# Supplementary Materials: Simulated Data

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## Author Note

All procedures performed in studies involving human participants were approved by the Institutional Research Ethics Committee and conducted in accordance with the Code of Professional Ethics of the Psychological Society of Ireland and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. Informed consent was obtained from all individual participants included in the study. The authors declare that there are no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Correspondence concerning this article should be addressed to Blinded, Email: blinded@blinded.com

**Abstract**

Moral dumbfounding occurs when people maintain a moral judgment in the absence of supporting reasons. Drawing on dual-process approaches to moral judgment, one possible explanation for moral dumbfounding proposes that it occurs as a result of a conflict between intuitive and deliberative processes. Consistent with this explanation, previous research has shown that under manipulations designed to lead to more intuitive thinking rather than deliberative thinking (such as increased cognitive load), people are less likely to provide reasons for their judgments, and more likely to provide dumbfounded responses in a moral dumbfounding task. Building on this work the present research examines if dumbfounded responding can be reduced through experimental manipulations designed to facilitate deliberative thinking (over intuitive thinking). Drawing on construal-level theory, and the finding that distancing facilitates deliberative thinking, we predict that including a distancing manipulation in a moral dumbfounding task will increase reason-giving, and reduce dumbfounded responding. We propose a pre-registered study to test this prediction.

*Keywords:* moral dumbfounding, distancing, construal-level theory, dual-processes, reasons, intuitions

# Supplementary Materials: Simulated Data

## Analysis of Simulated Data

The following is a sample analysis using a simulated data set. This simulated data set contains $N = 2400$ participants. This sample size was chosen in order for at least 200 participants at each level of the temporal distance IV when analysing the scenarios separately (i.e., aiming for $n = 600$ per scenario). This sample size will also allow for the detection of a medium effect in the combined analysis on the entire sample.

```
       control future now
other      400    400 400
self       400    400 400
```

### Temporal Distancing and Dumbfounding

**Overview of Judgments.** A total of 1664 participants (69.33%) rated the behavior of Julie and Mark as wrong initially, and 1607 participants (66.96%) rated the behavior as wrong at the end of the task. There was a significant difference between initial ratings ($M = 3.3$, $SD = 1.3$) and revised ratings ($M = 3.4$, $SD = 1.4$), $t(2399) =$ -1.45, $p = .148$, $d = 0.03$.

**Distancing and Judgments Made.** There was no difference in initial judgement depending on distance manipulation: $F(2, 2397) = 1.17$, $p = .310$ ${\eta_p}^2 = 0.001$, ($M_{\text{increased}} = 3.3$, $SD_{\text{increased}} = 1.4$, $M_{\text{decreased}} = 3.3$, $SD_{\text{decreased}} = 1.3$, $M_{\text{control}} = 3.4$, $SD_{\text{control}} = 1.3$). There was no difference in revised judgement depending on distance manipulation: $F(2, 2397) = 3.4$, $p = .034$, ${\eta_p}^2 = 0.003$, ($M_{\text{increased}} = 3.4$, $SD_{\text{increased}} = 1.3$, $M_{\text{decreased}} = 3.5$, $SD_{\text{decreased}} = 1.5$, $M_{\text{control}} = 3.3$, $SD_{\text{control}} = 1.3$).

**Distancing and Reason-Giving/Dumbfounding.** There was a significant association between temporal distance condition and response to the critical slide, $\chi^2(4, N = 2400) = 40.551$, $p < .001$, $V = 0.13$, the observed power was 1. The responses to the critical slide for the increased distance group ($N = 800$) the decreased distance group ($N = 800$), and the control group ($N = 800$) are displayed in Figure 1.

**Figure 1**

*Simulated Data: Responses to critical slide depending on temporal distance for the increased temporal distance group (future, N = 1,600), for the decreased temporal distance group (today, N = 1,600), and for the control group (N = 1,600) (error bars represent standard error of the proportion)*

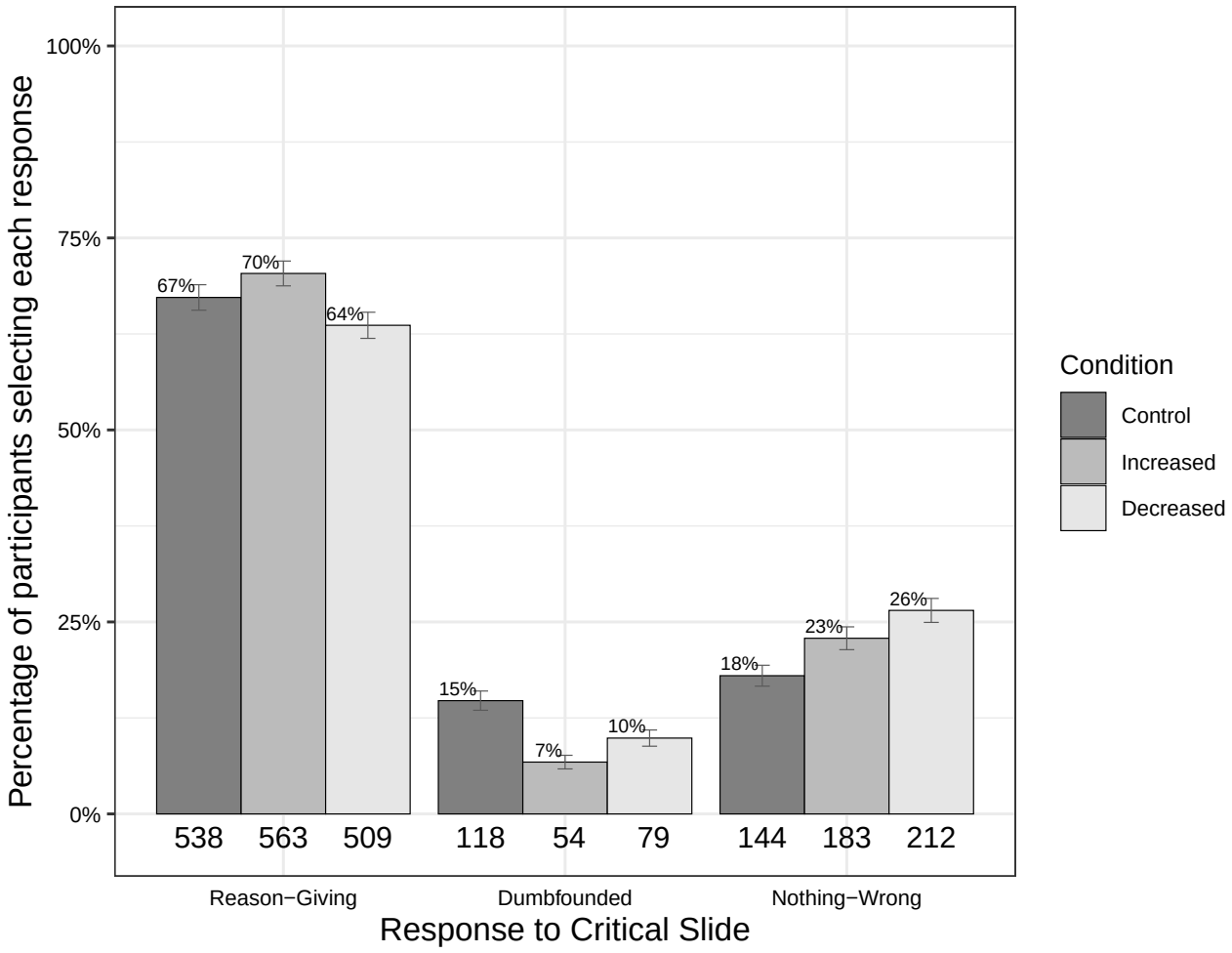


**Table 1**

*Observed counts, expected counts, and standardised residuals for each response to the critical slide depending on temporal distancing*

| | | Control | Increased | Decreased |
|---|---|---|---|---|
| Observed count | Reasons | 538 | 563 | 509 |
| | Dumbfounded | 118 | 54 | 79 |
| | Nothing Wrong | 144 | 183 | 212 |
| Expected count | Reasons | 536.67 | 536.67 | 536.67 |
| | Dumbfounded | 83.67 | 83.67 | 83.67 |
| | Nothing Wrong | 179.67 | 179.67 | 179.67 |
| Standardised residuals | Reasons | 0.12 | 2.43* | -2.55* |
| | Dumbfounded | 4.86** | -4.2** | -0.66 |
| | Nothing Wrong | -3.7** | 0.35 | 3.36** |

*Note.* * = sig. at $p < .05$; ** = sig. at $p < .001$

## Social Distancing and Dumbfounding

**Overview of Judgments.** A total of 1664 participants (69.33%) rated the behavior of Julie and Mark as wrong initially, and 1607 participants (66.96%) rated the behavior as wrong at the end of the task. There was a significant difference between initial ratings ($M$ = 3.3, $SD$ = 1.3) and revised ratings ($M$ = 3.4, $SD$ = 1.4), $t(2399)$ = -1.45, $p$ = .148, $d$ = 0.03.

