Author's response to reviews

Title: Successful implementation of new technologies in nursing care: a questionnaire survey among nurse-users

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Author's response to reviews: see over
Dear Mr. Aldcroft,

Thank you for reviewing our manuscript. Although one reviewer still has some concerns we are pleased that both reviewers think the study is interesting and should be published. We are positive that the manuscript is now eligible for publication.

We feel that one reviewer is not satisfied with the theoretical model underpinning our study. Although the number of studies and theories concerning the implementation of technological innovations in health care have increased greatly over the last 20 years we feel that the implementation of innovations in health care is still in its infancy. Several models are empirically grounded. So is ours. Yet, none of the models explains the whole process. Therefore, we think that our model as well as that of the reviewer will gain to a better understanding of the many questions and problems that still need to be addressed in this field.

In the next pages we give a point-by-point response to the remaining comments by the reviewers and how we addressed them in the manuscript. Included are two versions of the manuscript. One with track changes and one blank version.

With best wishes, also on behalf of the other co-authors,

Anke de Veer
Annex

Our point-by-point response to the reviewers’ concerns

Reviewer 1 (M. Koivunen)

Reliability and validity of quantitative data
The list of 50 potential determinants which we used for coding the open answers was empirical
grounded. From 1999 to 2002 a literature review was carried out with the aim of obtaining an
overview of determinants of innovations in health care organisations. Eleven databases were searched
for empirical studies published between 1990 and 2000 of innovations that were implemented in
practice and assessed both degree of implementation and related determinants. From the initial 2,239
abstracts, 57 studies were retrieved and 49 determinants were initially identified as having an
empirically verified potential for affecting (impeding or facilitating) such innovation processes.
Next, a Delphi study was conducted to facilitate consensus among experts about the determinants
identified in the literature review. A total of 44 implementation experts (researchers, programme
managers, and consultants/advisors) participated. They identified one additional –organisational-
determinant. After three rounds, consensus was reached on the definition of each determinant and on
the direction of influence of 49 out of 50 determinants.
The results of the literature review matched those found in the Delphi study. Furthermore, the
determinants found the literature review match those used in other models and frameworks.
Since 2004 several researchers in The Netherlands as well as from abroad have used the list.
Therefore, we believe these 50 determinants will be widely recognised and accepted by
implementation experts.
We added some of the above mention information in the manuscript (background). If the reviewer
wishes so, we are glad to add more information.

Since the 50 determinants are well described, we did not choose to use a software program for
qualitative data analysis – e.g. MAXQDA - for identifying determinants. As reported in the article,
two researchers independently coded the first 100 answers (50 respondents, 2 answers for each
respondent) of randomly chosen questionnaires to assess their reliability. The intercoder reliability of
the determinants was 81%, which is good. To maximize the reliability of the codes the researcher who
coded the remaining answers (AdV) discussed the codes with another researcher (MF) whenever there
was any doubt (approximately 10% of all codes). The coding of the elements of the innovation process
followed the same procedure. The intercoder reliability was 86%. After establishing the intercoder
reliability one researcher coded the answers and discussed doubtful codes.
We added this extra information in the manuscript.

Reviewer 2 (J. Aarts)

General comment
In short, the concerns of the second reviewer relate to the fact that a global questionnaire as used in
our study will not provide precise information on determinants in a specific setting. Therefore, when
introducing an innovation it is important to obtain detailed qualitative data from the potential users
who intend or are ‘obliged’ to use the technology. This is exactly what we have been expressing in
former articles and what we apply in our studies. So, on this point we fully agree with the reviewer.
Most of our studies on implementation of innovations either start with individual or focusgroup
interviews to obtain qualitative data followed by a questionnaire study to obtain quantitative data, or
the other way around.
We also fully agree with the interviewer that “the study offers valuable insights how a large group of
users perceive new technologies”. This is exactly what our study is about, namely a general
quantitative overview of perceived barriers and facilitators perceived by a representative sample of
nurses.
We clearly added this in the discussion part, as the reviewer proposes.
The reviewer speculates about several underlying reasons that may have caused non-acceptance of a technology. Our previous studies have shown that both adoption and implementation of innovations are influenced by several determinants. The reviewer seems especially trigged by the example of dysfunctional technology that was given by some respondents. If we do not misinterpret his comment, the reviewer suggests that technologies are rarely technically dysfunctional – objectively determined – but may be in the mind of the user – subjectively determined-. First, nor the reviewer nor we can be for sure whether the technology mentioned by the respondent really had objectively measurable shortcomings. This might be the case. Second, in our model the perception of the (intended) user plays a crucial role. If e.g. a user says time-constrains is a problem for using the technology, so be it. Even if we could argue that this user has objectively the same amount of time compared to colleagues who do use the technology. So the perception of the (intended) user is the starting point for change in our model. If we ignore these perceptions we know that change will not occur. So, pointing out the technology is evidence-based or has no shortcoming, will not alter the adoption of this specific user. 

We added in the text that in our model the perceptions of the (intended) user play a crucial role. This is also reflected in the words we used in the results section like 'the respondents think, feel, are of the opinion…etcetera'.

Page 7 ‘in which they’. Is changed into ‘in which the authors’.

Page 9 ‘lab scores’. Is changed into ‘lab results’

Page 9 ‘for themselves’ Is left out now.

Page 13 ‘dysfunctional’ needs to be problematized. See our answer to the general comment of the reviewer. It is perceived as dysfunctional. We added this in the text.

Page 14 ‘help-desk or support system (24/7 help-at-the-elbow). We added a reference.

Page 14 ‘carefully chosen strategy’. We left ‘carefully chosen’ out.

Page 14 ‘nursing staff should be involved’. We clarified this according to the reviewer’s comments.