashboard that satisfies these needs, using a Discrete Choice Experiment." I found this aim confusing, somehow limited, and not situated within the gaps of the relevant literature. Is the aim to propose a customisation and evaluation framework for software dashboards only? Or for IT systems in general? Or dashboards/IT systems in healthcare or other settings? If the focus is upon healthcare settings, are there any particular factors that separate it from other domains? If yes, what are they? If not, what would be the unique contribution of the paper in using DCE to develop a healthcare IT system? Is the novelty of the current study related to use DCE as part of this framework? Has DCE been used for developing such IT systems in other domains and/or in healthcare domain? If it has been used, what are the outcomes and/or gaps in this line of work? Has DCE been found effective? If so, in what ways? Is this the first study to use DCE in developing a healthcare system or is it more specifically a novel use of DCE in dashboard design &amp; development?

If the contribution is not limited to the use of DCE but is related more to the whole process, then the entire process and framework need to be presented in a much more structured way. Proposing a framework ideally requires a structure preferably presented together with a diagram with various stages, factors and activities comprising the framework. Currently, the series of activities performed to obtain the desired results seem arbitrary and hard to situate within a structured framework.

The framework/process appears to involve the following activities:

- Identifying attributes and levels:
  - A systematic review (unpublished and limitedly reported)
  - A scoping survey with 35 respondents (limited information on its design and demographics)
  - Co-design workshops (6 workshops with 34 participants)
  - Identification of 21 features and then discussion and 'further co-design work' were performed to reduce them to 10 features. (no information on the process to reduce the no of features from 21 to 10, and why 10? Mentioning of 'further co-design work' is too vague.)
  - At some point willingness-to-pay amount was gathered from the potential users.
Cognitive interviews with two stakeholders were performed to get feedback on features and potential prices (no details on this).

- Experiment Design
  - Some experimental design methods (that are not clearly presented) were performed to determine number of attributes and their levels. In the literature, it seems the aim is to generate Fractional Factorial Design, but it is not clear whether this has been the case in this study or not.
  - Some more descriptions of ad-hoc-looking decisions on attribute and level choices, ending with 'using one of the feature (unspecific) of [their] experimental design software' to generate three different versions of the same design with the various combinations of attributes and levels.

- Conducting the Survey
- Performing the DCE analysis
- Estimation of product valuation

Which part(s) of the work, process or outcome presented in the paper are proposed as the contribution is not clear to me. If the entire set of activities is the contribution, the paper needs to spend more time to re-organise these as a structured process with clearly explained and evidence-based rationales to support its activities.

I do not see any evidence to support the following claim (Page 17, Line 52): "Discrete Choice Experiment can be successfully used to inform development of an online dashboard by determining preferences for particular features and customization options and how this affects individuals' purchasing behaviours." How has the study arrived at the conclusion that DCE successfully informed the development process? Earlier in the discussion, the paper states that "it is not clear what the uptake would be among the overall stakeholder population" (Page 17, Line 6). How was the success measured in this case? There is no way to judge whether using DCE has been effective in determining the features desired as there is no product and associated demand information available. Perhaps, a qualitative study to discuss the findings derived from DCE study with potential users could improve the validity of the results.

Finally, the specific healthcare setting has never been mentioned. Healthcare is a very large domain and a statement like generic key features of 'a healthcare dashboard' (Page 5, Line 35) is very vague and unspecific. A dashboard in an emergency room has different kind of requirements than the one in a primary care setting. Was there a particular healthcare setting targeted? Were the participants told about a target domain/setting? Or were the participants knowledgeable/relevant health professionals/stakeholders in the case of a specific target setting?

I would recommend major revisions to address these concerns before publication.
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?
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No

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I am able to assess the statistics

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