Main effect of norm:

As shown in Table #, unlike what was predicted by hypothesis 2, pro-environmental consumer intentions were only higher than the control norm condition in the convention condition, although the difference was non-significant, *t*(1038) = 0.68, *p* = .499, *d* = 0.07. Pro-environmental consumer intentions were actually lower in the but lower in the descriptive, social, and moral norm conditions. overall pro-environmental consumer intentions were highest in the convention condition. However, as shown in Table #, the EMM for the convention condition was non-significantly different from the EMM for the control norm condition, *t*(1038) = 0.68, *p* = .499, *d* = 0.07. Additionally, overall pro-environmental consumer intentions were lowest in the social norm condition, though the difference between the social norm and control norm condition was non-significant, *t*(1038) = -1.50, *p* = .134, *d* = 0.15. Pro-environmental consumer intentions were also non-significantly lower in the moral norm compared to the control norm condition, *t*(1038) = -1.00, *p* = .320, *d* = 0.10. The difference in pro-environmental consumer intentions between the descriptive and control norm condition was non-significant and the effect size was close to zero, *t*(1038) = -0.29, *p* = .774, *d* = 0.03.

From framing X norm section:

To better understand the framing by norm interaction effect, the effect of each norm-intervention condition was examined separately for each framing condition. The results are shown in Table # below. When no framing context was provided (the control framing condition), the same pattern of effects for each norm-intervention condition as was observed when examining the overall effects of each norm-intervention condition was found. Specifically, when a control framing was used, pro-environmental consumer intentions were highest in the convention condition, though the difference between the convention and control norm condition was not significant, *t*(1038) = 0.27, *p* = .783, *d* = 0.05. Pro-environmental consumer intentions were also lowest in the social norm condition, though the difference between the social norm and control norm condition was not significant, *t*(1038) = -1.71, *p* = .088, *d* = 0.27. Pro-environmental consumer intentions were also lower in the moral norm compared to the control norm condition, *t*(1038) = -1.16, *p* = .246, *d* = 0.21, and in the descriptive norm compared to the control norm condition, *t*(1038) = -0.87, *p* = .384, *d* = 0.15, but neither difference was significant.

When a self-enhancing framing context was used, pro-environmental consumer intentions were highest when a descriptive norm or convention message was used, though the comparisons between the descriptive norm and control norm conditions, *t*(1038) = 1.36, *p* = .174, *d* = 0.22, and between the convention and control norm conditions, *t*(1038) = 1.29, *p* = .198, *d* = 0.22, were both non-significant. However, a small effect was observed for both of these improvements. Pro-environmental consumer intentions were also non-significantly improved compared to the control norm condition when a moral norm was used, *t*(1038) = 0.78,  *p* = .435, *d* = 0.13, and were effectively the same as the control condition when a social norm was used, *t*(1038) = 0.05, *p* = .435, *d* = 0.01.

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Values x Norm x Framing Interactions

When the pro-environmental framing or control framing was used, for participants high on biospheric values, exposure to the convention message non-significantly improved pro-environmental consumer intentions, *t*(1038) = 1.16, *p* = .248, *d* = 0.31 and *t*(1038) = 0.99, *p* = .321, *d* = 0.29. For participants low on biospheric values, exposure to the convention message in the pro-environmental and control framing conditions non-significantly decreased pro-environmental consumer intentions, *t*(1038) = -1.72, *p* = .087, *d* = 0.45 and *t*(1038) = -0.71, *p* = .475, *d* = 0.20. Interestingly, when no framing context was given, exposure to the social norm and moral norm conditions significantly decreased pro-environmental consumer intentions among participants high on biospheric values, *t*(1038) = -2.86, *p* = .004, *d* = 0.76 and *t*(1038) = -2.83, *p* = .005, *d* = 0.81, and non-significantly improved pro-environmental consumer intentions among participants high on biospheric values, *t*(1038) = 0.83, *p* = .407, *d* = 0.40 and *t*(1038) = 1.13, *p* = .258, *d* = 0.40. The effect of the descriptive norm condition was similar for people high and low on biospheric values across the control and pro-environmental framing conditions.

When a self-enhancing framing was used, the main differences in the effects of each norm-intervention condition appeared to be that exposure to the descriptive norm non-significantly improved pro-environmental consumer intentions for people low on biospheric values, *t*(1038) = 1.44, *p* = .150, *d* = 0.43, but had little effect on people high on biospheric values, *t*(1038) = 0.05, *p* = .958, *d* = 0.02. Again, exposure to the social norm and moral norm conditions had opposite effects on people low and high on biospheric values. For people low on biospheric values, exposure to the social and moral norm conditions non-significantly increased pro-environmental consumer intentions among participants, *t*(1038) = -0.41, *p* = .680, *d* = 0.12 and *t*(1038) = 1.53, *p* = .125, *d* = 0.49, whereas they non-significantly decreased pro-environmental consumer intentions among participants high on biospheric values, *t*(1038) = -0.33, *p* = .739, *d* = 0.11 and *t*(1038) = -0.77, *p* = .439, *d* = 0.23.

