Author’s response to reviews

Title: A cost-effectiveness study of ICT training among the visually impaired in the Netherlands

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Subject: Submission of revised paper ‘A cost-effectiveness study of ICT training among the visually impaired in the Netherlands’ BOPH-D-17-00245

Dear Dr. Tu,

Thank you for your email [21st of November 2017] enclosing reviewers’ comments. We appreciate the time and effort invested by reviewing our manuscript. We have carefully reviewed the comments and revised the manuscript accordingly. On the following pages, you will find our responses in a point-by-point manner, with clear indications of amendments made to the manuscript.

On behalf of my co-authors, we thank you for providing us with the opportunity to resubmit the manuscript and we hope that the revised version will be suitable for publishing. We look forward to hearing from you again.
Yours sincerely,

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Reviewer 1

Thank you for your time and effort invested in reviewing our manuscript. We are glad to hear that there were improvements from the first revised version and we are happy to receive the opportunity resubmit our manuscript. Below you find our response to your comments in a point-to-point manner.

Reviewer 1, point 1: Unresolved comments on first submission Abstract line 7 (and elsewhere in methods and results) The authors still use confusing terminology regarding the "questionnaire", now using the same word to describe the combination of 6 questionnaires, and the individual questionnaires themselves. I would suggest describing the event as a "questionnaire" which used six different "instruments", with these questionnaires taking place at three "time points" (rather than "moments" as used in page 7 line 1).

Response: We agree with the reviewer and we have used her suggestions of using the term 'time points' instead of 'moments' and referring to 'instruments' as opposed to 'questionnaire' when describing the parts of questionnaire. Amendments can be found in section: ‘Abstract’, Line 7-8, Page 2, ‘Methods’, Line 7, 9, 11, 15, 17, Page 7 and on Page 8 Line, 10 and 19.
Reviewer 1, point 2: Page 4 line 4 Thank you to the authors for adding the logMAR notation, but visual acuity of <0.05 is actually logMAR <1.3 rather than <1.5.

Response: Thank you for pointing this out. We have adjusted the manuscript accordingly. Amendment can be found in the section ‘Background’, Line 4, Page 4.

Reviewer 1, point 3: Page 4 line 21 Thank you for adding the Bray et al citation. However the aids tested are "ELECTRONIC vision enhancement systems". Also p16 line 17 incorrectly says that the study compares two optical aids.

Response: We agree with the reviewer and apologize for this mistake. We have adjusted the manuscript accordingly, amendments can be found in the section ‘Background’, Line 11, Page 5 and ‘Discussion’, Line 3-4, Page 18.

Reviewer 1, point 4: Page 4 line 21 incorrectly talks about "neither of these" studies, but for three studies it should be "none of these".

Response: We apologize for this mistake. The manuscript has been adjusted. Amendment can be found in the section ‘Background’, Line 21, Page 4.

Reviewer 1, point 5: The Figure 1 is a very helpful addition to show the dropouts. However it still lacks detail about the recruitment stage. We still don't know how many people were offered training and declined, and (more importantly) how many people had training but were not part of the study. This is important so we know how representative this group might be of the whole population. The paper says "Those who were interested in the ICT training were assigned to an
assessor who performed the intake and judged whether the ICT training would be feasible and appropriate. During the intake, enrollees were asked if they were willing to participate in the study. Clients willing to participate then gave their informed consent.” So the numbers at each stage need to be included in Figure 1, along with the details of how the assessor makes the judgement on the appropriateness of training. These assessments presumably take some time and so they should be included in the cost-effectiveness calculation.

Response: We thank the reviewer for pointing out this. As stated in the manuscript, 180 clients are trained in the entire country, annually. The inclusion in this study started gradually in a selection of regions, and gradually expanded (the northwest and the southwest regions started three months later). The ICT trainers had to become familiar with the study, this required some time. Unfortunately, we do not know which people were offered training but declined. Based on the available information, we have made some small adjustments to Figure 1. Regarding the intake, the assessors judged the appropriateness of ICT training mainly on their subjective impression of the need and enthusiasm of potential candidates. All respondents that were offered training were known by the organizations, as many of these respondents received other support services provided by them. Furthermore, since we view this as a pragmatic trial, we did not make efforts to register dropouts in detail nor did we try to monitor it. We acknowledge that this can be considered as a limitation and we have therefore decided to mention this in the discussion. Amendment can be found in ‘Discussion’, Line 2-5, Page 20.

