**Supplemental Material**

“**Human-Robot Interaction Through the Lens of Social Psychological Theories of Intergroup Behavior”**

This file presents wordings for key dependent measures, and, for unpublished studies described in the main text, more detailed procedural descriptions and numerical results (significance tests, means, confidence intervals) for the main dependent variables.

**Supplement I**

This supplement provides item wordings for main evaluative dependent variables: emotions, attitude, willingness to interact. These measures were used in most of our studies, sometimes with minor wording variations. Specific studies included additional exploratory measures, but this review focuses on these key aspects of people’s evaluations of robots.

**Emotions**: When you think about robots in the near future, to what extent do you feel each of the following? Not at all – 1 Very much – 7

Items: Disgust, fear, sadness, pity, anxiety, respect, happiness, sympathy, excitement.

Factor analyses showed a two-factor solution in each study, so separate unit-weighted composites were constructed for negative and positive emotions.

**Attitude**: Items: I like robots, I feel positive toward robots, I dislike robots, I feel negative toward robots. Strongly disagree – 1 Strongly agree – 7

After reversing the last two items, these were combined into a unit-weighted composite.

**Willingness to interact**: In each of the following contexts, **to what extent would you be willing to have a robot (or robots) assist you**? Not at all – 1 To a great extent -- 5

|  |
| --- |
| Items: Helping me with chores at home |
| Helping care for my children |
| Taking care of me when I am sick |
| Assisting my doctor or nurse |
| Helping me in a grocery store, or other shopping. |
| Tutoring me in school, or teaching me new skills |
| Preparing my food |
| In an old-age home, providing social support and care for the elderly |
| Aiding the mentally or physically disabled |
| Being a companion for lonely people |
| Working in dangerous locations (e.g., mines, construction sites) |
| Working in a factory |
| Driving me in a car  These items formed a strong single factor in analyses in each study, so were combined into a unit-weighted composite. |

**Supplement II: Single Versus Multiple Robots of Different Types, Unpublished Online Replication**

This supplement describes a study using an online sample from Amazon Mechanical Turk (MTurk), final N = 444. The Qualtrics questionnaire was very similar to that used in the in-lab study of Fraune, Sherrin, Šabanović, and Smith (2015), with the exception that Paro, a seal-like robot, was used instead of the dinosaur-like Pleo.

Results (Table SII.1) generally showed no significant effects of the experimental factors (robot type x number) on key dependent measures.

Table SII.1. ANOVA table for attitude and willingness to interact dependent variables.

Attitude

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| *Effect* | *Sum Sq* | *Df* | *F value* | *Pr(>F)* |
| (Intercept) | 1817.75 | 1 | 2828.21 | 0.00 |
| Type | 1.17 | 2 | 0.91 | 0.40 |
| Number | 0.30 | 1 | 0.46 | 0.50 |
| Type:Number | 1.61 | 2 | 1.25 | 0.29 |
| Residuals | 281.51 | 438 |  |  |

Willingness to interact

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| *Effect* | *Sum Sq* | *Df* | *F value* | *Pr(>F)* |
| (Intercept) | 853.52 | 1 | 847.88 | 0.00 |
| Type | 0.70 | 2 | 0.35 | 0.71 |
| Number | 0.01 | 1 | 0.01 | 0.94 |
| Type:Number | 1.66 | 2 | 0.82 | 0.44 |
| Residuals | 440.91 | 438 |  |  |

**Supplement III: Different Forms Of Contact With A Robot**

This supplement describes an unpublished study (N = 189) examining direct and indirect forms of contact with Baxter, a large anthropomorphic robot. Two conditions were run in the lab: some participants were in a control condition where they were simply introduced to Baxter before completing the measures, while others engaged in a structured interaction with Baxter and then were interviewed briefly (60-90 sec) talking about their experience. The interaction involved “teaching” the robot to place items at specific locations on a table by physically moving its hands and arms, guided by verbal instructions from the robot. This task was framed as having the robot set places for a meal. The interaction and interview were video-recorded.

Three additional conditions were run online: a control condition, one in which participants observed video of a live participant’s interaction with the robot (termed vicarious contact), and one in which participants observed video of a live participant’s interview (extended contact).

The results showed clearly that the two in-lab conditions produced more positive responses than the online conditions, which is difficult to interpret. However, comparing the actual contact to the in-lab control, differences on the main dependent variables were not significant. And comparing the extended and vicarious contact conditions to the online control, differences were also not significant. Table SIII.1 shows the results for these contrasts for attitude and willingness to interact; the contrast between online and in-lab control conditions is generally significant.