**Table #**

*Effect of Each Norm Condition at Low and High Biospheric Values Across Framing Conditions*

| Framing Condition | Level of Values | Contrast of Norm Conditions | *EMM Difference* | *95%CI  EMM Difference* | *SE* | *df* | *t* | *p* | *Cohen’s d* |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Control | -1SD Biospheric | Descriptive vs Control | -0.06 | [-0.66, 0.54] | 0.31 | 1038 | -0.19 | 0.853 | 0.05 |
| Convention vs Control | -0.21 | [-0.79, 0.37] | 0.29 | 1038 | -0.71 | 0.475 | 0.20 |
| Social vs Control | 0.23 | [-0.32, 0.78] | 0.28 | 1038 | 0.83 | 0.407 | 0.22 |
| Moral vs Control | 0.42 | [-0.31, 1.16] | 0.37 | 1038 | 1.13 | 0.258 | 0.40 |
| +1SD Biospheric | Descriptive vs Control | -0.26 | [-0.87, 0.35] | 0.31 | 1038 | -0.84 | 0.403 | 0.24 |
| Convention vs Control | 0.31 | [-0.30, 0.93] | 0.31 | 1038 | 0.99 | 0.321 | 0.29 |
| Social vs Control | -0.81 | [-1.37, -0.25] | 0.28 | 1038 | -2.86 | 0.004 | 0.76 |
| Moral vs Control | -0.86 | [-1.46, -0.26] | 0.30 | 1038 | -2.83 | 0.005 | 0.81 |
| PE | -1SD Biospheric | Descriptive vs Control | -0.08 | [-0.62, 0.47] | 0.28 | 1038 | -0.27 | 0.785 | -0.07 |
| Convention vs Control | -0.48 | [-1.04, 0.07] | 0.28 | 1038 | -1.72 | 0.087 | -0.45 |
| Social vs Control | -0.27 | [-0.78, 0.24] | 0.26 | 1038 | -1.04 | 0.299 | -0.25 |
| Moral vs Control | -0.50 | [-1.03, 0.04] | 0.27 | 1038 | -1.83 | 0.067 | -0.47 |
| +1SD Biospheric | Descriptive vs Control | -0.26 | [-0.85, 0.32] | 0.30 | 1038 | -0.89 | 0.375 | -0.25 |
| Convention vs Control | 0.34 | [-0.23, 0.90] | 0.29 | 1038 | 1.16 | 0.248 | 0.31 |
| Social vs Control | -0.10 | [-0.69, 0.49] | 0.30 | 1038 | -0.35 | 0.730 | -0.10 |
| Moral vs Control | 0.03 | [-0.53, 0.59] | 0.28 | 1038 | 0.10 | 0.917 | 0.03 |
| SE | -1SD Biospheric | Descriptive vs Control | 0.46 | [-0.17, 1.09] | 0.32 | 1038 | 1.44 | 0.150 | 0.43 |
| Convention vs Control | 0.41 | [-0.20, 1.02] | 0.31 | 1038 | 1.33 | 0.183 | 0.39 |
| Social vs Control | 0.13 | [-0.50, 0.77] | 0.32 | 1038 | 0.41 | 0.680 | 0.12 |
| Moral vs Control | 0.52 | [-0.15, 1.19] | 0.34 | 1038 | 1.53 | 0.125 | 0.49 |
| +1SD Biospheric | Descriptive vs Control | 0.02 | [-0.60, 0.63] | 0.31 | 1038 | 0.05 | 0.958 | 0.02 |
| Convention vs Control | 0.05 | [-0.58, 0.68] | 0.32 | 1038 | 0.17 | 0.869 | 0.05 |
| Social vs Control | -0.12 | [-0.80, 0.57] | 0.35 | 1038 | -0.33 | 0.739 | 0.11 |
| Moral vs Control | -0.24 | [-0.86, 0.37] | 0.31 | 1038 | -0.77 | 0.439 | 0.23 |

As indicated by the non-significant two-way interaction between biospheric values and framing condition, across all framing conditions, participants high on biospheric values scored significantly higher on pro-environmental consumer intentions by a similar amount compared to participants low on biospheric values, all *p*s < .001 (see Table #).

Similarly, participants high on biospheric values scored significantly higher on pro-environmental consumer intentions compared to participants low on biospheric values in the control norm, descriptive norm, convention, and social norm conditions, all *p*s < .012 (see Table #). However, the size of this difference was larger for the convention condition, *d* = 1.13. This appears to be due to the convention having opposite effects on participants high versus low on biospheric values. For participants high on biospheric values, the convention improved their pro-environmental consumer intentions, whereas it decreased the pro-environmental consumer intentions of people low on biospheric values. Additionally, there was no significant difference in pro-environmental consumer intentions between people high and low on biospheric values in the moral norm condition, *p* = .099.

Table # displays the results of examining the three-way interaction between biospheric values, framing condition, and norm condition by breaking down the effect of each norm-intervention condition across each framing condition separately for participants low and high on biospheric values.

