# Supplemental Materials

Here we report the results of two additional studies, Supplementary Studies 1 and 2, that validated the materials used in Studies 1 and 2 reported in the main text. We also provide supplementary methodological information and results for Studies 1 and 2.

## Supplementary Study 1

Supplementary Study 1 aimed to validate the emoji scales used in Supplementary Study 2 as well as Studies 1 and 2. Supplementary Study 1 was carried out in two stages to validate the recognition (stage 1) and the intensity (stage 2) of the emojis.

### Emotion Recognition Validation

In the first stage, 75 participants ($M_{age}$ = 36.28, $SD_{age}$ = 14.25, 48 women, 26 men, 1 non-binary) were presented with several versions of emojis created with the Emoji Maker application (https://emoji-maker.com/designer). The emojis were designed to express one of various emotions (anger, awe, boredom, fear, joy, and sadness) or no emotion at all (neutral). They were also designed to differ across four levels of intensity (e.g., Anger_1 being the least intense and Anger_4 being the most intense). For some intensity levels, we created different versions of emojis to allow for comparisons (e.g., Anger_1a, Anger_1b, Anger_1c). Participants were presented with each emoji and were asked to indicate which of the 7 words (anger, awe, boredom, fear, joy, sadness, and neutral) best describes the emoji. Participants' categorical responses were recorded as percentages of emotion recognition scores (see confusion matrix in Supplementary Table 1).

We first examined whether emojis were recognized above chance levels by conducting a series of one-sample *t*-tests. Results showed that all emojis, apart from one of the neutral emojis, were recognized well above chance levels. Thus, for the emotions of anger, awe, boredom, fear, joy, and sadness that had only one emoji per intensity level, we included their corresponding emojis in the next stage of the study. For emojis representing

different versions of the same emotion intensity level, we selected the emoji with the highest recognition rate and the lowest cross-ratings on other emotions. The average recognition rate of the selected emojis was 92% (*SD* = 7.9%, min = 73.3%, max = 100%).