**Distancing and Judgments Made.** There was no difference in initial judgement depending on distance manipulation: $t(2397.89)$ = -0.62, $p$ = .536, $d$ = 0.03, ($M_{\text{increased}}$ = 3.3, $SD_{\text{increased}}$ = 1.3, $M_{\text{decreased}}$ = 3.3, $SD_{\text{decreased}}$ = 1.3). There was no difference in revised judgement depending on distance manipulation: $t(2393.99)$ = 1.89, $p$ = .058, $d$ = 0.08, ($M_{\text{increased}}$ = 3.4, $SD_{\text{increased}}$ = 1.4, $M_{\text{decreased}}$ = 3.3, $SD_{\text{decreased}}$ = 1.3).

**Distancing and Reason-Giving/Dumbfounding.** There was a significant association between social distancing and response to the critical slide, $\chi^2(2, N = 2400)$ = 6.386, $p$ = .041, $V$ = 0.05, the observed power was 0.55. The responses to the critical slide for the increased distance group ($N$ = 1200) and the decreased distance group ($N$ = 1200) are displayed in Figure 2.

**Figure 2**

*Simulated Data: Responses to critical slide depending on social distance for the increased social distance group (future, N = 2,400), and for the decreased social distance group (today, N = 2,400), (error bars represent standard error of the proportion)*

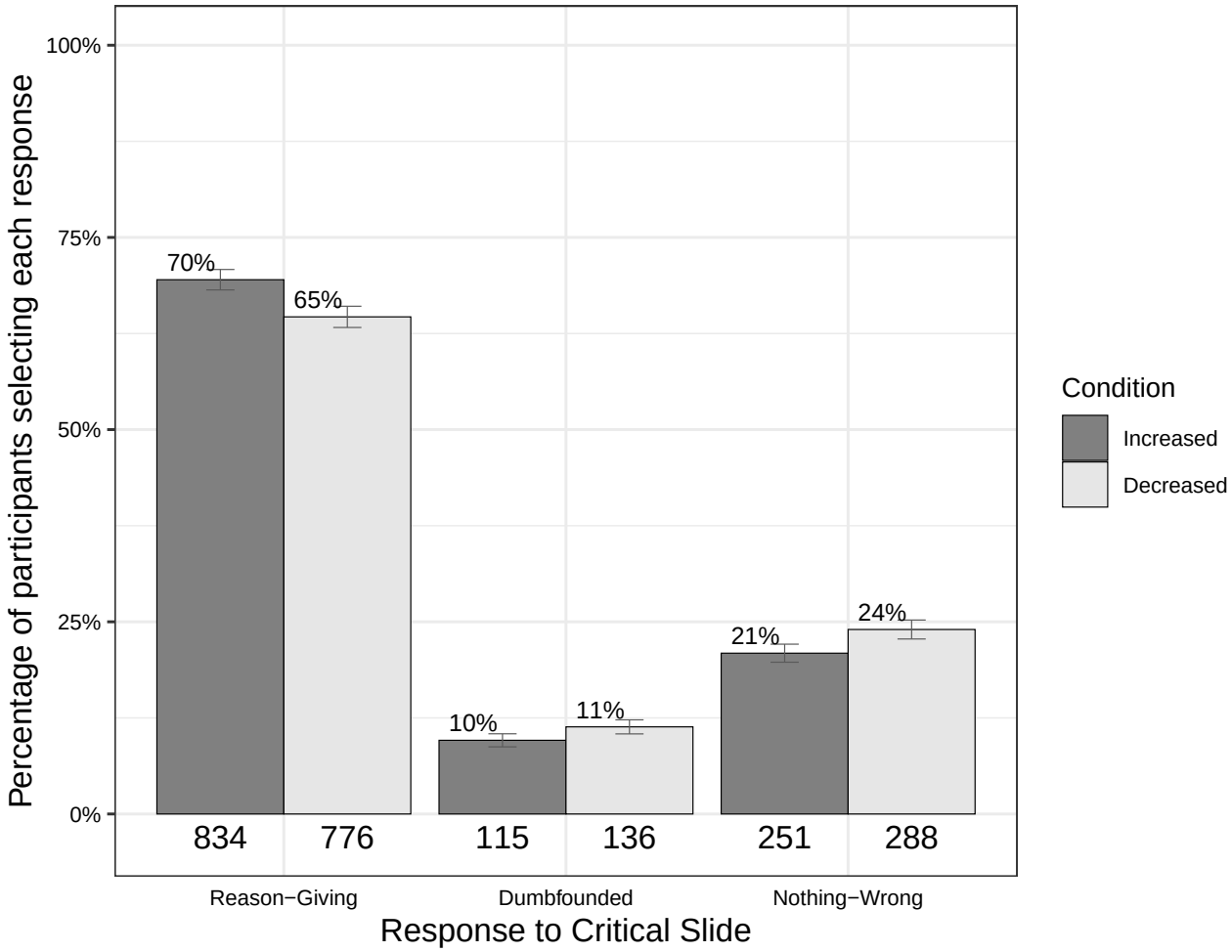


**Table 2**

*Observed counts, expected counts, and standardised residuals for each response to the critical slide depending on social distancing*

| | | Increased | Decreased |
|---|---|---|---|
| Observed count | Reasons | 834 | 776 |
| | Dumbfounded | 115 | 136 |
| | Nothing Wrong | 251 | 288 |
| Expected count | Reasons | 805 | 805 |
| | Dumbfounded | 125.5 | 125.5 |
| | Nothing Wrong | 269.5 | 269.5 |
| Standardised residuals | Reasons | 2.52* | -2.52* |
| | Dumbfounded | -1.4 | 1.4 |
| | Nothing Wrong | -1.81 | 1.81 |

*Note.* * = sig. at $p < .05$; ** = sig. at $p < .001$

## Distancing and Dumbfounding

### *Without Scenario*

Overall the model significantly predicted responses to the critical slide $\chi^2(10, N = 2400) = 50.93$, $p < .001$, The observed power was 1. The model explained between 0.7% (Cox and Snell R square) and 1.64% (Nadelkerke R squared) of the variance in responses to the critical slide. For scenarios in the future, participants were more likely to provide reasons than to present as dumbfounded Wald = -7.06, $p < .001$, odds ratio = 0.4, 95% CI [0.24, 0.67].