The differences in the effects of each norm-intervention condition on people high versus low on biospheric values were similar across the control framing and pro-environmental framing conditions. In both the control framing and pro-environmental framing conditions, the convention appeared to be the most effective norm-intervention strategy for people high on biospheric values, and one of the least effective norm-intervention strategies for people low on biospheric values, though the differences between the convention and control norm condition were not significant for either group. However, interestingly, in the control framing condition, exposure to the moral norm condition non-significantly improved pro-environmental consumer intentions for people low on biospheric values, but significantly worsened pro-environmental consumer intentions for people high on biospheric values. This pattern was flipped in the pro-environmental framing condition.

In the self-enhancing framing condition, for people high on biospheric values, pro-environmental consumer intentions were similarly high across the control norm, descriptive norm, and convention conditions, and non-significantly lower in the social and moral norm conditions compared to the control norm condition. For people low on biospheric values in the self-enhancing framing condition, pro-environmental consumer intentions non-significantly improved in all of the norm-intervention conditions compared to the control norm condition, with the largest improvements occurring in the descriptive norm and convention conditions.

Unlike what was predicted by hypothesis 4, the pattern of the effect of each norm-intervention condition does seem to vary between participants low and high on biospheric values across all framing conditions, although the differences in these patterns were not significant.

Two-way values interactions:

Biospheric values

Additionally, there was a significant two-way interaction between biospheric values and norm condition, *F*(4, 97395.31) = 2.56, *p* = .037, ηp2 = .010, but the two-way interaction between biospheric values and framing condition was not significant, *F*(2, 3277.29) = 0.27, *p* = .761, ηp2 = .001.

As shown in Table #, across all framing conditions, participants high on biospheric values scored significantly higher on pro-environmental consumer intentions compared to participants low on biospheric values, all *p*s < .001.

**Table #**

*Comparison of Pro-environmental Consumer Intentions Between People Low and High on Biospheric Values across Framing Conditions*

| Contrast | *EMM*  *Difference* | *95% EMM*  *Difference* | *SE* | *df* | *t* | *p* | *Cohen’s d* |
| --- | --- | --- | --- | --- | --- | --- | --- |
| C framing: High Bio - Low Bio | 0.72 | [0.39, 1.06] | 0.17 | 1038 | 4.29 | <.001 | 0.68 |
| PE framing: High Bio - Low Bio | 0.80 | [0.53, 1.07] | 0.14 | 1038 | 5.83 | <.001 | 0.75 |
| SE framing: High Bio - Low Bio | 0.63 | [0.29, 0.97] | 0.17 | 1038 | 3.67 | <.001 | 0.59 |

*Note.* C = control, PE = pro-environmental, SE = self-enhancing

Similarly, participants high on biospheric values scored significantly higher on pro-environmental consumer intentions compared to participants low on biospheric values in the control norm, descriptive norm, convention, and social norm conditions, all *p*s < .012 (see Table #). The size of this difference was largest for the convention condition, *d* = 1.13. This appears to be due to the convention having opposite effects on participants high versus low on biospheric values. For participants high on biospheric values, the convention improved their pro-environmental consumer intentions, whereas it decreased the pro-environmental consumer intentions of people low on biospheric values. There was no significant difference in pro-environmental consumer intentions between people high and low on biospheric values in the moral norm condition, *p* = .099.

**Table #**

*Comparison of Pro-environmental Consumer Intentions Between People Low and High on Biospheric Values across Norm Conditions*

| Contrast | *EMM*  *Difference* | *95% EMM*  *Difference* | *SE* | *df* | *t* | *p* | *Cohen’s d* |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Control norm: High Bio - Low Bio | 0.89 | [0.51, 1.26] | 0.19 | 1038 | 4.58 | <.001 | 0.83 |
| Descriptive: High Bio - Low Bio | 0.61 | [0.21, 1.01] | 0.20 | 1038 | 2.97 | 0.003 | 0.57 |
| Convention: High Bio - Low Bio | 1.21 | [0.81, 1.61] | 0.20 | 1038 | 5.95 | <.001 | 1.13 |
| Social norm: High Bio - Low Bio | 0.51 | [0.12, 0.90] | 0.20 | 1038 | 2.55 | 0.011 | 0.48 |
| Moral norm: High Bio - Low Bio | 0.38 | [-0.07, 0.83] | 0.23 | 1038 | 1.65 | 0.099 | 0.35 |

**Altruistic values**

The two-way interaction effects between altruistic values and framing condition, *F*(2, 6519.70) = 0.52, *p* = .592, ηp2 = .001, and between altruistic values and norm condition, *F*(4, 9084.58) = 1.96, *p* = .098, ηp2 = .008, were both non-significant.

As shown in Table #, participants high on altruistic values scored non-significantly higher on pro-environmental consumer intentions compared to participants low on altruistic values in the control framing and self-enhancing framing conditions. There was almost no difference between the two groups in the pro-environmental framing condition.