**Supplementary Table 1**

*Emotion Recognition of Emojis in Supplementary Study 1*

| | | | Emotion Recognition (%) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Intended Emotion | Intended Intensity | Emoji | Anger | Awe | Boredom | Fear | Joy | Sadness | Neutral | Selected |
| Anger | 1a |  | **77.3** | 1.3 | 5.3 | 4.0 | 0.0 | 9.3 | 2.7 | |
| | 1b |  | **97.3** | 0.0 | 1.3 | 0.0 | 0.0 | 0.0 | 1.3 | ✓ |
| | 1c |  | **97.3** | 0.0 | 0.0 | 0.0 | 0.0 | 2.7 | 0.0 | |
| | 2 |  | **96.0** | 0.0 | 0.0 | 0.0 | 0.0 | 4.0 | 0.0 | ✓ |
| | 3 |  | **100.0** | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | ✓ |
| | 4 |  | **100.0** | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | ✓ |
| Awe | 1 |  | 0.0 | **89.3** | 6.7 | 1.3 | 1.3 | 0.0 | 1.3 | ✓ |
| | 2 |  | 0.0 | **98.7** | 0.0 | 0.0 | 1.3 | 0.0 | 0.0 | ✓ |
| | 3 |  | 0.0 | **96.0** | 0.0 | 0.0 | 4.0 | 0.0 | 0.0 | ✓ |
| | 4 |  | 0.0 | **92.0** | 0.0 | 0.0 | 8.0 | 0.0 | 0.0 | ✓ |
| Boredom | 1 |  | 0.0 | 1.3 | **74.7** | 0.0 | 0.0 | 2.7 | 21.3 | ✓ |
| | 2a |  | 4.0 | 1.3 | **61.3** | 0.0 | 0.0 | 12.0 | 21.3 | |
| | 2b |  | 0.0 | 0.0 | **97.3** | 0.0 | 0.0 | 1.3 | 1.3 | ✓ |
| | 3 |  | 0.0 | 1.3 | **97.3** | 0.0 | 0.0 | 0.0 | 1.3 | ✓ |
| | 4 |  | 0.0 | 0.0 | **88.0** | 0.0 | 0.0 | 0.0 | 12.0 | ✓ |
| Fear | 1a |  | 0.0 | 24.0 | 0.0 | **62.7** | 0.0 | 12.0 | 1.3 | |
| | 1b |  | 1.3 | 6.7 | 0.0 | **76.0** | 0.0 | 14.7 | 1.3 | ✓ |
| | 2 |  | 1.3 | 0.0 | 0.0 | **89.3** | 0.0 | 9.3 | 0.0 | ✓ |
| | 3 |  | 0.0 | 6.7 | 0.0 | **86.7** | 0.0 | 6.7 | 0.0 | ✓ |
| | 4 |  | 0.0 | 10.7 | 0.0 | **82.7** | 0.0 | 5.3 | 1.3 | ✓ |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Joy | 1 |  | 0.0 | 1.3 | 0.0 | 1.3 | **93.3** | 0.0 | 4.0 | ✓ |
| | 2 |  | 0.0 | 2.7 | 1.3 | 0.0 | **94.7** | 1.3 | 0.0 | ✓ |
| | 3 |  | 0.0 | 1.3 | 0.0 | 1.3 | **97.3** | 0.0 | 0.0 | ✓ |
| | 4a |  | 0.0 | 2.7 | 0.0 | 0.0 | **97.3** | 0.0 | 0.0 | |
| | 4b |  | 0.0 | 0.0 | 0.0 | 1.3 | **98.7** | 0.0 | 0.0 | ✓ |
| | 4c |  | 1.3 | 5.3 | 0.0 | 0.0 | **90.7** | 0.0 | 2.7 | |
| Sadness | 1 |  | 0.0 | 0.0 | 0.0 | 4.0 | 0.0 | **94.7** | 1.3 | ✓ |
| | 2 |  | 0.0 | 0.0 | 0.0 | 1.3 | 0.0 | **98.7** | 0.0 | ✓ |
| | 3 |  | 0.0 | 0.0 | 1.3 | 1.3 | 0.0 | **97.3** | 0.0 | ✓ |
| | 4 |  | 0.0 | 1.3 | 0.0 | 0.0 | 0.0 | **93.3** | 5.3 | ✓ |
| Neutral | 1a |  | 0.0 | 9.3 | 2.7 | 0.0 | 65.3 | 0.0 | **22.7** | |
| | 1b |  | 1.3 | 2.7 | 22.7 | 4.0 | 0.0 | 6.7 | **62.7** | |
| | 1c |  | 0.0 | 5.3 | 14.7 | 4.0 | 0.0 | 2.7 | **73.3** | ✓ |
| | 1d |  | 0.0 | 1.3 | 14.7 | 6.7 | 0.0 | 5.3 | **72.0** | |

*Note.* A tick mark (✓) indicates that the corresponding emoji was included in the next stage of the study. Intended intensity ranges from 1 (least intense) to 4 (most intense).

**Emotion Intensity Validation**

In the second stage, we validated the intensity ranking of the emojis we selected in the previous stage. Seventy-eight participants ($M_{age}$ = 37.37, $SD_{age}$ = 14.00, 56 women, 22 men) were presented with six sets of four emojis. Each set corresponded to one emotion (anger, awe, boredom, fear, happiness and sadness), and all four emojis within each set varied in intensity. Participant were asked to rank the emojis in terms of intensity, with 1 being the least intense and 4 being the most intense. For each emoji, we estimated the percentage of participants who correctly ranked its intensity (see Supplementary Table 2). Results indicate that all emojis were correctly ranked with an average of 92.7% accuracy ($SD$ = 4.3%, min = 80.8%, max = 98.7%). Thus, all emojis were included in the final version of the emoji scale.