Table SIII.1. Condition means and tests of meaningful contrasts for attitude and willingness to interact. lower.CL and upper.CL are lower and upper limits of the confidence interval.

Attitude

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| *Condition* | *emmean* | *SE* | *df* | *lower.CL* | *upper.CL* |
| 1. Online control | 4.32 | 0.24 | 184 | 3.84 | 4.80 |
| 2. Extended contact | 4.74 | 0.24 | 184 | 4.25 | 5.22 |
| 3. Vicarious contact | 4.24 | 0.25 | 184 | 3.74 | 4.75 |
| 4. Live contact | 5.50 | 0.25 | 184 | 5.01 | 5.99 |
| 5. Live control | 5.20 | 0.21 | 184 | 4.79 | 5.62 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| *contrast* | *estimate* | *SE* | *df* | *t.ratio* | *p.value* |
| Extended contact vs online control | -0.42 | 0.35 | 184 | -1.21 | 0.23 |
| Vicarious contact vs online control | 0.08 | 0.35 | 184 | 0.22 | 0.83 |
| Actual contact vs in-lab control | 0.30 | 0.32 | 184 | 0.91 | 0.36 |
| Online control vs in-lab control | -0.88 | 0.32 | 184 | -2.75 | 0.01 |

Willingness to interact

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| *Condition* | *emmean* | *SE* | *df* | *lower.CL* | *upper.CL* |
| 1. Online control | 3.12 | 0.14 | 184 | 2.84 | 3.40 |
| 2. Extended contact | 3.11 | 0.14 | 184 | 2.83 | 3.39 |
| 3. Vicarious contact | 3.02 | 0.15 | 184 | 2.73 | 3.31 |
| 4. Live contact | 3.83 | 0.14 | 184 | 3.54 | 4.11 |
| 5. Live control | 3.62 | 0.12 | 184 | 3.38 | 3.86 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| *contrast* | *estimate* | *SE* | *df* | *t.ratio* | *p.value* |
| Extended contact vs online control | 0.01 | 0.20 | 184 | 0.04 | 0.97 |
| Vicarious contact vs online control | 0.10 | 0.21 | 184 | 0.48 | 0.63 |
| Actual contact vs in-lab control | 0.21 | 0.19 | 184 | 1.13 | 0.26 |
| Online control vs in-lab control | -0.50 | 0.19 | 184 | -2.65 | 0.01 |

**Supplement IV: Physical Perspective-Taking With A Telepresence Robot**

This supplement describes an unpublished study (N = 168) that had participants interact with a Beam+ telepresence robot. As they reported to the experimental room they were introduced to the robot. Participants assigned to the control condition immediately went to a computer in a different room and completed the dependent measures. The other conditions formed a 2x2 design. At a computer, participants either controlled the robot’s movements around the room to a series of specified locations, or observed as it moved supposedly autonomously (actually controlled by a hidden experimenter). Crossed with this factor, on the computer screen participants viewed from the robot’s own first-person perspective (an onboard camera) or from an overhead camera in the room, third-person perspective. Finally, these participants completed the dependent measures.

Overall ANOVAS on the five conditions (Table SIV.1) show no significant effects of the condition factor, shown here for the attitude and willingness to interact dependent variables. A different, potentially more powerful analysis examined all 4 experimental conditions combined compared to the “hanging” control condition, and was also nonsignificant. Also shown in Table SIV.2 are the estimated condition means and confidence intervals.

Table SIV.1. ANOVAs for effects of five conditions, and for specific comparison of the control condition versus all other conditions combined, for attitude and willingness to interact dependent measures.