**Table 3**

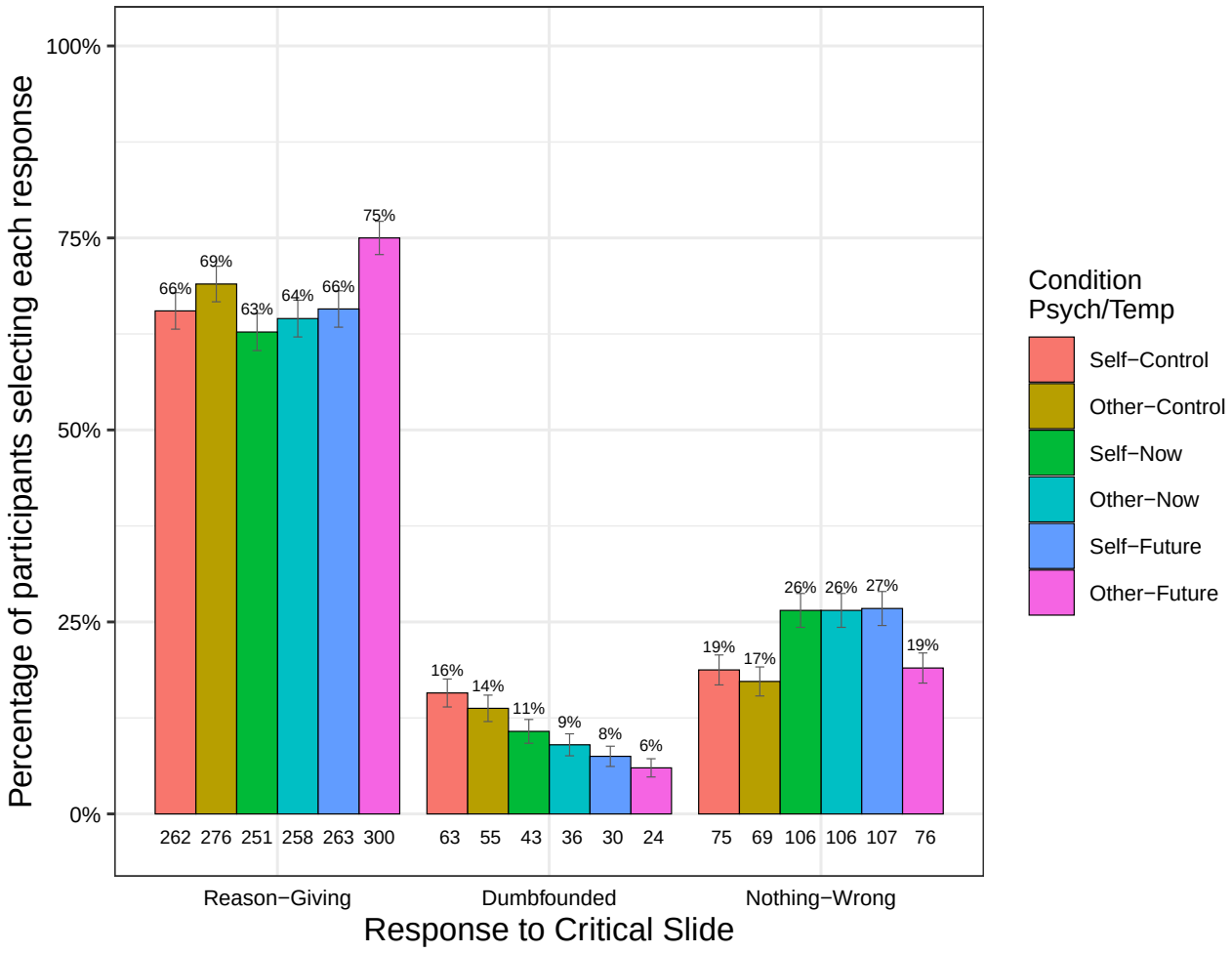
*Predictors of each response with reason-giving as the reference response*

| Response | Term | *b* | *S.E.* | *z* | Wald | *p* | *O.R.* | Lower | Upper |
|---|---|---|---|---|---|---|---|---|---|
| D | (Intercept) | -1.61 | 0.15 | -10.92 | -21.85 | < .001** | 0.20 | 0.15 | 0.27 |
| D | Soc-Self | 0.19 | 0.20 | 0.92 | 1.84 | 0.356 | 1.21 | 0.81 | 1.80 |
| D | Temp-Future | -0.91 | 0.26 | -3.53 | -7.06 | < .001** | 0.40 | 0.24 | 0.67 |
| D | Temp-Now | -0.36 | 0.23 | -1.54 | -3.08 | 0.123 | 0.70 | 0.45 | 1.10 |
| D | Soc-Self × Temp-Future | 0.17 | 0.35 | 0.47 | 0.95 | 0.635 | 1.18 | 0.59 | 2.35 |
| D | Soc-Self × Temp-Now | 0.02 | 0.32 | 0.05 | 0.11 | 0.956 | 1.02 | 0.55 | 1.89 |
| NW | (Intercept) | -1.39 | 0.13 | -10.30 | -20.60 | < .001** | 0.25 | 0.19 | 0.33 |
| NW | Soc-Self | 0.14 | 0.19 | 0.72 | 1.44 | 0.471 | 1.15 | 0.79 | 1.65 |
| NW | Temp-Future | 0.01 | 0.19 | 0.07 | 0.14 | 0.943 | 1.01 | 0.70 | 1.46 |
| NW | Temp-Now | 0.50 | 0.18 | 2.80 | 5.60 | .005* | 1.64 | 1.16 | 2.33 |
| NW | Soc-Self × Temp-Future | 0.34 | 0.25 | 1.33 | 2.66 | 0.184 | 1.40 | 0.85 | 2.31 |
| NW | Soc-Self × Temp-Now | -0.11 | 0.25 | -0.43 | -0.87 | 0.665 | 0.90 | 0.55 | 1.46 |

*Note.* * = sig. at $p < .05$; ** = sig. at $p < .001$; D = dumbfounded, NW = nothing-wrong

**Figure 3**

*Simulated Data: Responses to critical slide depending on both manipulations. Sample sizes as follows: Self-Control, N = 800, Other-Control, N = 800, Self-Now, N = 800, Other-Now, N = 800, Self-Future, N = 800, Other-Future, N = 800, (error bars represent standard error of the proportion)*



***Including Scenario***

Overall the model significantly predicted responses to the critical slide $\chi^2(16, N = 2400) = 85.3$, $p < .001$, The observed power was 1. The model explained between 1.18% (Cox and Snell R square) and 2.75% (Nadelkerke R squared) of the variance in responses to the critical slide. For scenarios in the future, participants were more likely to provide reasons than to present as dumbfounded Wald = -7.47, $p < .001$, odds ratio = 0.38, 95% CI [0.23, 0.63].

**Table 4**

*Predictors of each response with reason-giving as the reference response*

| Response | Term | *b* | *S.E.* | *z* | Wald | *p* | *O.R.* | Lower | Upper |
|---|---|---|---|---|---|---|---|---|---|
| D | (Intercept) | -1.52 | 0.19 | -8.06 | -16.13 | < .001** | 0.22 | 0.15 | 0.32 |
| D | Soc-Self | 0.18 | 0.21 | 0.86 | 1.72 | 0.39 | 1.19 | 0.80 | 1.78 |
| D | Temp-Future | -0.97 | 0.26 | -3.73 | -7.47 | < .001** | 0.38 | 0.23 | 0.63 |
| D | Temp-Now | -0.39 | 0.23 | -1.67 | -3.35 | 0.094 | 0.68 | 0.43 | 1.07 |
| D | Scenario-Jennifer | -0.19 | 0.20 | -0.95 | -1.89 | 0.344 | 0.83 | 0.56 | 1.22 |
| D | Scenario-Julie and Mark | 0.33 | 0.18 | 1.79 | 3.58 | 0.073 | 1.39 | 0.97 | 1.99 |
| D | Scenario-Trolley | -0.53 | 0.21 | -2.49 | -4.98 | .013* | 0.59 | 0.39 | 0.89 |
| D | Soc-Self × Temp-Future | 0.19 | 0.35 | 0.54 | 1.08 | 0.589 | 1.21 | 0.61 | 2.42 |
| D | Soc-Self × Temp-Now | 0.02 | 0.32 | 0.06 | 0.12 | 0.951 | 1.02 | 0.55 | 1.90 |
| NW | (Intercept) | -1.28 | 0.16 | -8.02 | -16.05 | < .001** | 0.28 | 0.20 | 0.38 |
| NW | Soc-Self | 0.13 | 0.19 | 0.71 | 1.42 | 0.477 | 1.14 | 0.79 | 1.65 |
| NW | Temp-Future | 0.03 | 0.19 | 0.17 | 0.34 | 0.865 | 1.03 | 0.72 | 1.49 |
| NW | Temp-Now | 0.51 | 0.18 | 2.85 | 5.70 | .004* | 1.66 | 1.17 | 2.35 |
| NW | Scenario-Jennifer | -0.46 | 0.15 | -3.11 | -6.22 | .002* | 0.63 | 0.47 | 0.84 |
| NW | Scenario-Julie and Mark | -0.05 | 0.14 | -0.34 | -0.68 | 0.734 | 0.95 | 0.72 | 1.26 |
| NW | Scenario-Trolley | 0.00 | 0.14 | -0.01 | -0.02 | 0.99 | 1.00 | 0.76 | 1.31 |
| NW | Soc-Self × Temp-Future | 0.33 | 0.26 | 1.29 | 2.58 | 0.198 | 1.39 | 0.84 | 2.29 |
| NW | Soc-Self × Temp-Now | -0.11 | 0.25 | -0.45 | -0.91 | 0.65 | 0.89 | 0.55 | 1.46 |