**Supplementary Table 2**

*Percentage of Participants Who Correctly Ranked Each Emoji in Supplementary Study 1*

| | | | Emotion Intensity Ranking (%) | | | |
|---|---|---|---|---|---|---|
| Emotion | Intensity | Emoji | 1 | 2 | 3 | 4 |
| Anger | 1 |  | **92.3** | 7.7 | 0.0 | 0.0 |
| | 2 |  | 7.7 | **91.0** | 1.3 | 0.0 |
| | 3 |  | 0.0 | 1.3 | **97.4** | 1.3 |
| | 4 |  | 0.0 | 0.0 | 1.3 | **98.7** |
| Awe | 1 |  | **85.9** | 10.3 | 3.8 | 0.0 |
| | 2 |  | 10.3 | **80.8** | 6.4 | 2.6 |
| | 3 |  | 2.6 | 7.7 | **89.7** | 0.0 |
| | 4 |  | 1.3 | 1.3 | 0.0 | **97.4** |
| Boredom | 1 |  | **89.7** | 7.7 | 0.0 | 2.6 |
| | 2 |  | 3.8 | **91.0** | 3.8 | 1.3 |
| | 3 |  | 3.8 | 1.3 | **93.6** | 1.3 |
| | 4 |  | 2.6 | 0.0 | 2.6 | **94.9** |
| Fear | 1 |  | **96.2** | 3.8 | 0.0 | 0.0 |
| | 2 |  | 3.8 | **91.0** | 5.1 | 0.0 |
| | 3 |  | 0.0 | 3.8 | **89.7** | 6.4 |
| | 4 |  | 0.0 | 1.3 | 5.1 | **93.6** |
| Joy | 1 |  | **96.2** | 3.8 | 0.0 | 0.0 |
| | 2 |  | 2.6 | **94.9** | 0.0 | 2.6 |
| | 3 |  | 1.3 | 0.0 | **96.2** | 2.6 |
| | 4 |  | 0.0 | 1.3 | 3.8 | **94.9** |
| Sadness | 1 |  | **96.2** | 2.6 | 0.0 | 1.3 |
| | 2 |  | 3.8 | **87.2** | 7.7 | 1.3 |
| | 3 |  | 0.0 | 9.0 | **89.7** | 1.3 |
| | 4 |  | 0.0 | 1.3 | 2.6 | **96.2** |

## Supplementary Study 2

The goal of Supplementary Study 2 was twofold. First, we wanted to select movie clips that would reliably elicit awe, joy, and neither of these emotions to use in Studies 1 and 2. Second, we wanted to select an outgroup toward which children have ambivalent feelings to use as the target group in the prosociality tasks in Studies 1 and 2.

### Validation of Awe- and Joy-Eliciting Video Clips

We selected 15 1-minute video clips based on theoretical and empirical accounts of elicitors of the target emotions (Cowen et al., 2020; Ji et al., 2019). Twelve of the clips were expected to elicit awe or joy and were derived from animated movies. The other three clips were expected to elicit neither emotion, and were derived from instructional YouTube videos.

We recruited 51 children aged 8-13 ($M_{age}$ = 10.31, $SD_{age}$ = 1.67, 25 girls, 26 boys). The study was conducted online and was distributed using targeted Facebook ads. Participants completed the study in their native language, which was Dutch (26), Greek (19), or English (6). Participants viewed all video clips in random order and were asked to rate their emotional response to each clip using the emoji scale. They were also asked to indicate whether they had seen each clip before.


***Supplementary Figure 1***. Screenshots from the 15 video clips tested in Supplementary Study 2.

The analysis was conducted in two steps. First, all videos that were recognized by at least 33% of the participants were eliminated from further analyses. A frequency analysis showed that many participants were familiar with the clips *Lion King* (87.8%), *Kung-Fu Panda* (59%), *Tarzan* (35.9%), and *Rio* (33.3%), which were excluded from further analyses.

