

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 as to how social robots should behave and which variables are important when implementing a social robot in a public setting. Important variables can be elicited via user interaction and tested via scales. The study consists of two tests, one where variables are elicited and one where the scales are used to evaluate the experience the human robot interaction (HRI).

Methods

- Two tests were set up in Aalborg Airport (AAL) to investigate which variables are important for the HRI with a social robot and to develop scales based on them. Both tests were conducted on Danish Travellers who interacted with a *Double* robot shown on figure 1.
- **Subject recruitment** was done by the robot which approached potential subjects (travellers) and presented a wireframed interface asking if it may help with wayfinding. If the traveller accepted they were led towards their chosen destination until an experimenter stopped them. The *Double* robot was remotely controlled via a computer by a present researcher. This approach was similar in both tests and was done to provide a more ecological and undisturbed interaction between robot and subject.
 - **Test 1:** Subjects were asked to participate in a semi-structured interview about their first impressions after the interaction while observational data was gathered during the interaction.
 - **Test 2:** Subjects were asked to rate their interactions on the developed scales on a PC after their unsolicited interaction.



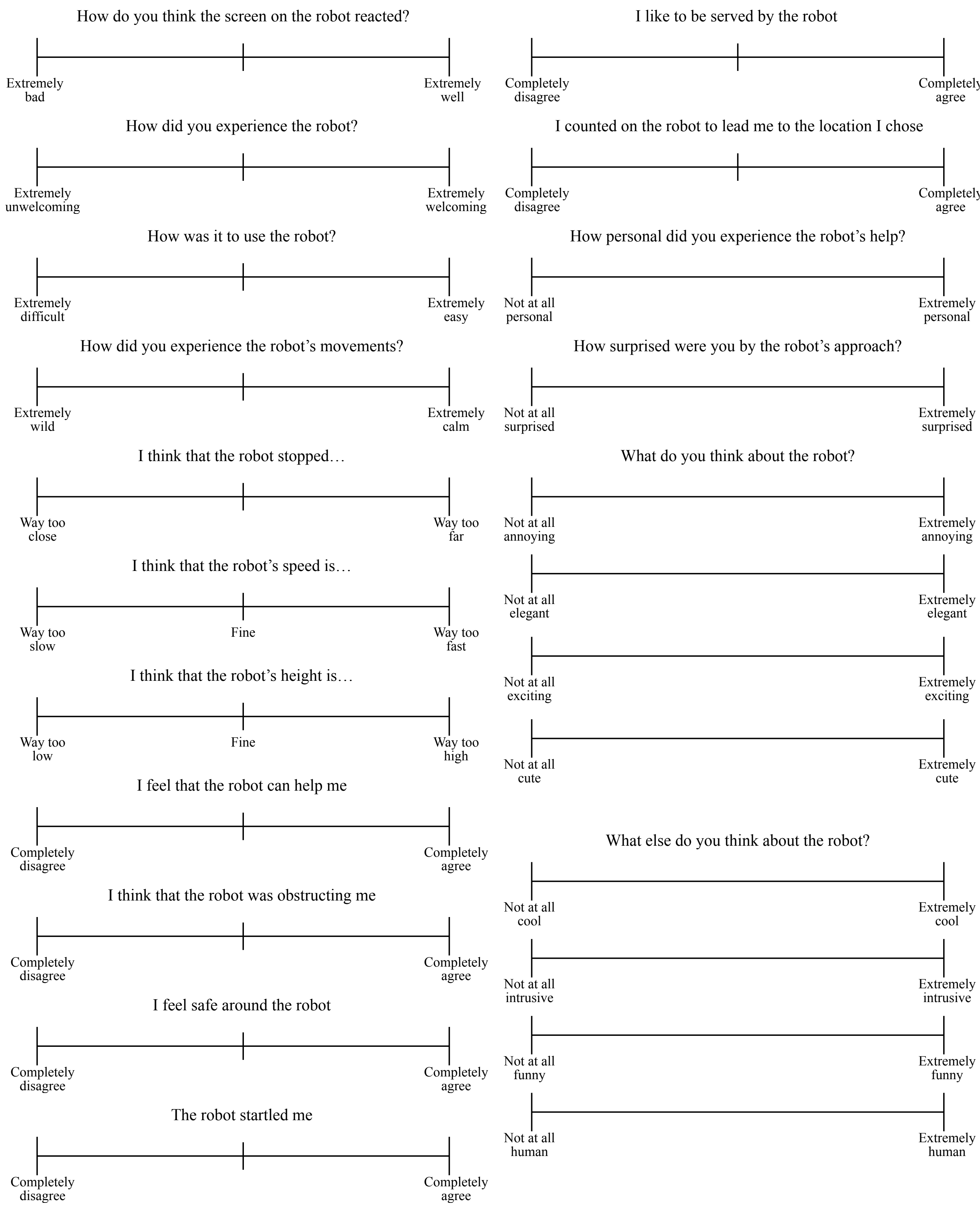
Figure 1. *Double's* front and profile.

- **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 samt vi gerne vil finde mulige korrelationer mellem skalaer**

Results - Elicitation of variables

24 variables were elicited from the first test, where 23 of them are used to evaluate the HRI and one is used as demographic information about subjects. All 24 variables are evaluated on a Visual Analogue Scales (VAS). The 23 used to evaluate the interaction is shown on figure 2.



Results - Scale Testing

Conclusion

This research conducted in this study reveals that there are at least 23 variables that Danish travellers find important when interacting with a social robot.

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Key references

The 24th variable has the scale question "How fond of technology are you?" and is evaluated on a unipolar VAS similar to all other unipolar scales with anchor points: *Not at all fond* and *Extremely fond*.