*Note.* * = sig. at $p < .05$; ** = sig. at $p < .001$; D = dumbfounded, NW = nothing-wrong

## Results for Each Scenario

### *Julie and Mark*

#### Temporal Distancing and Dumbfounding.

**Overview of Judgments.** A total of 410 participants (67.21%) rated the behavior of Julie and Mark as wrong initially, and 406 participants (66.56%) rated the behavior as wrong at the end of the task. There was a significant difference between initial ratings ($M$ = 3.4, $SD$ = 1.4) and revised ratings ($M$ = 3.4, $SD$ = 1.4), $t(609)$ = -0.13, $p$ = .897, $d$ = 0.01.

**Distancing and Judgments Made.** There was no difference in initial judgement depending on distance manipulation: $F(2, 607) = 1.13$, $p$ = .324 ${\eta_p}^2$ = 0.004, ($M_{\text{increased}}$ = 3.5, $SD_{\text{increased}}$ = 1.4, $M_{\text{decreased}}$ = 3.3, $SD_{\text{decreased}}$ = 1.2, $M_{\text{control}}$ = 3.3, $SD_{\text{control}}$ = 1.4). There was no difference in revised judgement depending on distance manipulation: $F(2, 607) = 3.08$, $p$ = .047, ${\eta_p}^2$ = 0.01, ($M_{\text{increased}}$ = 3.3, $SD_{\text{increased}}$ = 1.3, $M_{\text{decreased}}$ = 3.6, $SD_{\text{decreased}}$ = 1.5, $M_{\text{control}}$ = 3.3, $SD_{\text{control}}$ = 1.3).

**Distancing and Reason-Giving/Dumbfounding.** There was a significant association between temporal distance condition and response to the critical slide, $\chi^2(4, N = 610) = 12.665$, $p$ = .013, $V$ = 0.14, the observed power was 0.86. The responses to the critical slide for the increased distance group ($N$ = 214) the decreased distance group ($N$ = 208), and the control group ($N$ = 188) are displayed in Figure 4.

**Table 5**

*Observed counts, expected counts, and standardised residuals for each response to the critical slide depending on temporal distancing*

| | | Control | Increased | Decreased |
|---|---|---|---|---|
| Observed count | Reasons | 119 | 138 | 127.00 |
| | Dumbfounded | 38 | 21 | 28.00 |
| | Nothing Wrong | 31 | 55 | 53.00 |
| Expected count | Reasons | 118.35 | 134.71 | 130.94 |
| | Dumbfounded | 26.81 | 30.52 | 29.67 |
| | Nothing Wrong | 42.84 | 48.76 | 47.40 |
| Standardised residuals | Reasons | 0.12 | 0.58 | -0.70 |
| | Dumbfounded | 2.81* | -2.31* | -0.41 |
| | Nothing Wrong | -2.47* | 1.26 | 1.14 |

*Note.* * = sig. at $p < .05$; ** = sig. at $p < .001$

**Social Distancing and Dumbfounding.**

**Overview of Judgments.** A total of 410 participants (67.21%) rated the behavior of Julie and Mark as wrong initially, and 406 participants (66.56%) rated the behavior as wrong at the end of the task. There was a significant difference between initial ratings ($M$ = 3.4, $SD$ = 1.4) and revised ratings ($M$ = 3.4, $SD$ = 1.4), $t(609)$ = -0.13, $p$ = .897, $d$ = 0.01.

**Distancing and Judgments Made.** There was no difference in initial judgement depending on distance manipulation: $t(604.77)$ = -0.6, $p$ = .549, $d$ = 0.05, ($M_{\text{increased}}$ = 3.3, $SD_{\text{increased}}$ = 1.4, $M_{\text{decreased}}$ = 3.4, $SD_{\text{decreased}}$ = 1.3). There was no difference in revised judgement depending on distance manipulation: $t(595.1)$ = 1.02, $p$ = .310, $d$ = 0.08, ($M_{\text{increased}}$ = 3.5, $SD_{\text{increased}}$ = 1.5, $M_{\text{decreased}}$ = 3.3, $SD_{\text{decreased}}$ = 1.3).

**Distancing and Reason-Giving/Dumbfounding.** There was a significant association between social distancing and response to the critical slide, $\chi^2(2, N = 610)$ = 0.158, $p$ = .924, $V$ = 0.02, the observed power was 0.06. The responses to the critical slide for the increased distance group ($N$ = 299) and the decreased distance group ($N$ = 311) are displayed in Figure 5.

**Table 6**

*Observed counts, expected counts, and standardised residuals for each response to the critical slide depending on social distancing*

| | | Increased | Decreased |
|---|---|---|---|
| Observed count | Reasons | 190.00 | 194.00 |
| | Dumbfounded | 41.00 | 46.00 |
| | Nothing Wrong | 68.00 | 71.00 |
| Expected count | Reasons | 188.22 | 195.78 |
| | Dumbfounded | 42.64 | 44.36 |
| | Nothing Wrong | 68.13 | 70.87 |
| Standardised residuals | Reasons | 0.30 | -0.30 |
| | Dumbfounded | -0.38 | 0.38 |
| | Nothing Wrong | -0.03 | 0.03 |

*Note.* * = sig. at $p < .05$; ** = sig. at $p < .001$

***Combined Effects of both Distance Manipulations***

A multinomial logistic regression was conducted to examine the combined effects of both temporal and social distance on responses to the critical slide. Overall the model significantly predicted responses to the critical slide $\chi^2(10, N = 610) = 14.79$, $p = .140$, The observed power was 0.75. The model explained between 0.8% (Cox and Snell R square) and 1.78% (Nadelkerke R squared) of the variance in responses to the critical slide. For scenarios in the future, participants were more likely to provide reasons than to present as dumbfounded Wald = -2.01, $p = .315$, odds ratio = 0.65, 95% CI [0.28, 1.5].

**Table 7**

*Predictors of each response with reason-giving as the reference response*

| Response | Term | *b* | *S.E.* | *z* | Wald | *p* | *O.R.* | Lower | Upper |
|---|---|---|---|---|---|---|---|---|---|
| D | (Intercept) | -1.34 | 0.29 | -4.60 | -9.20 | < .001** | 0.26 | 0.15 | 0.46 |
| D | Soc-Self | 0.34 | 0.38 | 0.91 | 1.81 | 0.365 | 1.41 | 0.67 | 2.96 |
| D | Temp-Future | -0.43 | 0.43 | -1.01 | -2.01 | 0.315 | 0.65 | 0.28 | 1.50 |
| D | Temp-Now | -0.17 | 0.41 | -0.41 | -0.82 | 0.683 | 0.84 | 0.38 | 1.90 |
| D | Soc-Self × Temp-Future | -0.60 | 0.61 | -0.99 | -1.99 | 0.32 | 0.55 | 0.17 | 1.80 |
| D | Soc-Self × Temp-Now | -0.36 | 0.56 | -0.64 | -1.27 | 0.524 | 0.70 | 0.23 | 2.11 |
| NW | (Intercept) | -1.48 | 0.31 | -4.81 | -9.62 | < .001** | 0.23 | 0.12 | 0.42 |
| NW | Soc-Self | 0.24 | 0.41 | 0.59 | 1.18 | 0.554 | 1.27 | 0.57 | 2.83 |
| NW | Temp-Future | 0.49 | 0.38 | 1.27 | 2.54 | 0.204 | 1.63 | 0.77 | 3.45 |
| NW | Temp-Now | 0.70 | 0.38 | 1.85 | 3.69 | 0.065 | 2.02 | 0.96 | 4.26 |
| NW | Soc-Self × Temp-Future | -0.10 | 0.52 | -0.20 | -0.40 | 0.842 | 0.90 | 0.33 | 2.49 |
| NW | Soc-Self × Temp-Now | -0.45 | 0.52 | -0.85 | -1.71 | 0.394 | 0.64 | 0.23 | 1.78 |

