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

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Introduction

This study originates from a social robot research project at Aalborg University with the aim of developing and implementing robots in a variety of contexts. This raises questions on how social robots should behave and which variables in a social robot is important. When important variables are eliciteted scales can be developed from these variables which can be use to test a social robot. The study consists of two tests, one where variables are elicitated and one where the scales are used to evaluate the robot, so possible correlation can be detected.

Methods

To investigate which variables are important when interacting with social robots and to check for correlation on scales designed based on these variabels two tests are set up in Aalborg Airport (AAL). Both tests was conducted on Danish Travellers who interacted with a *Double* robot shown on figure 1. In the first test subjects was asked to participate in a semi-structured interview about their first impressions after the interaction and in the second test subjects were asked to rate their interactions on the developed scales. The *Double* robot was remotely controlled via a computer and a present controller. On the screen a developed wireframe to help with wayfinding in AAL was presented.

Figure 1. *Double*'s front and profile.

The subjects were recruited by the robot, which provides a more ecological and undisturbed interaction between robot and subject. The robot approached potential subjects after the security check and asked to help travellers with wayfinding. If travellers wanted help, they were presented with four wayfinding options: Food, Shopping, Toilets or Gate information. After the interaction the robot led subjects to an interviewer.

Data Processing From the first test the interviews and observations were coded into affinity notes and an affinity diagram was made. This affinity diagram is pivotal in eliciting the variables that affect HRI, and thereafter in creating the scales to be used for further work. 567 affinity notes were sorted into 10 green categories with individual subcategories.

From the second test **Beskriv kort den databehandling**

Results - Elicitation of words

SQ1: How do think the screen on the robot reacted?
SQ2: How did you experience the robot?
SQ3: How was it to use the robot?
SQ4: How did you experience the robot's movements?
SQ5: I think that the robot stopped...
SQ6: I think that the robot's speed is...
SQ7: I think that the robot's height is...
SQ8: I feel that the robot can help me
SQ9: I think that the robot was obstructing me
SQ10: I feel safe around the robot
SQ11: The robot startled me
SQ12: I like to be served by the robot
SQ13: I counted on the robot to lead me to the location I chose
SQ14: How personal did you experience the robot's help?
SQ15: How surprised were you by the robot's approach?
SQ16: What do you think about the robot?
SQ17: What else do you think about the robot?

S	Left label	Mid point	Right label
1	Extremely bad	No label	Extremely well
2	Extremely unwelcoming	No label	Extremely welcoming
3	Extremely difficult	No label	Extremely easy
4	Extremely wild	No label	Extremely calm
5	Way too close	No label	Way too far
6	Way too slow	Fine	Way too fast
7	Way too low	Fine	Way too high
8-13	Completely disagree	No label	Completely agree
14	Not at all personal	-	Extremely personal
15	Not at all surprised	-	Extremely surprised
16	Not at all annoying	-	Extremely annoying
17	Not at all elegant	-	Extremely elegant
18	Not at all exciting	-	Extremely exciting
19	Not at all cute	-	Extremely cute
20	Not at all cool	-	Extremely cool
21	Not at all intrusive	-	Extremely intrusive
22	Not at all funny	-	Extremely funny
23	Not at all human	-	Extremely human

Results - Scale Testing

Conclusion

Acknowledgements

References