

Subjective Experience of Interacting with a Social Robot at a Danish Airport

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Introduction This paper investigates the subjective experience of interaction with a social robot at Aalborg Airport (AAL) by conducting an ecological field study and a scaling experiment. The purpose of the field study was to develop scales based on Danish travellers' own words and observational data. The idea behind the scales was that the scales will help robot designers to better design their robot for different use cases and target groups. The paper describes two parts of the study. The first part revolves around the development of the scales and the second part describes the testing of the scales.

Methods and Proposals - Elicitation of parameters In the first part, travellers were recruited by a remote controlled robot from Double Robotics, Inc., which had an iPad with an interface asking if it may help the travellers with wayfinding at AAL. When the subjects had chosen the desired location they were kindly asked to follow the robot, which led them to a semi-structured interview about their experience with the robot. The behaviour of the subjects was observed throughout the interaction with the robot and the interview.

Results - Elicitation of parameters The observations and the subjects' statements were interpreted and coded using an affinity diagram. 567 affinity notes were sorted by a bottom-up procedure into ten categories which roughly revolved around appearance, trust, behaviour, approach, problems with touch screen, avoidance of interaction, personal interest, positivity towards the robot, usability for people, and tech-experience. Variables were formulated as scale questions for each of the ten categories which was used in the second part of the study where the scales were tested. A Visual Analogue Scale (VAS) was used for the scale presentation.

Methods and Proposals - Scale Testing The second part of the study was also conducted in AAL and participants were again recruited by the robot. The physical parameters height, distance to subject, and angle of approach were altered throughout the study in order to be able to test the scales. When subjects started following the robot they were stopped and asked to evaluate the robot and the interaction with it on the 24 scales develop from the previous study.

Results - Scale Testing In total 43 subject participated and answered the scales. The scale responses were analysed with Principal Component Analysis (PCA).

Discussion

References

- [1] Haugland MK, Hoffer JA. Sensory nerve signals obtained from cuff electrodes during functional electrical stimulation of nearby muscles. IEEE Trans. Rehab. Eng. 1994; 2: 37-40.