*Note.* * = sig. at $p < .05$; ** = sig. at $p < .001$; D = dumbfounded, NW = nothing-wrong

***Jennifer***

**Temporal Distancing and Dumbfounding.**

**Overview of Judgments.** A total of 425 participants (71.31%) rated the behavior of Julie and Mark as wrong initially, and 400 participants (67.11%) rated the behavior as wrong at the end of the task. There was a significant difference between initial ratings ($M$ = 3.2, $SD$ = 1.3) and revised ratings ($M$ = 3.3, $SD$ = 1.4), $t(595)$ = -1.15, $p$ = .251, $d$ = 0.05.

**Distancing and Judgments Made.** There was no difference in initial judgement depending on distance manipulation: $F(2, 593) = 2.24$, $p$ = .107 ${\eta_p}^2$ = 0.008, ($M_{\text{increased}}$ = 3.1, $SD_{\text{increased}}$ = 1.3, $M_{\text{decreased}}$ = 3.3, $SD_{\text{decreased}}$ = 1.3, $M_{\text{control}}$ = 3.3, $SD_{\text{control}}$ = 1.4). There was no difference in revised judgement depending on distance manipulation: $F(2, 593) = 0.41$, $p$ = .664, ${\eta_p}^2$ = 0.001, ($M_{\text{increased}}$ = 3.3, $SD_{\text{increased}}$ = 1.4, $M_{\text{decreased}}$ = 3.4, $SD_{\text{decreased}}$ = 1.5, $M_{\text{control}}$ = 3.3, $SD_{\text{control}}$ = 1.4).

**Distancing and Reason-Giving/Dumbfounding.** There was a significant association between temporal distance condition and response to the critical slide, $\chi^2(4, N = 596) = 21.954$, $p < .001$, $V$ = 0.19, the observed power was 0.98. The responses to the critical slide for the increased distance group ($N$ = 210) the decreased distance group ($N$ = 196), and the control group ($N$ = 190) are displayed in Figure 4.

**Table 8**

*Observed counts, expected counts, and standardised residuals for each response to the critical slide depending on temporal distancing*

| | | Control | Increased | Decreased |
|---|---|---|---|---|
| Observed count | Reasons | 134 | 161 | 139.00 |
| | Dumbfounded | 33 | 11 | 15.00 |
| | Nothing Wrong | 23 | 38 | 42.00 |
| Expected count | Reasons | 138.36 | 152.92 | 142.72 |
| | Dumbfounded | 18.81 | 20.79 | 19.40 |
| | Nothing Wrong | 32.84 | 36.29 | 33.87 |
| Standardised residuals | Reasons | -0.86 | 1.56 | -0.73 |
| | Dumbfounded | 4.18** | -2.81* | -1.29 |
| | Nothing Wrong | -2.29* | 0.39 | 1.87 |

*Note.* * = sig. at $p < .05$; ** = sig. at $p < .001$

**Social Distancing and Dumbfounding.**

**Overview of Judgments.** A total of 425 participants (71.31%) rated the behavior of Julie and Mark as wrong initially, and 400 participants (67.11%) rated the behavior as wrong at the end of the task. There was a significant difference between initial ratings ($M$ = 3.2, $SD$ = 1.3) and revised ratings ($M$ = 3.3, $SD$ = 1.4), $t(595)$ = -1.15, $p$ = .251, $d$ = 0.05.

**Distancing and Judgments Made.** There was no difference in initial judgement depending on distance manipulation: $t(593.97)$ = -0.83, $p$ = .408, $d$ = 0.07, ($M_{\text{increased}}$ = 3.2, $SD_{\text{increased}}$ = 1.4, $M_{\text{decreased}}$ = 3.3, $SD_{\text{decreased}}$ = 1.3). There was no difference in revised judgement depending on distance manipulation: $t(592.78)$ = -0.56, $p$ = .576, $d$ = 0.05, ($M_{\text{increased}}$ = 3.3, $SD_{\text{increased}}$ = 1.4, $M_{\text{decreased}}$ = 3.4, $SD_{\text{decreased}}$ = 1.4).

**Distancing and Reason-Giving/Dumbfounding.** There was a significant association between social distancing and response to the critical slide, $\chi^2(2, N = 596)$ = 4.314, $p$ = .116, $V$ = 0.09, the observed power was 0.38. The responses to the critical slide for the increased distance group ($N$ = 309) and the decreased distance group ($N$ = 287) are displayed in Figure 5.

**Table 9**

*Observed counts, expected counts, and standardised residuals for each response to the critical slide depending on social distancing*

| | | Increased | Decreased |
|---|---|---|---|
| Observed count | Reasons | 236 | 198 |
| | Dumbfounded | 28 | 31 |
| | Nothing Wrong | 45 | 58 |
| Expected count | Reasons | 225.01 | 208.99 |
| | Dumbfounded | 30.59 | 28.41 |
| | Nothing Wrong | 53.4 | 49.6 |
| Standardised residuals | Reasons | 2.03* | -2.03* |
| | Dumbfounded | -0.71 | 0.71 |
| | Nothing Wrong | -1.82 | 1.82 |

*Note.* * = sig. at $p < .05$; ** = sig. at $p < .001$

***Combined Effects of both Distance Manipulations***

A multinomial logistic regression was conducted to examine the combined effects of both temporal and social distance on responses to the critical slide. Overall the model significantly predicted responses to the critical slide $\chi^2(10, N = 596) = 32.14$, $p < .001$, The observed power was 0.99. The model explained between 1.78% (Cox and Snell R square) and 4.47% (Nadelkerke R squared) of the variance in responses to the critical slide. For scenarios in the future, participants were more likely to provide reasons than to present as dumbfounded Wald = -6.63, $p < .001$, odds ratio = 0.12, 95% CI [0.03, 0.42].

**Table 10**

*Predictors of each response with reason-giving as the reference response*

| Response | Term | *b* | *S.E.* | *z* | Wald | *p* | *O.R.* | Lower | Upper |
|---|---|---|---|---|---|---|---|---|---|
| D | (Intercept) | -1.30 | 0.27 | -4.89 | -9.77 | < .001** | 0.27 | 0.16 | 0.46 |
| D | Soc-Self | -0.21 | 0.39 | -0.54 | -1.09 | 0.586 | 0.81 | 0.38 | 1.74 |
| D | Temp-Future | -2.13 | 0.64 | -3.31 | -6.63 | < .001** | 0.12 | 0.03 | 0.42 |
| D | Temp-Now | -1.10 | 0.48 | -2.31 | -4.62 | .021* | 0.33 | 0.13 | 0.85 |
| D | Soc-Self × Temp-Future | 1.51 | 0.80 | 1.89 | 3.78 | 0.059 | 4.51 | 0.94 | 21.52 |
| D | Soc-Self × Temp-Now | 0.56 | 0.67 | 0.84 | 1.68 | 0.401 | 1.75 | 0.47 | 6.53 |
| NW | (Intercept) | -1.62 | 0.30 | -5.35 | -10.71 | < .001** | 0.20 | 0.11 | 0.36 |
| NW | Soc-Self | -0.29 | 0.45 | -0.64 | -1.29 | 0.52 | 0.75 | 0.31 | 1.82 |
| NW | Temp-Future | -0.20 | 0.41 | -0.49 | -0.97 | 0.627 | 0.82 | 0.37 | 1.84 |
| NW | Temp-Now | 0.11 | 0.40 | 0.28 | 0.56 | 0.778 | 1.12 | 0.51 | 2.48 |
| NW | Soc-Self × Temp-Future | 1.03 | 0.59 | 1.76 | 3.53 | 0.078 | 2.81 | 0.89 | 8.84 |
| NW | Soc-Self × Temp-Now | 0.89 | 0.58 | 1.55 | 3.09 | 0.122 | 2.45 | 0.79 | 7.60 |

*Note.* * = sig. at $p < .05$; ** = sig. at $p < .001$; D = dumbfounded, NW = nothing-wrong

***Trolley***

**Temporal Distancing and Dumbfounding.**

**Overview of Judgments.** A total of 425 participants (68.88%) rated the behavior of Julie and Mark as wrong initially, and 413 participants (66.94%) rated the behavior as wrong at the end of the task. There was a significant difference between initial ratings ($M$ = 3.3, $SD$ = 1.3) and revised ratings ($M$ = 3.4, $SD$ = 1.4), $t(616)$ = -0.55, $p$ = .583, $d$ = 0.02.