Reviewer 1, point 6: The drop-out data still isn't clear about how much training (some) participants underwent before dropping-out. I still believe that these people create some costs, and yet can't be shown to gain any benefit from the training.

Response: We agree with the reviewer that the cost of the training for those who did not complete the training should be included in the cost calculation. The 14 respondents, who started training but dropped out, had on average 9.42 sessions. The average cost per session was € 150.
In total, these sessions cost € 19,800. Distributing these costs among the 45 respondents who completed the training, gives an additional cost of € 440 (= € 19,800 / 45) per participant. We included these costs in costs and cost-effectiveness calculations, as a separate scenario analysis. Amendments can be found in section ‘ICT training costs’ Line 15-23, Page 10, and under section ‘Cost-effectiveness’, Line 16-19, Page 15 and Table 3. We also performed uncertainty analysis including the costs generated by those who did not complete the training. The probability that incremental costs are lower than € 20,000/ year of well-being gained was 2% lower (73% vs. 75%) than when excluding the costs among those who dropped out (for the variant incorporating medical costs and ICT costs). Amendment has been made; see section ‘Uncertainty analysis’ on Line 14, Page 16.

Reviewer 1, point 7: The authors didn't address my point about some people who had not completed training "within the study period". Did this mean that their training was particularly lengthy, and therefore more costly? If they are not being counted this would artificially lower the mean training cost.

Response: Five respondents did not complete the training within the study period. Three of these respondents, started later than initially planned (these clients often had to complete other training modules prior to ICT training) and thus, could not be expected to finish the training within our study period. Therefore, we decided not to send them the post-training questionnaire and thus not to included them in the study. For two respondents we do not know the reason for not starting the ICT training. In our opinion, there is no significant reason to believe that the three persons who started later than initially planned would have lengthier and hence, more costly ICT training.

Reviewer 1, point 8: Page 6 line 13 What use was made of the information gathered on level of education? The authors respond that "it is important to know the composition of the sample. It can be assumed that the level of education will have an effect on the total training time required as well as how severe the visual impairment is. For example, a high-educated person may learn
faster and, hence, may not require an extensive ICT training or may not be as severely impaired, and therefore capable of completing a higher education level opposed to a person who is severely impaired.” However I have searched through the paper and cannot find any analysis of education vs. training time.

Response: We agree with the author that the analysis regarding the relation of education and training time should be mentioned in the manuscript. We have adjusted the manuscript accordingly. Amendment can be found under “ICT training costs”, Line 12-14, Page 10.

Reviewer 1, point 9: New comments on revised version Page 5 line 15 describes the cost-effectiveness as being "compared to no training”. However this is not correct, because there is no control group.

Response: Thank you for this remark, we agree with the reviewer. Amendment can be found in ‘Background’, 23-24, Page 5.

Reviewer 1, point 10: In response to Reviewer 2, the authors say "Moreover, conform the recent advice of the American Statistical Association (http://www.amstat.org/asa/files/pdfs/P-ValueStatement.pdf), researchers should focus less on p-values, and more on the relevance of coefficients (e.g. the magnitude of the gain in well-being and/or quality of life).” However the authors have not made any attempt to do this in the paper - what exactly would be the functional consequence of an increase in ICECAP-O from 0.77 to 0.81?

Response: As mentioned in the manuscript, ICECAP-O dimensions ‘enjoyment’, ‘security’ and ‘control’ improved clearly. Unfortunately, for the ICECAP-O, no firm evidence is available yet on the value of the Minimal Clinically Important Difference (MCID). However, Le et al. 2013
found for the Quality of Well Being Self-Administered (QWB-SA), a related well-being instrument, that the MCID was 0.02-0.05, which gives us more confidence that the 0.04 improvement in ICECAP-O is a relevant increase in capabilities. Similarly, the study by Flynn et al. 2011, who analyzed 622 older people in Britain found that the difference in well-being between ‘good’ and ‘fairly good’ general health was estimated as 0.029, between ‘fairly good sleep quality’ and ‘very good sleep quality’ was 0.028. The differences appear relevant in terms of health, but still smaller than the well-being increase as found in our study. However, future research is needed to shed more light on this matter. To highlight this we have adjusted the manuscript in the section ‘Discussion’, Lines 12-21, Page 18. In addition, the DA-I showed that all ICT skills improved clearly (see Table 1).

Reviewer 1, point 11: Typo Page 11 line 13 "had an in informal caregiver" has an incorrect extra word.