**Table #**

*Comparison of Pro-environmental Consumer Intentions Between People Low and High on Altruistic Values across Framing Conditions*

| Contrast | *EMM*  *Difference* | *95% EMM*  *Difference* | *SE* | *df* | *t* | *p* | *Cohen’s d* |
| --- | --- | --- | --- | --- | --- | --- | --- |
| C framing: High Alt - Low Alt | 0.18 | [-0.15, 0.51] | 0.17 | 1038 | 1.07 | 0.284 | 0.17 |
| PE framing: High Alt - Low Alt | -0.01 | [-0.33, 0.30] | 0.16 | 1038 | -0.09 | 0.928 | 0.01 |
| SE framing: High Alt - Low Alt | 0.21 | [-0.17, 0.59] | 0.19 | 1038 | 1.10 | 0.272 | 0.20 |

*Note.* C = control, PE = pro-environmental, SE = self-enhancing

As shown in Table #, participants high on altruistic values scored higher on pro-environmental consumer intentions compared to participants low on altruistic values in the control norm, social norm, and moral norm conditions. This difference was significant in the moral norm condition, *t*(1038) = 2.67, *p* = .008, *d* = 0.52, and non-significant in the other two norm conditions. Participants high on altruistic values scored lower than participants low on altruistic values in the descriptive norm condition, though the difference was not significant. There was little difference between the two groups in the convention condition.

**Table #**

*Comparison of Pro-environmental Consumer Intentions Between People Low and High on Altruistic Values across Norm Conditions*

| Contrast | *EMM*  *Difference* | *95% EMM*  *Difference* | *SE* | *df* | *t* | *p* | *Cohen’s d* |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Control norm: High Alt - Low Alt | 0.20 | [-0.30, 0.69] | 0.25 | 1038 | 0.79 | 0.428 | 0.19 |
| Descriptive: High Alt - Low Alt | -0.21 | [-0.62, 0.21] | 0.21 | 1038 | -0.98 | 0.325 | 0.20 |
| Convention: High Alt - Low Alt | -0.08 | [-0.50, 0.34] | 0.21 | 1038 | -0.38 | 0.705 | 0.08 |
| Social norm: High Alt - Low Alt | 0.17 | [-0.30, 0.63] | 0.24 | 1038 | 0.70 | 0.485 | 0.16 |
| Moral norm: High Alt - Low Alt | 0.56 | [0.15, 0.96] | 0.21 | 1038 | 2.67 | 0.008 | 0.52 |

**Egoistic values.**

The two-way interaction effects between egoistic values and framing condition, *F*(2, 15139.30) = 0.19, *p* = .831, ηp2 = .000, and between egoistic values and norm condition, *F*(4, 8536.54) = 0.44, *p* = .776, ηp2 = .002, were both non-significant.

Across all framing conditions, participants high on egoistic values expressed significantly lower pro-environmental consumer intentions compared to participants high on egoistic values, all *p*s < .001 (see Table #). Additionally, across all norm-intervention conditions, participants high on egoistic values scored significantly lower on pro-environmental consumer intentions compared to participants low on egoistic values, all *p*s < .013 (see Table #).

**Table #**

*Comparison of Pro-environmental Consumer Intentions Between People Low and High on Egoistic Values across Framing Conditions*

| Contrast | *EMM*  *Difference* | *95% EMM*  *Difference* | *SE* | *df* | *t* | *p* | *Cohen’s d* |
| --- | --- | --- | --- | --- | --- | --- | --- |
| C framing: High Ego - Low Ego | -0.54 | [-0.81, -0.28] | 0.13 | 1038 | -4.03 | <.001 | 0.51 |
| PE framing: High Ego - Low Ego | -0.49 | [-0.74, -0.24] | 0.13 | 1038 | -3.84 | <.001 | 0.46 |
| SE framing: High Ego - Low Ego | -0.60 | [-0.87, -0.34] | 0.14 | 1038 | -4.43 | <.001 | 0.56 |

*Note.* C = control, PE = pro-environmental, SE = self-enhancing

**Table #**

*Comparison of Pro-environmental Consumer Intentions Between People Low and High on Egoistic Values across Norm Conditions*

| Contrast | *EMM*  *Difference* | *95% EMM*  *Difference* | *SE* | *df* | *t* | *p* | *Cohen’s d* |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Control norm: High Ego - Low Ego | -0.67 | [-0.99, -0.34] | 0.16 | 1038 | -4.04 | <.001 | 0.62 |
| Descriptive: High Ego - Low Ego | -0.48 | [-0.86, -0.10] | 0.19 | 1038 | -2.49 | 0.013 | 0.45 |
| Convention: High Ego - Low Ego | -0.66 | [-0.97, -0.36] | 0.16 | 1038 | -4.23 | <.001 | 0.62 |
| Social norm: High Ego - Low Ego | -0.48 | [-0.80, -0.15] | 0.17 | 1038 | -2.90 | 0.004 | 0.45 |
| Moral norm: High Ego - Low Ego | -0.43 | [-0.77, -0.09] | 0.17 | 1038 | -2.49 | 0.013 | 0.40 |

**Hedonic values**

The two-way interaction effects between hedonic values and framing condition, *F*(2, 21454.97) = 0.93, *p* = .396, ηp2 = .002, and between hedonic values and norm condition, *F*(4, 22945.86) = 1.76, *p* = .133, ηp2 = .007, were both non-significant.

As shown in Table #, in the control framing and self-enhancing framing conditions, participants high on hedonic values scored non-significantly lower on pro-environmental consumer intentions compared to participants low on hedonic values. In the pro-environmental framing condition, there was almost no difference between the two groups in pro-environmental consumer intentions.