**Distancing and Judgments Made.** There was no difference in initial judgement depending on distance manipulation: $F(2, 614) = 1.24$, $p$ = .291 ${\eta_p}^2$ = 0.004, ($M_{\text{increased}}$ = 3.4, $SD_{\text{increased}}$ = 1.4, $M_{\text{decreased}}$ = 3.2, $SD_{\text{decreased}}$ = 1.3, $M_{\text{control}}$ = 3.4, $SD_{\text{control}}$ = 1.3). There was no difference in revised judgement depending on distance manipulation: $F(2, 614) = 2.43$, $p$ = .089, ${\eta_p}^2$ = 0.008, ($M_{\text{increased}}$ = 3.5, $SD_{\text{increased}}$ = 1.4, $M_{\text{decreased}}$ = 3.4, $SD_{\text{decreased}}$ = 1.4, $M_{\text{control}}$ = 3.2, $SD_{\text{control}}$ = 1.3).

**Distancing and Reason-Giving/Dumbfounding.** There was a significant association between temporal distance condition and response to the critical slide, $\chi^2(4, N = 617) = 4.736$, $p$ = .315, $V$ = 0.09, the observed power was 0.42. The responses to the critical slide for the increased distance group ($N$ = 181) the decreased distance group ($N$ = 201), and the control group ($N$ = 235) are displayed in Figure 4.

**Table 11**

*Observed counts, expected counts, and standardised residuals for each response to the critical slide depending on temporal distancing*

| | | Control | Increased | Decreased |
|---|---|---|---|---|
| Observed count | Reasons | 160.00 | 131.00 | 127.00 |
| | Dumbfounded | 19.00 | 10.00 | 14.00 |
| | Nothing Wrong | 56.00 | 40.00 | 60.00 |
| Expected count | Reasons | 159.21 | 122.62 | 136.17 |
| | Dumbfounded | 16.38 | 12.61 | 14.01 |
| | Nothing Wrong | 59.42 | 45.76 | 50.82 |
| Standardised residuals | Reasons | 0.14 | 1.58 | -1.69 |
| | Dumbfounded | 0.85 | -0.91 | 0.00 |
| | Nothing Wrong | -0.65 | -1.17 | 1.81 |

*Note.* * = sig. at $p < .05$; ** = sig. at $p < .001$

**Social Distancing and Dumbfounding.**

**Overview of Judgments.** A total of 425 participants (68.88%) rated the behavior of Julie and Mark as wrong initially, and 413 participants (66.94%) rated the behavior as wrong at the end of the task. There was a significant difference between initial ratings ($M$ = 3.3, $SD$ = 1.3) and revised ratings ($M$ = 3.4, $SD$ = 1.4), $t(616)$ = -0.55, $p$ = .583, $d$ = 0.02.

**Distancing and Judgments Made.** There was no difference in initial judgement depending on distance manipulation: $t(614.03)$ = -0.57, $p$ = .566, $d$ = 0.05, ($M_{\text{increased}}$ = 3.3, $SD_{\text{increased}}$ = 1.3, $M_{\text{decreased}}$ = 3.4, $SD_{\text{decreased}}$ = 1.4). There was no difference in revised judgement depending on distance manipulation: $t(615)$ = 1.4, $p$ = .163, $d$ = 0.11, ($M_{\text{increased}}$ = 3.5, $SD_{\text{increased}}$ = 1.3, $M_{\text{decreased}}$ = 3.3, $SD_{\text{decreased}}$ = 1.4).

**Distancing and Reason-Giving/Dumbfounding.** There was a significant association between social distancing and response to the critical slide, $\chi^2(2, N = 617)$ = 3.49, $p$ = .175, $V$ = 0.08, the observed power was 0.32. The responses to the critical slide for the increased distance group ($N$ = 305) and the decreased distance group ($N$ = 312) are displayed in Figure 5.

**Table 12**

*Observed counts, expected counts, and standardised residuals for each response to the critical slide depending on social distancing*

| | | Increased | Decreased |
|---|---|---|---|
| Observed count | Reasons | 236 | 198 |
| | Dumbfounded | 28 | 31 |
| | Nothing Wrong | 45 | 58 |
| Expected count | Reasons | 225.01 | 208.99 |
| | Dumbfounded | 30.59 | 28.41 |
| | Nothing Wrong | 53.4 | 49.6 |
| Standardised residuals | Reasons | 2.03* | -2.03* |
| | Dumbfounded | -0.71 | 0.71 |
| | Nothing Wrong | -1.82 | 1.82 |

*Note.* * = sig. at $p < .05$; ** = sig. at $p < .001$

***Combined Effects of both Distance Manipulations***

A multinomial logistic regression was conducted to examine the combined effects of both temporal and social distance on responses to the critical slide. Overall the model significantly predicted responses to the critical slide $\chi^2(10, N = 617) = 11.38$, $p = .329$, The observed power was 0.61. The model explained between 0.61% (Cox and Snell R square) and 1.49% (Nadelkerke R squared) of the variance in responses to the critical slide. For scenarios in the future, participants were more likely to provide reasons than to present as dumbfounded Wald = -2.31, $p = .249$, odds ratio = 0.45, 95% CI [0.11, 1.76].

**Table 13**

*Predictors of each response with reason-giving as the reference response*

| Response | Term | *b* | *S.E.* | *z* | Wald | *p* | *O.R.* | Lower | Upper |
|---|---|---|---|---|---|---|---|---|---|
| D | (Intercept) | -2.30 | 0.37 | -6.21 | -12.42 | < .001** | 0.10 | 0.05 | 0.21 |
| D | Soc-Self | 0.32 | 0.49 | 0.65 | 1.30 | 0.516 | 1.38 | 0.53 | 3.60 |
| D | Temp-Future | -0.80 | 0.70 | -1.15 | -2.31 | 0.249 | 0.45 | 0.11 | 1.76 |
| D | Temp-Now | -0.31 | 0.59 | -0.52 | -1.04 | 0.605 | 0.74 | 0.23 | 2.35 |
| D | Soc-Self × Temp-Future | 0.57 | 0.86 | 0.66 | 1.33 | 0.507 | 1.78 | 0.33 | 9.67 |
| D | Soc-Self × Temp-Now | 0.41 | 0.76 | 0.54 | 1.08 | 0.59 | 1.51 | 0.34 | 6.74 |
| NW | (Intercept) | -1.09 | 0.22 | -4.88 | -9.76 | < .001** | 0.34 | 0.22 | 0.52 |
| NW | Soc-Self | 0.07 | 0.31 | 0.23 | 0.46 | 0.818 | 1.07 | 0.58 | 1.97 |
| NW | Temp-Future | -0.48 | 0.37 | -1.30 | -2.60 | 0.193 | 0.62 | 0.30 | 1.28 |
| NW | Temp-Now | 0.36 | 0.31 | 1.18 | 2.36 | 0.238 | 1.44 | 0.79 | 2.63 |
| NW | Soc-Self × Temp-Future | 0.59 | 0.49 | 1.22 | 2.44 | 0.223 | 1.81 | 0.70 | 4.70 |
| NW | Soc-Self × Temp-Now | -0.13 | 0.44 | -0.29 | -0.59 | 0.768 | 0.88 | 0.37 | 2.09 |

*Note.* * = sig. at $p < .05$; ** = sig. at $p < .001$; D = dumbfounded, NW = nothing-wrong

***Heinz***

**Temporal Distancing and Dumbfounding.**

**Overview of Judgments.** A total of 404 participants (70.02%) rated the behavior of Julie and Mark as wrong initially, and 388 participants (67.24%) rated the behavior as wrong at the end of the task. There was a significant difference between initial ratings ($M$ = 3.3, $SD$ = 1.3) and revised ratings ($M$ = 3.4, $SD$ = 1.3), $t(576)$ = -1.09, $p$ = .277, $d$ = 0.05.