Attitude

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| *Effect* | *df* | *Sum Sq* | *Mean Sq* | *F value* | *Pr(>F)* |
| Conditions | 4 | 13.20 | 3.30 | 1.83 | 0.12 |
| Residuals | 162 | 291.51 | 1.80 |  |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| *Effect* | *df* | *Sum Sq* | *Mean Sq* | *F value* | *Pr(>F)* |
| Control vs others | 1 | 4.91 | 4.91 | 2.70 | 0.10 |
| Residuals | 165 | 299.80 | 1.82 |  |  |

Willingness to interact

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| *Effect* | *df* | *Sum Sq* | *Mean Sq* | *F value* | *Pr(>F)* |
| Conditions | 4 | 2.28 | 0.57 | 0.70 | 0.59 |
| Residuals | 162 | 131.35 | 0.81 |  |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| *Effect* | *df* | *Sum Sq* | *Mean Sq* | *F value* | *Pr(>F)* |
| Control vs others | 1 | 0.10 | 0.10 | 0.12 | 0.73 |
| Residuals | 165 | 133.53 | 0.81 |  |  |

Table SIV.2. Means and confidence intervals by condition (Drive or Observe x 1st or 3rd-person perspective), for attitude and willingness to interact dependent measures.

|  |  |  |
| --- | --- | --- |
|  | **Attitude** |  |
| **Condition** | **Estimate** | **95% Confidence Interval** |
| Control | 5.07 | [4.57, 5.57] |
| Drive-1st | 5.91 | [5.45, 6.37] |
| Drive-3rd | 5.29 | [4.83, 5.75] |
| Observe-1st | 5.33 | [4.88, 5.78] |
| Observe-3rd | 5.56 | [5.11, 6.01] |

|  |  |  |
| --- | --- | --- |
|  | **Willingness** |  |
| **Condition** | **Estimate** | **95% Confidence Interval** |
| Control | 3.24 | [2.91, 3.57] |
| Drive-1st | 3.32 | [3.01, 3.63] |
| Drive-3rd | 3.00 | [2.69, 3.31] |
| Observe-1st | 3.12 | [2.82, 3.42] |
| Observe-3rd | 3.27 | [2.97, 3.57] |

**Supplement V: Perspective Taking Using Images**

This supplement describes an unpublished Qualtrics study (N = 147). We assigned participants to cells of a 2x3 design, where they were given either perspective-taking or control (objective) instructions and presented with an image of a mechanomorphic robot, anthropomorphic robot, or human in a kitchen setting. They were instructed to take around five minutes to write down their thoughts following the instruction. The perspective-taking instruction was “As you're writing, we'd like you to take this robot's/person’s perspective. In your mind's eye, visualize clearly and vividly what it/she might be thinking, feeling, and experiencing as it/she goes through the day.” The control instruction was “As you're writing we'd like you to take an objective and detached perspective. Don't get caught up in what this robot/person may be thinking or feeling - just write as though you were a casual observer.” All participants then completed the dependent variable measures.

Figure V.1. Example image, anthropomorphic robot.

A picture containing indoor, kitchen, window, table

Description automatically generated

Overall 2 x 3 analyses of variance showed no significant main effects of perspective taking instructions, nor interactions of instruction with target, for dependent variables including desire to use a cleaning robot (3 items), attitude toward the robot (2 items), and positive and negative emotions. Table SV.1 shows the ANOVA for the desire to use robots measure.

Table SV.1. Perspective Taking instructions (PT) x Target ANOVA on desire to use robots.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| *Effect* | *Sum Sq* | *Df* | *F value* | *Pr(>F)* |
| (Intercept) | 680.14 | 1 | 286.66 | 0.00 |
| PT | 1.01 | 1 | 0.43 | 0.51 |
| Target | 11.73 | 2 | 2.47 | 0.09 |
| PT:Target | 0.76 | 2 | 0.16 | 0.85 |
| Residuals | 334.54 | 141 |  |  |

As a more detailed look at the results, Table SV.2 shows means and significance tests of the simple effects of instruction within each target condition, shown here for desire to use; similar analyses for attitude and positive and negative emotions were also all nonsignificant.

Table SV.2. Simple effects of instructions within each target condition.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Target** | **Contrast estimate (Objective – Perspective Taking)** | **SE** | **df** | **t** | **p** |
| Anthropomorphic robot | -.28 | .43 | 141 | -0.65 | .51 |
| Mechanomorphic robot | -.15 | .42 | 141 | -.37 | .71 |
| Human | -.55 | .56 | 141 | -.98 | .33 |

**Supplement VI: Regarding Robots As Teammates**, **Replication In Japan**

This supplement describes a study with Japanese students (N = 35), designed as a close replication of Fraune, Šabanović, and Smith (2017) using translated materials and instructions. We analyzed the two studies together including Country as a factor, so the overall design was Country \* Group (ingroup, outgroup) \* Agent (human, robot) with the latter two factors within-subjects. Table SVI.1 presents the ANOVA for the main dependent variable, volume of noise blasts given to the players, as well as means, standard deviations, and plots.