**Table #**

*Comparison of Pro-environmental Consumer Intentions Between People Low and High on Hedonic Values across Framing Conditions*

| Contrast | *EMM*  *Difference* | *95% EMM*  *Difference* | *SE* | *df* | *t* | *p* | *Cohen’s d* |
| --- | --- | --- | --- | --- | --- | --- | --- |
| C framing: High Hed - Low Hed | -0.23 | [-0.52, 0.05] | 0.14 | 1038 | -1.62 | 0.106 | 0.22 |
| PE framing: High Hed - Low Hed | 0.02 | [-0.27, 0.30] | 0.14 | 1038 | 0.10 | 0.917 | 0.01 |
| SE framing: High Hed - Low Hed | -0.22 | [-0.53, 0.08] | 0.16 | 1038 | -1.42 | 0.156 | 0.21 |

*Note.* C = control, PE = pro-environmental, SE = self-enhancing

As shown in Table #, participants high on hedonic values scored lower on pro-environmental consumer intentions than participants low on hedonic values in the control norm, descriptive norm, social norm, and moral norm conditions. This difference was significant in the moral norm condition, *t*(1038) = -2.52, *p* = .012, *d* = 0.41, and non-significant in the other three conditions. In the convention condition, participants high on hedonic values scored non-significantly higher on pro-environmental consumer intentions than participants low on hedonic values, *t*(1038) = 1.09, *p* = .275, *d* = 0.18.

**Table #**

*Comparison of Pro-environmental Consumer Intentions Between People Low and High on Hedonic Values across Norm Conditions*

| Contrast | *EMM*  *Difference* | *95% EMM*  *Difference* | *SE* | *df* | *t* | *p* | *Cohen’s d* |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Control norm: High Hed - Low Hed | -0.13 | [-0.52, 0.26] | 0.20 | 1038 | -0.66 | 0.512 | 0.12 |
| Descriptive: High Hed - Low Hed | -0.08 | [-0.48, 0.33] | 0.21 | 1038 | -0.37 | 0.715 | 0.07 |
| Convention: High Hed - Low Hed | 0.20 | [-0.16, 0.55] | 0.18 | 1038 | 1.09 | 0.275 | 0.18 |
| Social norm: High Hed - Low Hed | -0.28 | [-0.66, 0.10] | 0.19 | 1038 | -1.46 | 0.145 | 0.26 |
| Moral norm: High Hed - Low Hed | -0.44 | [-0.78, -0.10] | 0.17 | 1038 | -2.52 | 0.012 | 0.41 |

**In-group Identification**

The two-way interaction effects between in-group identification and framing condition, *F*(2, 493256.84) = 0.38, *p* = .685, ηp2 = .001, and between in-group identification and norm condition, *F*(4, 363457.46) = 0.23, *p* = .920, ηp2 = .001, were both non-significant.

As shown in Table #, the effects of each framing condition were similar for people both low and high on in-group identification. Pro-environmental consumer intentions were highest for both groups in the pro-environmental framing condition, though its differences from the control framing and self-enhancing framing conditions were non-significant. The self-enhancing framing condition was not significantly different, and had a near zero effect size difference, from the control framing condition for both groups, as well.

**Table #**

*Effect of Each Framing Condition on Pro-environmental Consumer Intentions at Low and High In-group Identification*

| Level of  In-group Identification | Contrast | *EMM*  *Difference* | *95% EMM*  *Difference* | *SE* | *df* | *t* | *p* | *Cohen’s d* |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| -1SD In-group Identification | PE vs Control | 0.20 | [-0.03, 0.43] | 0.12 | 1038 | 1.71 | 0.087 | 0.19 |
| SE vs Control | 0.01 | [-0.22, 0.24] | 0.12 | 1038 | 0.08 | 0.936 | 0.01 |
| PE vs SE | 0.19 | [-0.04, 0.42] | 0.12 | 1038 | 1.64 | 0.102 | 0.18 |
| +1SD In-group Identification | PE vs Control | 0.10 | [-0.12, 0.33] | 0.11 | 1038 | 0.91 | 0.363 | 0.10 |
| SE vs Control | 0.06 | [-0.17, 0.29] | 0.12 | 1038 | 0.51 | 0.614 | 0.05 |
| PE vs SE | 0.05 | [-0.18, 0.28] | 0.12 | 1038 | 0.39 | 0.696 | 0.04 |

*Note.* PE = pro-environmental, SE = self-enhancing

**Figure #**

*Visualization of the EMMs at Low and High In-group Identification Across Framing Conditions*

**A diagram of a graph

Description automatically generated**

**The Logistic Regression Analysis**

**Two-way values interactions**

**Biospheric Values**

Unlike the analysis with consumer intentions, there was no significant two-way interaction between biospheric values and norm condition, *F*(4, 2157.91) = 0.87, *p* = .478. There was also still no significant interaction between biospheric values and framing condition, *F*(2, 31941.74) = 1.95, *p* = .142, or three-way interaction between biospheric values, framing condition, and norm condition, *F*(8, 1981.71) = 0.80, *p* = .604. Simple effects analyses were performed to examine the nature of these interaction effects further. EMPs for these contrasts are shown in Table # and are also visually depicted in Figure #.