**Distancing and Judgments Made.** There was no difference in initial judgement depending on distance manipulation: $F(2, 574) = 2.04$, $p$ = .131 ${\eta_p}^2$ = 0.007, ($M_{\text{increased}}$ = 3.4, $SD_{\text{increased}}$ = 1.3, $M_{\text{decreased}}$ = 3.2, $SD_{\text{decreased}}$ = 1.4, $M_{\text{control}}$ = 3.3, $SD_{\text{control}}$ = 1.3). There was no difference in revised judgement depending on distance manipulation: $F(2, 574) = 0.34$, $p$ = .710, ${\eta_p}^2$ = 0.001, ($M_{\text{increased}}$ = 3.4, $SD_{\text{increased}}$ = 1.3, $M_{\text{decreased}}$ = 3.5, $SD_{\text{decreased}}$ = 1.4, $M_{\text{control}}$ = 3.3, $SD_{\text{control}}$ = 1.3).

**Distancing and Reason-Giving/Dumbfounding.** There was a significant association between temporal distance condition and response to the critical slide, $\chi^2(4, N = 577) = 13.251$, $p$ = .010, $V$ = 0.15, the observed power was 0.88. The responses to the critical slide for the increased distance group ($N$ = 195) the decreased distance group ($N$ = 195), and the control group ($N$ = 187) are displayed in Figure 4.

**Table 14**

*Observed counts, expected counts, and standardised residuals for each response to the critical slide depending on temporal distancing*

| | | Control | Increased | Decreased |
|---|---|---|---|---|
| Observed count | Reasons | 160.00 | 131.00 | 127.00 |
| | Dumbfounded | 19.00 | 10.00 | 14.00 |
| | Nothing Wrong | 56.00 | 40.00 | 60.00 |
| Expected count | Reasons | 159.21 | 122.62 | 136.17 |
| | Dumbfounded | 16.38 | 12.61 | 14.01 |
| | Nothing Wrong | 59.42 | 45.76 | 50.82 |
| Standardised residuals | Reasons | 0.14 | 1.58 | -1.69 |
| | Dumbfounded | 0.85 | -0.91 | 0.00 |
| | Nothing Wrong | -0.65 | -1.17 | 1.81 |

*Note.* * = sig. at $p < .05$; ** = sig. at $p < .001$

**Social Distancing and Dumbfounding.**

**Overview of Judgments.** A total of 404 participants (70.02%) rated the behavior of Julie and Mark as wrong initially, and 388 participants (67.24%) rated the behavior as wrong at the end of the task. There was a significant difference between initial ratings ($M$ = 3.3, $SD$ = 1.3) and revised ratings ($M$ = 3.4, $SD$ = 1.3), $t(576)$ = -1.09, $p$ = .277, $d$ = 0.05.

**Distancing and Judgments Made.** There was no difference in initial judgement depending on distance manipulation: $t(574.92) = 0.87$, $p$ = .384, $d$ = 0.07, ($M_{\text{increased}}$ = 3.4, $SD_{\text{increased}}$ = 1.3, $M_{\text{decreased}}$ = 3.3, $SD_{\text{decreased}}$ = 1.3). There was no difference in revised judgement depending on distance manipulation: $t(573.53) = 2.07$, $p$ = .039, $d$ = 0.17, ($M_{\text{increased}}$ = 3.5, $SD_{\text{increased}}$ = 1.4, $M_{\text{decreased}}$ = 3.3, $SD_{\text{decreased}}$ = 1.3).

**Distancing and Reason-Giving/Dumbfounding.** There was a significant association between social distancing and response to the critical slide, $\chi^2(2, N = 577) = 1.633$, $p$ = .442, $V$ = 0.05, the observed power was 0.16. The responses to the critical slide for the increased distance group ($N$ = 287) and the decreased distance group ($N$ = 290) are displayed in Figure 5.

**Table 15**

*Observed counts, expected counts, and standardised residuals for each response to the critical slide depending on social distancing*

| | | Increased | Decreased |
|---|---|---|---|
| Observed count | Reasons | 236 | 198 |
| | Dumbfounded | 28 | 31 |
| | Nothing Wrong | 45 | 58 |
| Expected count | Reasons | 225.01 | 208.99 |
| | Dumbfounded | 30.59 | 28.41 |
| | Nothing Wrong | 53.4 | 49.6 |
| Standardised residuals | Reasons | 2.03* | -2.03* |
| | Dumbfounded | -0.71 | 0.71 |
| | Nothing Wrong | -1.82 | 1.82 |

*Note.* * = sig. at $p < .05$; ** = sig. at $p < .001$

***Combined Effects of both Distance Manipulations***

A multinomial logistic regression was conducted to examine the combined effects of both temporal and social distance on responses to the critical slide. Overall the model significantly predicted responses to the critical slide $\chi^2(10, N = 577) = 17.48$, $p = .064$, The observed power was 0.83. The model explained between 1% (Cox and Snell R square) and 2.29% (Nadelkerke R squared) of the variance in responses to the critical slide. For scenarios in the future, participants were more likely to provide reasons than to present as dumbfounded Wald = -3.12, $p = .118$, odds ratio = 0.45, 95% CI [0.16, 1.23].

**Table 16**

*Predictors of each response with reason-giving as the reference response*

| Response | Term | *b* | *S.E.* | *z* | Wald | *p* | *O.R.* | Lower | Upper |
|---|---|---|---|---|---|---|---|---|---|
| D | (Intercept) | -1.65 | 0.29 | -5.66 | -11.32 | < .001** | 0.19 | 0.11 | 0.34 |
| D | Soc-Self | 0.34 | 0.42 | 0.81 | 1.62 | 0.418 | 1.40 | 0.62 | 3.19 |
| D | Temp-Future | -0.81 | 0.52 | -1.56 | -3.12 | 0.118 | 0.45 | 0.16 | 1.23 |
| D | Temp-Now | 0.04 | 0.45 | 0.09 | 0.19 | 0.926 | 1.04 | 0.43 | 2.53 |
| D | Soc-Self × Temp-Future | -0.23 | 0.73 | -0.32 | -0.64 | 0.75 | 0.79 | 0.19 | 3.34 |
| D | Soc-Self × Temp-Now | -0.43 | 0.63 | -0.69 | -1.38 | 0.489 | 0.65 | 0.19 | 2.22 |
| NW | (Intercept) | -1.52 | 0.28 | -5.50 | -11.00 | < .001** | 0.22 | 0.13 | 0.38 |
| NW | Soc-Self | 0.46 | 0.39 | 1.18 | 2.35 | 0.24 | 1.58 | 0.74 | 3.38 |
| NW | Temp-Future | 0.31 | 0.37 | 0.84 | 1.69 | 0.398 | 1.37 | 0.66 | 2.84 |
| NW | Temp-Now | 0.90 | 0.37 | 2.47 | 4.94 | .014* | 2.46 | 1.20 | 5.04 |
| NW | Soc-Self × Temp-Future | -0.03 | 0.51 | -0.06 | -0.11 | 0.955 | 0.97 | 0.36 | 2.66 |
| NW | Soc-Self × Temp-Now | -0.63 | 0.51 | -1.24 | -2.49 | 0.214 | 0.53 | 0.20 | 1.44 |

