

Author(s)

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1) Have any data been collected for this study already?

No, no data have been collected for this study yet.

2) What's the main question being asked or hypothesis being tested in this study?

In this study, we examine ambivalence regarding social robots, while manipulating robot autonomy. Autonomy is the capacity of robot to sense it's environment, independently plan its actions and act upon those plans (Beer, Fisk, & Rogers, 2014). We hypothesize that a robot that is presented as more autonomous via a text-based introduction will activate more conflicting evaluations (objective ambivalence, H1) and a higher subjective feeling of conflict (subjective ambivalence, H2) than a less autonomous robot, controlling for technology commitment.

3) Describe the key dependent variable(s) specifying how they will be measured.**1. Objective Ambivalence**

Listing positive and negative aspects about the described robot, adapted from Van Harreveld, Rutjens, Schneider, Nohlen, & Keskinis (2014). Item in German adaptation:

[Stellen Sie sich vor, sie haben die Möglichkeit, mit einem VIVA Roboter zusammenzuleben. Um sich auf die Entscheidung vorzubereiten, ist es nützlich, Argumente für und gegen VIVA zu sammeln. Welche positiven und negativen Gedanken und Gefühle haben Sie? Nutzen Sie bitte eine Zeile pro Argument, Stichpunkte genügen. Sie müssen nicht alle Linien verwenden, nehmen Sie sich so viel Platz wie Sie benötigen. Denken Sie bitte gründlich über diese Aufgabe nach, hierfür ist genügend Zeit eingeplant.]

ten lines for negative, ten lines for positive aspects are provided side by side. Which one is displayed on the left and on the right is randomly assigned. We

calculate the degree of Ambivalence via a formula by (Thompson, Zanna, & Griffin, 1995): $(P+N)/2 - [P-N]$

P = number of positive aspects listed, N= number of negative aspects listed

2. Subjective Ambivalence

Mean from three Items adapted from (Priester & Petty, 1996) on a seven-point scale. German adaptation:

[Inwieweit haben Sie widersprüchliche Gedanken hinsichtlich VIVA?

Inwieweit fühlen Sie sich unschlüssig hinsichtlich VIVA?

Inwieweit nehmen Sie gemischte Reaktionen hinsichtlich VIVA bei sich wahr?]

4) How many and which conditions will participants be assigned to?

Two conditions: high robot autonomy vs low robot autonomy.

5) Specify exactly which analyses you will conduct to examine the main question/hypothesis.

Two ANCOVAs (IV: high robot autonomy vs. low robot autonomy, DV: subjective ambivalence OR objective ambivalence, Covariate: technology commitment)

Technology commitment is measured through eight items on a seven point scale as used by Reich-Stiebert & Eyszel (2015).

6) Describe exactly how outliers will be defined and handled, and your precise rule(s) for excluding observations.

We will exclude participants if at least one of the two attention checks is wrong or if they indicate having participated in the pretest.

Exploratory Analyses: RT data that deviates +/- 3 SDs from mean will be excluded

7) How many observations will be collected or what will determine sample size? No need to justify decision, but be precise about exactly how the number will be determined.

Building on a pretest, we assume a medium effect size (Cohen's $d = 0.5$). A G*Power analysis estimated a sample size of at least 171 for an alpha level of 5%, 90% power, and two groups. Data collection will be terminated at 200 participants.

8) Anything else you would like to pre-register? (e.g., secondary analyses, variables collected for exploratory purposes, unusual analyses planned?)

We include a battery of questions for exploratory purposes to be tested between conditions:

Cognitive trust (mean from five-item scale), affective trust (mean from five-item scale), robot likeability (mean from three-item scale), tobot maleness (one item), tobot femaleness (one item), robot acceptance and respective response time (decision and first click on question whether the participant would like to live with the robot), contact intention and respective response time (decision and first click on question whether the participant would like to participate in future studies with the described robot), scenario vividness (three items), and social acceptability of the robot behavior (one item). We also measure trait loneliness in a five-item adaptation of the UCLA Loneliness Scale and explore whether loneliness moderates the relationship between autonomy and ambivalence. We assess gender (open answer format) and age for sample description.