Table SVI.1. ANOVA on noise blast volume

|  |  |  |  |
| --- | --- | --- | --- |
| *Effect* | *F* | *p* | *np2* |
| Group | 122.32 | < .001 | 0.65 |
| Group x Country | 5.35 | 0.024 | 0.075 |
| Agent | 0.222 | 0.639 | 0.003 |
| Agent x Country | 8.77 | 0.004 | 0.117 |
| Group x Agent | 0.018 | 0.894 | 0.000 |
| Group x Agent x Country | 2.97 | 0.089 | 0.043 |

Table SVI.2. Condition means and standard deviations for noise blast volume

|  |  |  |  |
| --- | --- | --- | --- |
| *Effect                  Country* | | *M* | *SD* |
| Ingroup human | USA | 91.27 | 7.16 |
|  | Japan | 99.48 | 10.39 |
| Ingroup robot | USA | 96.14 | 7.09 |
|  | Japan | 95.74 | 10.05 |
| Outgroup human | USA | 113.33 | 10.69 |
|  | Japan | 111.52 | 8.92 |
| Outgroup robot | USA | 115.04 | 8.34 |
|  | Japan | 110.49 | 9.24 |

**Supplement VII: Effects Of Social Norms**

This supplement describes studies that manipulated participants’ perceptions of a descriptive norm (whether other people wanted to use a specific robot) or an injunctive norm (whether other people thought you should want to use a specific robot), plus a no-norm control condition. The following tables and figures show results for the key dependent variable, intention to use the robot. Study 1 (N = 110) found no effect of the norm manipulation, but a significant interaction by gender, with men relatively more influenced by descriptive norms and women by injunctive norms. Study 2 (N = 91) again tested this unpredicted gender interaction, but found no significant interaction on the behavioral intention measure and (again) no main effects of the norm manipulation. Finally, Study 3 (N = 93) replicated Study 1 with Japanese student participants, and like Study 2 found no main effect of norms and no interaction with gender.

Table SVII.1. Study 1, norm condition \* gender ANOVA on behavioral intention dependent variable.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| *Effect* | *Sum Sq* | *Df* | *F value* | *Pr(>F)* |
| (Intercept) | 538.20 | 1 | 184.26 | 0.00 |
| Condition | 14.12 | 2 | 2.42 | 0.10 |
| Gender | 0.91 | 1 | 0.31 | 0.58 |
| Condition:Gender | 29.21 | 2 | 5.00 | 0.01 |
| Residuals | 242.43 | 83 |  |  |

Figure SVII.1. Study 1 means for behavioral intention to comply with norm, by norm condition and gender.



Study 2: This was analyzed by a different member of the research team, and the analysis compares only the descriptive and injunctive conditions (ignoring control condition) and uses age and self-reported technical expertise as covariates. Although the analysis is somewhat different, this clearly does not replicate the gender x condition interaction found in study 1.

Table SVII.2. Study 2, regression analysis of norm condition (injunctive, descriptive) by gender, with age and self-reported technical Expertise as covariates.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Effect** | **Estimate** | **Std. Error** | **t** | **p** |
| (Intercept) | 4.69 | 0.44 | 10.67 | < .001 |
| Injunctive Norm | 0.37 | 0.79 | 0.47 | .64 |
| Male | -0.53 | 0.59 | -0.91 | .37 |
| Injunctive\*Male | -0.92 | 0.97 | -0.94 | .35 |
| Age | -0.55 | 0.23 | -2.44 | .02 |
| Tech Expertise | 0.67 | 0.23 | 2.87 | .006 |

Table SVII.3. Study 3: replication of Study 1 in Japan.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| *Effect* | *Sum Sq* | *df* | *F value* | *Pr(>F)* |
| (Intercept) | 414.56 | 1 | 209.28 | 0.00 |
| Condition | 4.88 | 2 | 1.23 | 0.30 |
| Gender | 0.00 | 1 | 0.00 | 0.99 |
| Condition:Gender | 4.98 | 2 | 1.26 | 0.29 |
| Residuals | 168.38 | 85 |  |  |

Figure SVII.2. Study 3 means for behavioral intention to comply with norm, by norm condition and gender.