*Note.* * = sig. at $p < .05$; ** = sig. at $p < .001$; D = dumbfounded, NW = nothing-wrong

***Plots: All Scenarios***

**Figure 4**

*Temporal distance and reason-giving for each Scenario*

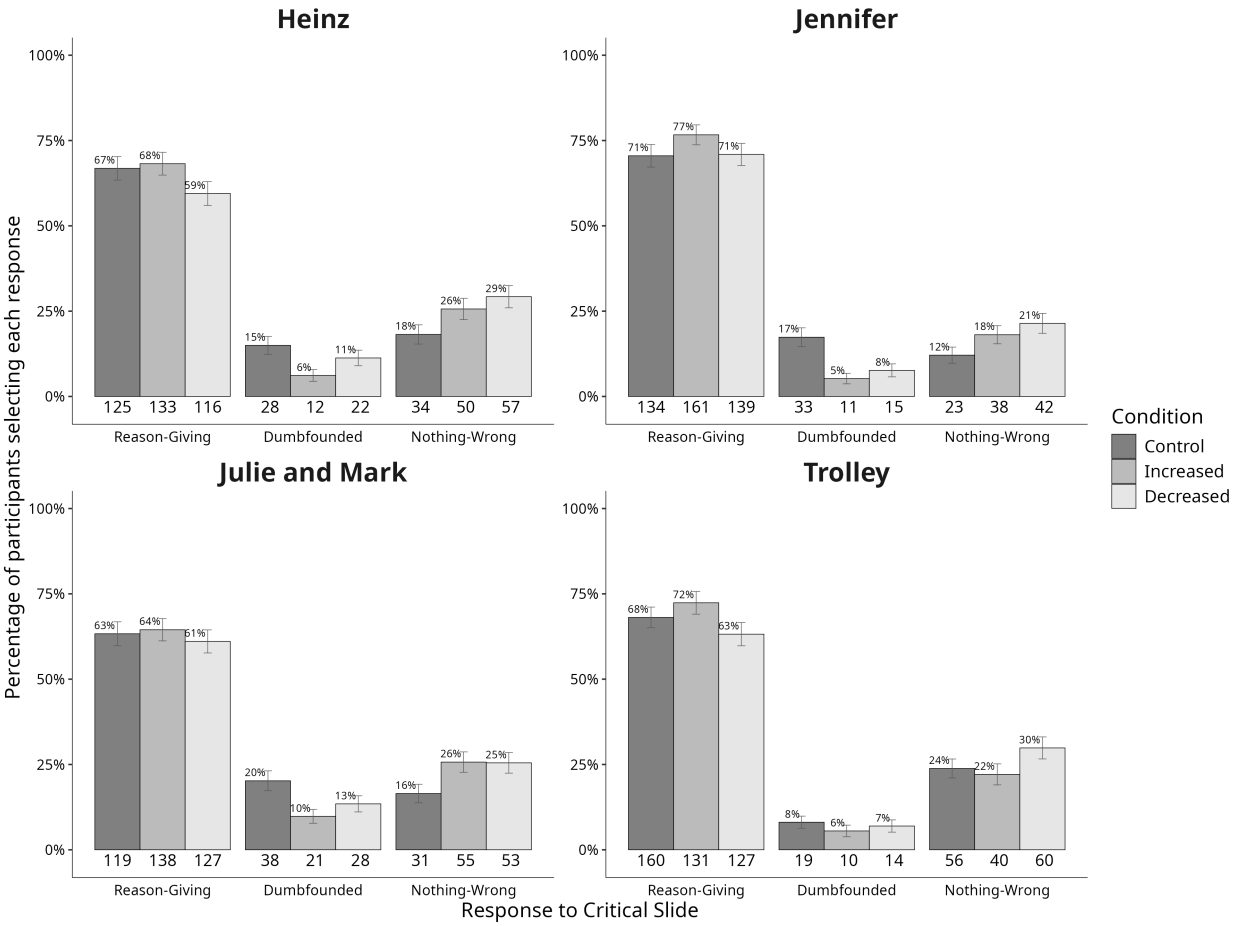


**Figure 5**

*Social distance and reason-giving for each Scenario*

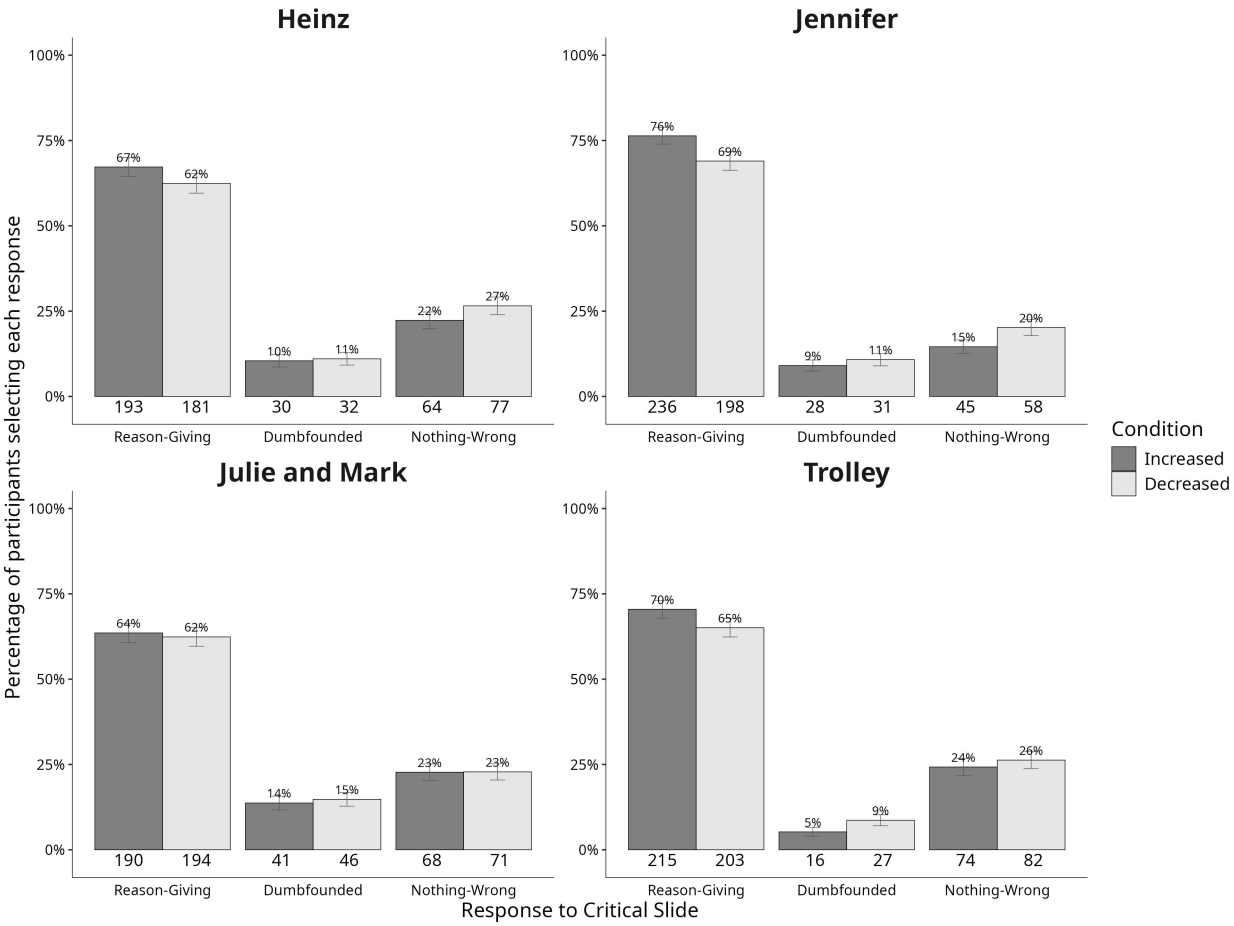


**Figure 6**

*Both distance manipulations and reason-giving for each Scenario*