

2019 - Power-posing robots (#26221)

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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?

This is an exploratory study that scrutinizes the effects of a robot's nonverbal behavior -- in particular its "posing" -- on people's perceptions. Guided by literature, we juxtapose photomanipulated pictures of a robot in "power poses" with depictions of a robot showing very shy and submissive body language. As a second factor, we manipulate the robot's alleged size, portraying it either in the size of a toy or a small human. Following our literature review, we expect a potential interaction effect from this manipulation.

We hypothesize:

(1) Dominance

- A robot that strikes a powerful pose will be perceived as more dominant than a robot in a submissive pose.
- This effect will turn out even stronger for a large robot than for a small robot.

(2) Competence

- A robot that strikes a powerful pose will be perceived as more competent than a robot in a submissive pose.
- This effect will turn out even stronger for a large robot than for a small robot.

(3) Eeriness

- A robot that strikes a powerful pose will be perceived as eerier than a robot in a submissive pose.
- This effect will turn out even stronger for a large robot than for a small robot.

(4) Experience of threat

- A robot that strikes a powerful pose will evoke more threat than a robot in a submissive pose.
- This effect will turn out even stronger for a large robot than for a small robot.

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

Dominance - measured with five items adapted from Straßmann et al. (2016)

Competence - measured with seven items adapted from Furley (2012)

Eeriness - measured with the well-established (revised) eeriness index by Ho & MacDorman (2017)

Threat experience - measured with 10 items adapted from Stein, Liebold, & Ohler (2019)

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

According to our 2x2 factorial between-subject design, we will have four distinct conditions. Participants will be assigned to one of those condition by means of block randomization.

- Large robot, power poses
- Small robot, power poses
- Large robot, submissive poses
- Small robot, submissive poses

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

The main and interaction effects that might occur between our experimental groups will be tested with two-factorial analyses of variance (ANCOVAs), in which participants' general interest in robots will be entered as a covariate.

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

We will closely monitor our survey for careless responders with a "careless responding" manipulation check item. All participants scoring below 4 on this 5-point scale will be excluded.

A pre-test showed that reading and filling in the whole questionnaire cannot take less than 120 seconds, so that we will exclude people who spent less time than this in our survey.

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.

We calculated the minimum sample size using G*Power software and the exemplary effect sizes obtained from a conceptually similar study by Straßmann

et al. (2016). Assuming a power of 80% and our chosen number of experimental groups and response variables, a minimum value of 125 participants needed to be recruited for our study.

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

Nothing else to pre-register.