

Appendices to paper: A Robot for Health Data Acquisition Among Older Adults: A Pilot Randomized Controlled Crossover Trial

1 [Supplementary Appendix 1](#)

2 The dialog flow with the robot was as follows, where all statements in bold were randomly selected
3 from a predefined set to enable a lively interaction. The robot read the questions and the answer
4 options out loud. For the participant statements that are underlined, the robot could understand
5 alternative ways of saying it, e.g. “yes”, “ok”, “that’s right” were all understood by the robot as
6 “yes”.

- 7 1. Upon the participant’s starting command, the robot began the interview with an
8 introduction. Then:
 - 9 2. The robot asks the first question, and this question and more importantly the answer options
10 for the participant were shown on the robot’s tablet (Supplementary Figure 1 left).
 - 11 3. The participant could:
 - 12 a. Give an answer in the displayed predefined answer range. Then:
 - 13 i. The robot repeats the answer aloud while also showing the answer on the
14 screen (Supplementary Figure 1 right) and **asked for confirmation**
 - 15 1. If confirmation = “yes” --> **goto next question**
 - 16 2. If confirmation = “no” --> **robot apologizes, and repeats question**
 - 17 b. Say “what do you mean”
 - 18 i. The robot explains the question by providing extra background information,
19 and asks if the participant can now answer the question
 - 20 1. If answer = “yes” --> **robot repeats question**
 - 21 2. If answer = “no” --> **robot assumes that there is problem with the**
22 **question, and says to skip the question, and proceeds with the**
23 **next.**
 - 24 c. Say “please skip”
 - 25 i. The robot asks “do you want to skip this question?”

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- 26 1. If answer = “yes” --> **robot assumes that there is problem with the**
 27 **question, and says to skip the question, and proceeds with the next**
 28 **robot repeats question**
- 29 2. If answer = “no” --> **robot repeats question.**
- 30 4. If all questions are handled, the robot thanks the participant.

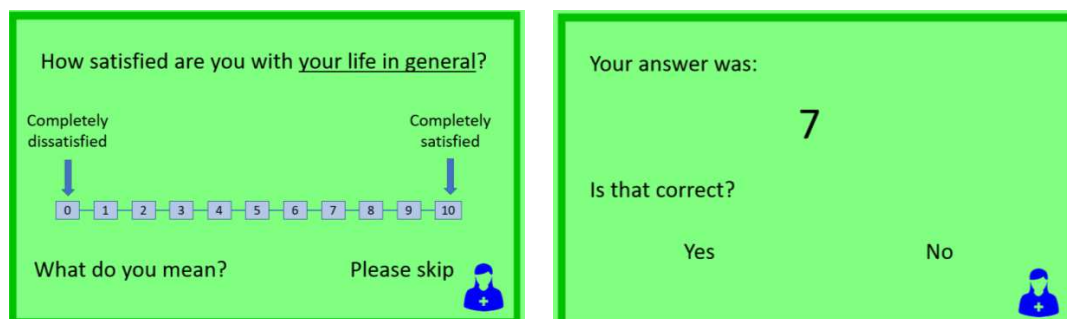
31 The dialog flow with the HCP was as follows.

- 32 1. The HCP began the interview with an introduction. Then:
 33 2. The HCP asks the first question, and this question and more importantly the answer options
 34 for the participant were shown on the questionnaire form to the participant.
 35 3. The participant could:
 36 a. Give an answer in the displayed predefined answer range. The nurse writes down the
 37 given answer and proceeds with the next question
 38 b. Say “what do you mean”, upon which the HCP explains the question
 39 c. Say “please skip”, upon which the HCP skips the question
 40 4. If all questions are handled, the HCP thanks the participant.

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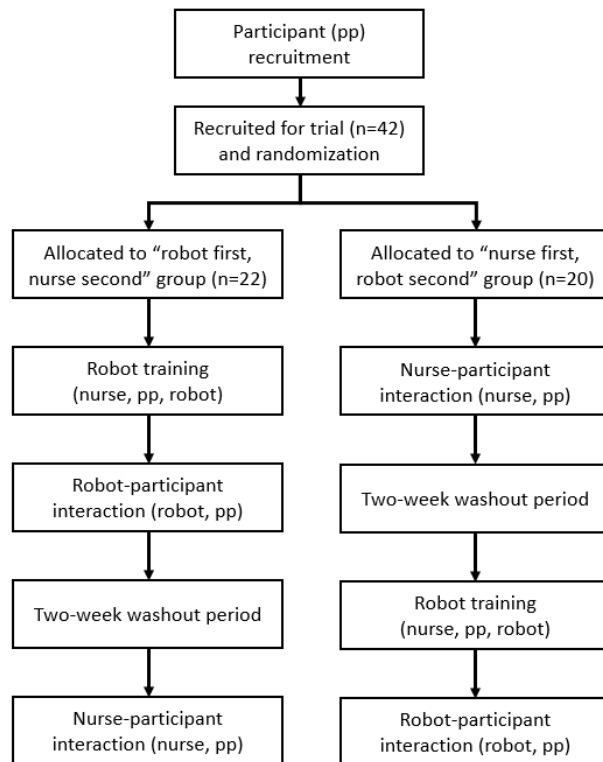
42 [Supplementary Figure 1 – Pepper screens](#)

43 Images of a typical question screen (left) and an answer screen (right):



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45 [Supplementary Figure 2 – Participant flow diagram](#)

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47 [Supplementary Table 1 - Almere model questions \(modified\)](#)

48 Column 1 gives the code of the construct described in column 2. Column 3 provides the definition of
 49 the construct. Column 4 gives the statement(s) used for determining the construct value. These
 50 statements were selected from and adapted to our scenario from the original by Almere questions as
 51 developed by Heerink et al [3].