Response: Thank you for noticing this typo. We have corrected it. Amendment can be found in the section ‘Impact of the ICT training’, Line 13, Page 12.

Reviewer 2

We appreciate the time and effort invested in reviewing our manuscript and we are happy to receive the opportunity resubmit our manuscript. We hope that the responses below will clarify your queries.

Reviewer 2, point 1: The methodology needs a bit more clarification. The use of 6 questionnaires which are called the 'first questionnaire' etc. is still problematic for a new reader. This applies both to the abstract and main text. Perhaps saying something like, "at each time point (pre training, immediately after and 3 months post training) 6 validated questionnaires were administrated in Dutch. The order of administration of the questionnaires remained unchanged
throughout the time points'. Or something along these lines. The authors can then go on to explain each questionnaires, providing references to studies which have investigated validity of these questionnaires. In the figures rather than saying first questionnaire etc. it would be more appropriate to say questionnaires- pre training, questionnaire- immediately post training, questionnaires- 3 months post training) Because it is very difficult to access some of these questionnaires it is difficult to ascertain the appropriateness of these questionnaires.

Response: We appreciate the suggestions provided by the reviewer. We have adjusted the manuscript incorporating the similar comment by the first reviewer (see reviewer 1 point 1 and the corresponding response) by describing the event as a ‘questionnaire’ which used six different ‘instruments’ and these questionnaires taking place at three ‘time points’. Furthermore, when describing the exact time points we have tried to consistently use terminology ‘pre training’, ‘post training’ and ‘three months post training’ as opposed to ‘before’, ‘after’, ‘T0’, ‘T1’, and ‘T2’. Amendments can be found under sections: ‘Abstract’ (Line 9-11, Page 2), ‘Methods’ (Line 23, Page 6, Line 9-11, Page 7, Line 13, Page 9, Figure 1), ‘Results’ (Line 1-2, Page 10), ‘ICT training costs’ (Line 11, Page 10), ‘Baseline characteristics’ (Line 3, Page 11), ‘Impact of the ICT training’ (Line 22-23, Page 12, Line 12-13, Page 13, Table 2), ‘Cost-effectiveness’ (Line 1-2, Page 15), ‘Discussion’ (Line 18-19, Page 19).

Reviewer 2, point 2: I am concerned about the use of the productivity questionnaire as a majority of subjects in this study were elderly and are unlikely to be in work because they would be retired due to old age and I am therefore not sure how applicable a questionnaire that deals with absenteeism at work would be. This needs to be clarified as I am basing my judgment on the information provided by the authors about the questionnaire.

Response: We agree with the reviewer that this needs some clarification. At the start of the study, it was unknown how many respondents had paid work, so we decided to include the productivity cost instrument (iPCQ). Moreover, the iPCQ also measures productivity losses due to lower
capacity to perform unpaid work (see manuscript section ‘method’ Page 8). The results indicated that losses due to unpaid work were the most important part of the productivity loss. Sixteen of the respondents reported before the training to have been unable to perform unpaid work, compared to 19 respondents immediately after the training. The average costs generated due to lower capacity to perform unpaid work were € 863 before the training and € 1094 immediately after the training. These differences were not statistically significant (CI 95% -673, 1136; p = 0.61).

Reviewer 2, point 3: The methods section suggests that 'about' 180 participants are trained annually and would be eligible. I am concerned about the use of the word 'about'. It is not clear why only 64 started the first stage, presumably the rest declined. But why did they decline? This should be clearly documented as well. Please include this information into Figure 1.

Response: As stated in the manuscript 180 clients are annually trained in the entire country. The inclusion in this study started gradually in a selection of regions, the northwest and the southwest regions started three months later. The ICT trainers had to become familiar with the study, which required some time. Unfortunately, we do not know why some participants declined to participate in the study. As already mentioned in the comment by reviewer 1 (point 5), we view this as a pragmatic trial, we did not make efforts to register dropouts in detail nor did we try to monitor it. We acknowledge that this can be considered a limitation and we have therefore decided to mention this in the discussion. This can be found in ‘Discussion’, Line 2-6, Page 20. Furthermore, the information that we had about the 19 dropouts can be found in Figure 1, along with a few adjustments made to the figure.

Reviewer 2, point 4: Findings from the study by Bray et al have been incorporated in to the introduction but the section does not quite follow and should be rewritten so that it flows well within the text.
Response: We agree with the reviewer that there was a lack of flow in the introduction. We have adjusted the introduction to create some flow. The adjustments can be seen in the section ‘Background’, Line 8-20, Page 5.