Similarly to the consumer intentions analysis, participants high on biospheric values had significantly higher odds of choosing the pro-environmental consumer behavior option compared to participants low on biospheric values in the control and pro-environmental framing conditions, *p*s < .015, but non-significantly higher in the self-enhancing framing condition (see Table #).

**Table #**

*Comparison of Consumer Behaviors Between People Low and High on Biospheric Values across Framing Conditions*

| Contrast | *Odds Ratio* | *95%CI*  *Odds Ratio* | *SE* | *z* | *p* |
| --- | --- | --- | --- | --- | --- |
| C framing: High Bio - Low Bio | 2.55 | [1.20, 5.40] | 0.98 | 2.44 | 0.015 |
| PE framing: High Bio - Low Bio | 4.60 | [2.42, 8.72] | 1.50 | 4.67 | <.001 |
| SE framing: High Bio - Low Bio | 1.76 | [0.84, 3.68] | 0.66 | 1.50 | 0.133 |

*Note.* C = control, PE = pro-environmental, SE = self-enhancing

Similarly to the consumer intentions analysis, participants high on biospheric values also had significantly higher odds of choosing the pro-environmental consumer behavior option in the descriptive, convention, and social norm conditions, all *p*s < .021 (see Table #). Unlike the analysis with consumer intentions, though, participants high on biospheric values also had significantly higher odds of choosing the pro-environmental consumer behavior option in the moral norm condition, *p* = .040, and the two groups did not differ significantly in the control norm condition.

**Table #**

*Comparison of Consumer Behaviors Between People Low and High on Biospheric Values across Norm Conditions*

| Contrast | *Odds Ratio* | *95%CI*  *Odds Ratio* | *SE* | *z* | *p* |
| --- | --- | --- | --- | --- | --- |
| Control norm: High Bio - Low Bio | 1.35 | [0.60, 3.05] | 0.56 | 0.73 | 0.467 |
| Descriptive: High Bio - Low Bio | 4.01 | [1.53, 10.53] | 1.98 | 2.82 | 0.005 |
| Convention: High Bio - Low Bio | 3.37 | [1.38, 8.23] | 1.53 | 2.67 | 0.008 |
| Social norm: High Bio - Low Bio | 2.81 | [1.17, 6.77] | 1.26 | 2.31 | 0.021 |
| Moral norm: High Bio - Low Bio | 3.02 | [1.05, 8.64] | 1.62 | 2.06 | 0.040 |

**Altruistic values**

Additionally, there was a significant two-way interaction between altruistic values and framing condition, *F*(2, 289927.89) = 5.11, *p* = .006, but no significant between altruistic values and norm condition, *F*(4, 10056.48) = 2.35, *p* = .052.

The pattern of the effect of framing by altruistic values interaction effect was very similar to what was observed in the analysis predicting consumer intentions. In the self-enhancing framing condition, the odds of choosing the pro-environmental consumer option were significantly higher for people high on altruistic values compared to people low on altruistic values, and non-significantly higher in the control framing condition (see Table #). In the pro-environmental framing condition, the odds of choosing the pro-environmental consumer option were non-significantly lower for people high versus low on altruistic values.

**Table #**

*Comparison of Consumer Behaviors Between People Low and High on Altruistic Values across Framing Conditions*

| Contrast | *Odds Ratio* | *95%CI*  *Odds Ratio* | *SE* | *z* | *p* |
| --- | --- | --- | --- | --- | --- |
| C framing: High Alt - Low Alt | 1.23 | [0.59, 2.59] | 0.47 | 0.55 | 0.580 |
| PE framing: High Alt - Low Alt | 0.63 | [0.29, 1.38] | 0.25 | -1.16 | 0.248 |
| SE framing: High Alt - Low Alt | 3.81 | [1.63, 8.92] | 1.65 | 3.08 | 0.002 |

*Note.* C = control, PE = pro-environmental, SE = self-enhancing

The pattern of the norm by altruistic values interaction effect was also very similar to what was described for the consumer intentions analysis. The only difference was in the effect of the convention condition. In the convention condition, the odds of choosing the pro-environmental consumer behavior option were non-significantly higher among people high versus low on altruistic values, whereas there was little difference in pro-environmental consumer intentions between these two groups.

**Table #**

*Comparison of Consumer Behaviors Between People Low and High on Altruistic Values across Norm Conditions*

| Contrast | *Odds Ratio* | *95%CI*  *Odds Ratio* | *SE* | *z* | *p* |
| --- | --- | --- | --- | --- | --- |
| Control norm: High Alt - Low Alt | 1.97 | [0.67, 5.84] | 1.09 | 1.23 | 0.218 |
| Descriptive: High Alt - Low Alt | 0.34 | [0.12, 1.01] | 0.19 | -1.93 | 0.053 |
| Convention: High Alt - Low Alt | 2.19 | [0.84, 5.69] | 1.07 | 1.61 | 0.107 |
| Social norm: High Alt - Low Alt | 1.89 | [0.67, 5.32] | 1.00 | 1.21 | 0.228 |
| Moral norm: High Alt - Low Alt | 2.18 | [0.84, 5.66] | 1.06 | 1.61 | 0.108 |

**Egoistic values**

There was no significant two-way interaction between egoistic values and framing condition, *F*(2, 5639.24) = 2.35, *p* = .095, or between egoistic values and norm condition, *F*(4, 1739.09) = 0.45, *p* = .774.