Code	Construct	Definition	Statement(s) used in our evaluation questionnaire (selected and modified to our scenario)
ANX	Anxiety	Evoking anxious or emotional reactions when it comes to using the system.	I was afraid to make mistakes with the robot. I find the robot scary. I find the robot intimidating.
ATR	Attitude towards Robot	Positive or negative feelings about the appliance of the robot.	I think it's a good idea to use the robot. It's good to make use of the robot.

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FC	Facilitating conditions	Factors in the environment that facilitate use of the system.	At the start, I knew enough of the robot to answer the questions. The trial questionnaire was convenient for me to be better prepared for the PROM questionnaires Without the trial questionnaire I could not have complete all questionnaires.
PEOU	Perceived Ease of Use	The degree to which one believes that using the system would be free of effort.	I find the robot easy to use for providing my answers. I had sufficient time to answer the questions. I did not require help answering the questions from the robot. I think that I could answer the questions if somebody is around. I find the screen helpful to enable me to provide my answer The screen was essential for me to give the right answer. I liked the way the robot reminded me if he had not heard my answer. I used the explanation for the TOPICS questions a lot.
PENJ	Perceived Enjoyment	Feelings of joy/pleasure associated with the use of the system.	I enjoy answering PROs with the robot. I find the robot enjoyable. I find the robot boring. I find the robot fascinating.
PS	Perceived Sociability	The perceived ability of the system to perform sociable behavior.	I consider the robot a pleasant conversational partner. I find the robot pleasant to interact with. I feel the robot understands me. I think the robot is nice.

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54 Continuation of table:

Code	Construct	Definition	Statement as used in our evaluation questionnaire (selected and modified to our scenario)
PU	Perceived Usefulness	The degree to which a person believes that the system would be assistive.	I think the robot can help me with providing my answers. I think the robot is useful to me It would be convenient for me to have the robot I think the robot can help me with many things
SI	Social Influence	The persons perception that people who are important to him think he should or should not use the system.	I think the medical staff would like me using the robot. I think it would give a good impression to the medical staff if I would use the robot. I think it would give a good impression to my family and friends if I would use the robot.
SP	Social Presence	The experience of sensing a social entity when interacting with the system.	When interacting with the robot I felt like I'm talking to a real person. It sometimes felt as if the robot was really looking at me. I can imagine the robot to be a living creature. I often think the robot is not a real person. Sometimes the robot seems to have real feelings.
Trust	Trust	The belief that the system performs with personal integrity and reliability.	I think my data are safe with this system I would trust the robot if it gave me advice I would follow the advice the robot gives me I think I can give any answer I want to the robot, whether he likes it or not.

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56 [Supplementary Table 2 – Demographics](#)

Variable	Overall	NR-group	RN-group
n	42	20	22
Gender = Female	19	7	12
Gender = Male	23	13	10
Mean age	77.1	75.7	78.3
Hearing aids	4 (10%)	2 (10%)	2 (9%)
Glasses	35 (83%)	16 (80%)	19 (86%)

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58 NR-group = “nurse first, robot second” group

59 RN-group = “robot first, nurse second” group

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62 [Supplementary Table 3 – Almere Model scores](#)

63 Scores (scale 0-10) on variables indicating intent to use the robot are given in the table below.

Variable	Acronym	Description	Mean score	SD
Attitude towards the Robot	ATR	Positive or negative feelings about the appliance of the robot	7.4	1.7
Facilitating Conditions	FC	Factors in the environment that facilitate use of the robot including training	6.7	2.0
Anxiety	Anx	Evoking anxious or emotional reactions when using the robot	1.3	1.4
Perceived Sociability	PS	The perceived ability of the robot to perform sociable behavior	6.2	1.9
Social Influence	SI	The persons perception that people who are important to him think he should or should not use the robot	5.8	1.7
Perceived Ease of Use	PEU	The degree to which one believes that using the robot would be free of effort	7.7	1.0
Social Presence	SP	The experience of sensing a social entity when interacting with the robot.	4.3	2.2
Perceived Enjoyment	PE	Feelings of joy/pleasure associated with the use of the robot	7.3	1.7
Trust	Tr	The belief that the robot performs with personal integrity and reliability	6.5	1.5
Perceived Usefulness	PU	The degree to which a person believes that the robot would be assistive	5.9	2.0

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65 [References](#)

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