**Supplement VIII: Effects Of Internal And External Motivation To Control Prejudice**

Smith, E. R., Collins, S., & Sabanovic, S. (in preparation). Prejudice against African-American and robot outgroups: Parallel effects of emotions, contact, and motivation to control prejudice.

This supplement describes a study (N = 223) that randomly assigned MTurk participants to answer a series of items about either African-Americans or robots, including measures of prejudice, willingness to interact, emotions toward the group, previous contact, and internal and external motivation to control prejudice (IMS and EMS). Almost all the measures were identically worded except the labels of the two groups, permitting controlled comparisons. Mean comparisons showed that Blacks were rated higher on all measures – including various positive constructs but also higher on negative emotions. For the key dependent variables of attitude and willingness to interact, regression analyses found relationships of emotions, contact, and IMS and EMS that were largely similar for the two groups.

Table SVIII.1. Means and t-tests comparing Blacks and robots target groups.

|  |  |  |  |
| --- | --- | --- | --- |
| **Measure** | **Blacks (N = 106)** | **Robots (N = 117)** | **t value** |
| Feeling thermometer (0-100) | 68.1 | 58.9 | 2.82\*\* |
| Attitude (like, trust) (1-7**)** | 5.1 | 4.7 | 2.46\* |
| Contact (1-5) | 4.3 | 2.8 | 13.26\*\*\* |
| Willingness to interact (1-5)  (note: different sets of items) | 4.2 | 3.4 | 6.52\*\*\* |
| Willingness (2 common items) | 4.3 | 2.7 | 11.19\*\*\* |
| Negative emotions (1-7) | 2.3 | 1.7 | 3.11\*\* |
| Positive emotions (1-7) | 4.4 | 3.1 | 5.53\*\*\* |
| Internal motivation (1-7) | 5.6 | 3.6 | 10.73\*\*\* |
| External motivation (1-7) | 3.5 | 2.7 | 3.75\*\*\* |
| Mind perception (total scale, 1-7) | 6.4 | 3.3 | 20.70\*\*\* |

Note: df values for Welch t tests range between 160.9 – 221.0 \*p < .05 \*\*p < .01 \*\*\*p < .001

Table SVIII.2. Regression coefficients, confidence intervals, and partial eta-squared effect size measures, regressions with positive and negative emotions predicting attitude and willingness to interact as dependent variables.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Blacks (N = 106)** | | **Robots (N = 117)** | |
| **Attitude as DV** | | | | |
| **Effect** | **b, 95% CI** | **Partial eta-squared** | **b, 95% CI** | **Partial eta-squared** |
| Positive emotions | 0.76\*\*\* [.58, .94] | .37 | 0.69\*\*\* [.53, .85] | .36 |
| Negative emotions | -0.38\*\*\* [-.56, -.20] | .15 | -0.49\*\* [-.79, -.19] | .09 |
| **Willingness to interact as DV** | | | | |
| Positive emotions | 0.20\*\*\* [.11, .29] | .08 | 0.32\*\*\* [.23, .41] | .28 |
| Negative emotions | -0.22\*\*\* [-.32, -.12] | .18 | -0.28\*\*\* [-.44, -.12] | .10 |

Note: \* p < .05 \*\* p < .01 \*\*\* p < .001

Table SVIII.3. Regression coefficients, confidence intervals, and partial eta-squared effect size measures, regressions with internal and external motivation to control prejudice predicting attitude and willingness to interact as dependent variables.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Blacks (N = 106)** | | **Robots (N = 117)** | |
| **Attitude as DV** | | | | |
| **Effect** | **b, 95% CI** | **Partial eta-squared** | **b, 95% CI** | **Partial eta-squared** |
| Internal motivation | 0.69\*\*\* [.42, .96] | .24 | 0.51\*\*\* [.26, .87] | .13 |
| External motivation | -0.10 [-.31, .11] | .01 | -0.15 [-.38, .09] | .01 |
| **Willingness to interact as DV** | | | | |
| Internal motivation | 0.37\*\*\* [.26, .48] | .39 | 0.20\*\* [.07, .33] | .10 |
| External motivation | -0.12\*\* [-.20, -.03] | .07 | 0.00 [-.12, .12] | .00 |