The same pattern of two-way interaction effects involving egoistic values as were described for the consumer intentions analysis were observed in the consumer behaviors results. The odds of choosing the pro-environmental consumer behavior option were significantly lower among people high versus low on egoistic values across all framing conditions, *p*s < .006 (see Table #). Similarly, the odds of choosing the pro-environmental consumer behavior option were also significantly lower among people high versus low on egoistic values across all norm conditions, *p*s < .009.

**Table #**

*Comparison of Consumer Behaviors Between People Low and High on Egoistic Values across Framing Conditions*

| Contrast | *Odds Ratio* | *95%CI*  *Odds Ratio* | *SE* | *z* | *p* |
| --- | --- | --- | --- | --- | --- |
| C framing: High Ego - Low Ego | 0.44 | [0.25, 0.79] | 0.13 | -2.77 | 0.006 |
| PE framing: High Ego - Low Ego | 0.23 | [0.13, 0.42] | 0.07 | -4.79 | <.001 |
| SE framing: High Ego - Low Ego | 0.18 | [0.09, 0.34] | 0.06 | -5.30 | <.001 |

*Note.* C = control, PE = pro-environmental, SE = self-enhancing

**Table #**

*Comparison of Consumer Behaviors Between People Low and High on Egoistic Values across Norm Conditions*

| Contrast | *Odds Ratio* | *95%CI*  *Odds Ratio* | *SE* | *z* | *p* |
| --- | --- | --- | --- | --- | --- |
| Control norm: High Ego - Low Ego | 0.27 | [0.12, 0.58] | 0.10 | -3.36 | 0.001 |
| Descriptive: High Ego - Low Ego | 0.29 | [0.12, 0.67] | 0.12 | -2.88 | 0.004 |
| Convention: High Ego - Low Ego | 0.21 | [0.10, 0.44] | 0.08 | -4.15 | <.001 |
| Social norm: High Ego - Low Ego | 0.38 | [0.19, 0.79] | 0.14 | -2.62 | 0.009 |
| Moral norm: High Ego - Low Ego | 0.20 | [0.09, 0.46] | 0.08 | -3.80 | <.001 |

**Hedonic values**

There was no significant two-way interaction between hedonic values and framing condition, *F*(2, 10144.25) = 0.32, *p* = .729, or between hedonic values and norm condition, *F*(4, 73732.36) = 0.49, *p* = .742.

The pattern of the two-way interaction effects involving hedonic values somewhat differed from what was observed in the consumer intentions analysis. As shown in Table #, in the control framing condition, the odds of choosing the pro-environmental consumer behavior option were non-significantly higher among people high versus low on hedonic values, whereas this effect was in the opposite direction for pro-environmental consumer intentions. There was almost no difference between people high and low on hedonic values in the pro-environmental and self-enhancing framing conditions.

**Table #**

*Comparison of Consumer Behaviors Between People Low and High on Hedonic Values across Framing Conditions*

| Contrast | *Odds Ratio* | *95%CI*  *Odds Ratio* | *SE* | *z* | *p* |
| --- | --- | --- | --- | --- | --- |
| C framing: High Hed - Low Hed | 1.22 | [0.65, 2.26] | 0.39 | 0.62 | 0.536 |
| PE framing: High Hed - Low Hed | 1.02 | [0.54, 1.94] | 0.34 | 0.06 | 0.952 |
| SE framing: High Hed - Low Hed | 0.84 | [0.43, 1.62] | 0.28 | -0.53 | 0.599 |

*Note.* C = control, PE = pro-environmental, SE = self-enhancing

For the norm condition by hedonic values interaction, the main differences from the consumer intentions analysis were observed in the effects of the control norm, descriptive norm, and convention conditions. In the control and descriptive norm conditions, the odds of choosing the pro-environmental consumer behavior option were non-significantly higher among people high versus low on hedonic values (see Table #). There was no difference between the two groups in the convention condition.

**Table #**

*Comparison of Consumer Behaviors Between People Low and High on Hedonic Values across Norm Conditions*

| Contrast | *Odds Ratio* | *95%CI*  *Odds Ratio* | *SE* | *z* | *p* |
| --- | --- | --- | --- | --- | --- |
| Control norm: High Hed - Low Hed | 1.41 | [0.61, 3.27] | 0.60 | 0.80 | 0.425 |
| Descriptive: High Hed - Low Hed | 1.29 | [0.54, 3.09] | 0.57 | 0.57 | 0.567 |
| Convention: High Hed - Low Hed | 1.00 | [0.45, 2.23] | 0.41 | 0.01 | 0.995 |
| Social norm: High Hed - Low Hed | 0.69 | [0.30, 1.59] | 0.29 | -0.86 | 0.388 |
| Moral norm: High Hed - Low Hed | 0.84 | [0.39, 1.85] | 0.34 | -0.42 | 0.672 |

**In-group Identification**

There was no significant two-way interaction between in-group identification and framing condition, *F*(2, 18834.69) = 0.11, *p* = .901, or between in-group identification and norm condition, *F*(4, 9488.21) = 0.24, *p* = .916. The three-way interaction between in-group identification, framing condition, and norm condition was also non-significant, *F*(8, 830.24) = 0.42, *p* = .909. Simple effects analyses were performed to examine the nature of these interaction effects further. The EMPs for each condition are visualized in Figure # below.

