Reviewer's report

**Title:** The impact of familiarity on faucet usability for older adults with dementia: An incomplete counterbalanced measures study

**Version:** 1  **Date:** 3 January 2013

**Reviewer:** Nigel N D Harris

**Reviewer's report:**

Major revisions

The work has been carefully conducted and the paper is well written. The major limitation of the work is the fact that participants use one of the faucets in the trial every day. This is discussed, but not under limitations of the study and the key question is does this invalidate the study (or at least the primary hypothesis)? This needs to be clearly addressed.

Major essential revisions

I am not sure that it is appropriate to include the reference to incomplete countermeasures in the title. (I will comment on this more later).

The manuscript is rather long. It would benefit from being edited down. For example, I do not consider it necessary to include so much background on the impact of dementia in the introduction and quite often there is some discussion about the pros and cons of an approach included in each of the other sections. The description of the usability / familiarity scale could be simplified.

The methods are appropriate. I am unsure about the need for a counterbalanced measured design on two counts. I understand that a balanced Latin square design might be appropriate and would justify a smaller sample size. Secondly the majority of the subjects have dementia and the study was carried out over 50 days, I think. This should be discussed in limitations of the study.

Page 19 - last para. I did not understand the point about treating participants as clusters.

Page 20 - Second para. I am not sure inference is the appropriate term here. It is quite reasonable to group the mild and aware subjects together.

Results

It would be clearer to structure these in the same order as the methods. Usability, Effectiveness and Efficiency.

Table 2 seems over complicated to me and I found it difficult to follow the two halves (assistance / errors)

Figure 3 Graphs a and b seem redundant
The response rate of the to the difficulty question is discussed but not the findings.

Discussion
It would be clearer to structure these in the same order as the methods. Usability, Effectiveness and Efficiency.
The discussion is rather long and the text could be more concise.

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

Quality of written English: Acceptable

Statistical review: Yes, but I do not feel adequately qualified to assess the statistics.

Declaration of competing interests:
I declare that I have no competing interests.