Note: \* p < .05 \*\* p < .01 \*\*\* p < .001

Table SVIII.4. Regression coefficients and partial eta-squared effect size measures, regressions with past intergroup contact predicting attitude and willingness to interact as dependent variables.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Blacks (N = 106)** | | **Robots (N = 117)** | |
| **Attitude as DV** | | | | |
| **Effect** | **b, 95% CI** | **Partial eta-squared** | **b, 95% CI** | **Partial eta-squared** |
| Contact | 0.51\* [.02, 1.00] | .04 | 0.57\*\* [.20, .93] | .08 |
| **Willingness to interact as DV** | | | | |
| Contact | 0.28\* [.06, .50] | .06 | 0.23\* [.04, .42] | .05 |

Note: \* p < .05 \*\* p < .01 \*\*\* p < .001

**Supplement IX: Effects Of Temporal Perspective Or Construal Level**

This supplement describes studies that attempted to manipulate participants’ level of construal (concrete or abstract) when thinking about robots, via a manipulation of time perspective. Study 1 (N = 113) was an in-lab study that used a 2x2 design, with robot type (Nao/Baxter) and time of expected interaction (immediately/later) as factors. There were no significant effects on the main dependent variables, attitude and willingness to interact.

Studies 2 (N = 43) and 3 (N = 36) were Qualtrics studies with only two conditions: participants read short paragraphs talking about what robots do in the world now in concrete terms (e.g., sweeping the floor), or what robots will do in future years in abstract terms (e.g., maintaining cleanliness). Again, this manipulation had no significant effects.

We combined all three studies (N = 192, total of 8 conditions) for an overall examination of correlates of a measure of participants’ abstract or concrete construal of robots. We adapted a standard measure of construal level (the BIF) for robots. This asked participants to indicate whether they thought of a robot doing a number of specified actions (e.g., sharpening a pencil) in a concrete way (“shaving wood off a pencil”) or an abstract way (“preparing for writing”). A higher score across these items indicates more abstract or high-level construal of robots’ actions. Computing simple correlations, the construal level measure correlated with attitude at r = .13 (p < .07), with positive emotion at r = .24 (p < .001), and with willingness to interact at r = .33 (p < .001).

Table SIX.1. Study 1. Condition (now/later) x robot type ANOVAs, for attitude and willingness to interact dependent variables.

Attitude

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| *Effect* | *Sum Sq* | *df* | *F value* | *Pr(>F)* |
| (Intercept) | 609.88 | 1 | 258.80 | 0.00 |
| Condition | 0.10 | 1 | 0.04 | 0.84 |
| Type | 2.41 | 1 | 1.02 | 0.31 |
| Condition:Type | 3.49 | 1 | 1.48 | 0.23 |
| Residuals | 256.86 | 109 |  |  |

Willingness

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| *Effect* | *Sum Sq* | *df* | *F value* | *Pr(>F)* |
| (Intercept) | 271.21 | 1 | 334.94 | 0.00 |
| Condition | 0.09 | 1 | 0.11 | 0.74 |
| Type | 0.11 | 1 | 0.14 | 0.71 |
| Condition:Type | 0.41 | 1 | 0.51 | 0.48 |
| Residuals | 88.26 | 109 |  |  |

Table SIX.2. Study 2. Condition (now/later) ANOVAs, for attitude and willingness to interact dependent variables.

Attitude

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| *Effect* | *Sum Sq* | *df* | *F value* | *Pr(>F)* |
| (Intercept) | 774.10 | 1 | 727.94 | 0.00 |
| Condition | 0.03 | 1 | 0.03 | 0.87 |
| Residuals | 43.60 | 41 |  |  |

Willingness

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| *Effect* | *Sum Sq* | *df* | *F value* | *Pr(>F)* |
| (Intercept) | 285.84 | 1 | 339.48 | 0.00 |
| Condition | 0.26 | 1 | 0.31 | 0.58 |
| Residuals | 34.52 | 41 |  |  |

Table SIX.2. Study 3. Condition (now/later) ANOVAs, for attitude and willingness to interact dependent variables.

Attitude

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| *Effect* | *Sum Sq* | *df* | *F value* | *Pr(>F)* |
| (Intercept) | 698.91 | 1 | 226.27 | 0.00 |
| Condition | 0.73 | 1 | 0.24 | 0.63 |
| Residuals | 105.02 | 34 |  |  |

Willingness

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| *Effect* | *Sum Sq* | *df* | *F value* | *Pr(>F)* |
| (Intercept) | 248.51 | 1 | 231.53 | 0.00 |
| Condition | 0.03 | 1 | 0.03 | 0.86 |
| Residuals | 36.49 | 34 |  |  |