**Interpreting three-way values interaction effects**

**Biospheric**

The effects of each norm-intervention condition were most similar between people high and low on biospheric values in the control framing and pro-environmental framing conditions. In both the control framing and pro-environmental framing conditions, the convention appeared to be the most effective norm-intervention strategy for people high on biospheric values, and one of the least effective norm-intervention strategies for people low on biospheric values, though the differences between the convention and control norm condition were not significant for either group. However, interestingly, in the control framing condition, exposure to the moral norm condition non-significantly improved pro-environmental consumer intentions for people low on biospheric values, but significantly worsened pro-environmental consumer intentions for people high on biospheric values. This pattern was flipped in the pro-environmental framing condition.

In the self-enhancing framing condition, for people high on biospheric values, pro-environmental consumer intentions were similarly high across the control norm, descriptive norm, and convention conditions. They were non-significantly lower in the social and moral norm conditions compared to the control norm condition. For people low on biospheric values in the self-enhancing framing condition, pro-environmental consumer intentions non-significantly improved in all of the norm-intervention conditions compared to the control norm condition with the largest improvements occurring in the descriptive norm and convention conditions.

Unlike what was predicted by hypothesis 4, the pattern of the effect of each norm-intervention condition does seem to vary between participants low and high on biospheric values across all framing conditions, although the differences in these patterns were not significant.

Interestingly, although biospheric and altruistic values are both considered self-transcendent values, their interactions with the framing and norm conditions produced different patterns of effects. Now, in the control framing condition, the convention appeared to be the most effective norm-intervention strategy for people low on altruistic values and one of the least effective norm-intervention strategies for people high on altruistic values. Additionally, the effects of the social and moral norm conditions on people low on altruistic values were opposite the pattern that was observed for people low on biospheric values. For people low on altruistic values in the control framing condition, the social and moral norm conditions non-significantly decreased pro-environmental consumer intentions relative to the control framing condition. Although these effects were non-significant, their differences from the control norm condition produced nearly medium effect sizes. Also, for people high on biospheric values, there was a drop in pro-environmental consumer intentions when participants were shown the moral normative message. For people high on altruistic values, there was almost no difference in pro-environmental consumer intentions between the control norm and moral norm conditions.

When a self-enhancing framing was used, similarly to what was observed in the biospheric interaction effect, for people low on altruistic values, the descriptive norm non-significantly improved pro-environmental consumer intentions. Unlike with biospheric values, though, for people high on altruistic values, the moral norm condition non-significantly improved pro-environmental consumer intentions and non-significantly decreased pro-environmental consumer intentions for people low on altruistic values.

Similarly to the analysis of the interaction effect with biospheric values, the results did not support hypothesis 4. It was actually in the pro-environmental framing condition that the pattern of the effect of each norm-intervention condition was most similar between participants low and high on altruistic values. In the pro-environmental framing condition, for both participants low and high on altruistic values, pro-environmental consumer intentions were non-significantly lower in all norm-intervention conditions compared to the control norm condition.

Similarly to the interaction effects with biospheric and altruistic values, these results did not support hypothesis 4. The pattern of the effect of each norm-intervention condition did seem to vary between participants low and high on egoistic values in all framing conditions.

In the control framing condition, for both people low and high on egoistic values, exposure to the descriptive, social, and moral norm conditions non-significantly decreased pro-environmental consumer intentions. However, for people low on egoistic values, the convention non-significantly increased pro-environmental consumer intentions relative to the control condition, whereas it had the opposite effect for people high on egoistic values. Overall, it appears that when no framing context was given, for people low on egoistic values, pro-environmental consumer intentions were descriptively the highest in the convention condition, though not significantly higher than the control norm condition, and descriptively highest in the control norm condition for people high on egoistic values.

In the pro-environmental framing condition, for people low on egoistic values, exposure to every norm-intervention condition decreased pro-environmental consumer intentions. This decrease relative to the control norm condition was significant for the social norm condition, *p* = .045, and non-significant for the other three norm conditions. For participants high on egoistic values, exposure to the convention and social norm conditions non-significantly improved pro-environmental consumer intentions, and the descriptive and moral norm conditions had almost no effect. Overall, it appears that when a pro-environmental framing is used, for people low on egoistic values, pro-environmental consumer intentions were descriptively highest in the control norm condition, though still not significantly different from the other norm conditions. For people high on egoistic values, pro-environmental consumer intentions were descriptively the highest in the convention condition.

In the self-enhancing framing condition, similarly to what was seen in the pro-environmental framing condition, for participants low on egoistic values, the convention was the most effective norm-intervention condition at improving pro-environmental consumer intentions, though the difference between the convention and control norm condition was not significant. For people high on egoistic values, the convention had almost no effect. Rather, the descriptive norm condition was the most effective at improving pro-environmental consumer intentions for people high on egoistic values, though the difference from the control norm condition was not significant.