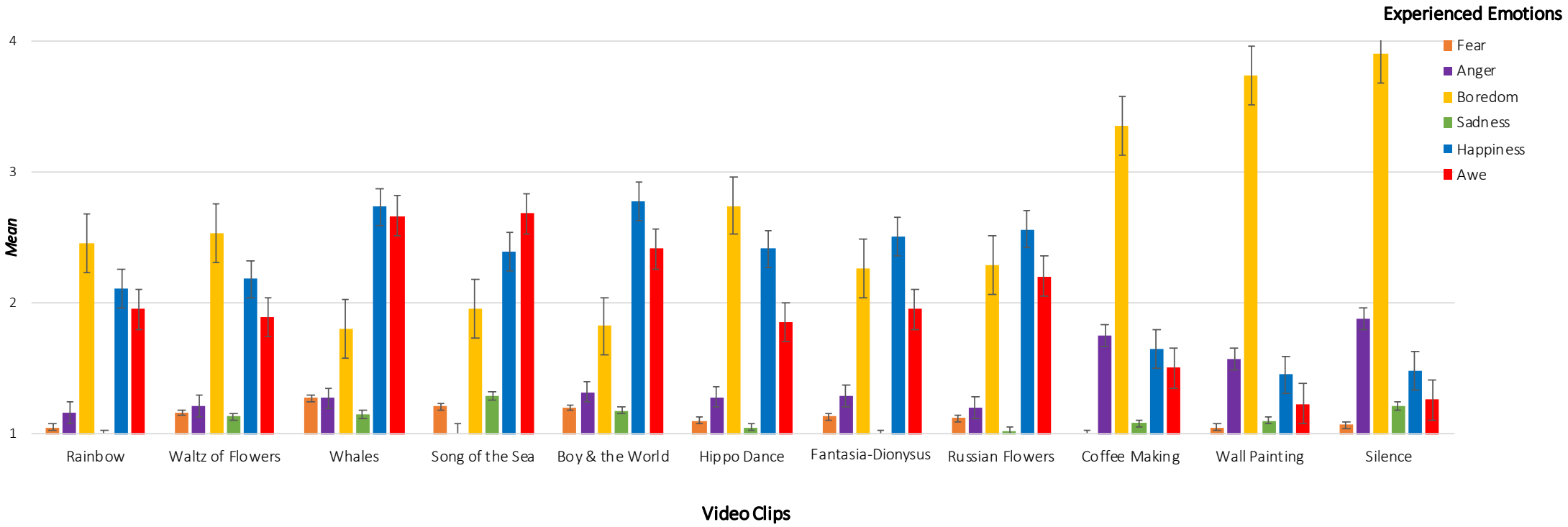
Second, we narrowed down our selection to a few candidate videos per condition (awe, joy, control) based on their awe and joy scores when comparing them within each video. Given our interest to separately manipulate feelings of awe and joy, we opted for videos that had maximally different scores on these two emotions while having low scores on all other emotions. We conducted a series of RM-ANOVAs to compare the experienced emotion scores within each clip (see Supplementary Table 3 and Supplementary Figure 2). For the awe condition, we considered *Song of the Sea,* because it was the only clip that scored higher on awe than joy, $M_{diff}$ = -.29, $SD_{diff}$ = 1.33, 95% CI [-0.73, 0.15], $t(37)$ = -1.34, $p$ = .189. Although the difference between awe and joy scores did not reach significance, we selected *Song of the Sea* for the awe condition because it had the highest awe score compared to all other clips, and we were confident that the extended clip we would use in the main studies (4m and 20s instead of 1m) would evoke the intended emotion. For the joy condition, we considered *Hippo Dance* and *Fantasia-Dionysus,* because they scored higher on joy than awe, $M_{diff}$ = 0.56, $SD_{diff}$ = 1.33, 95% CI [-0.13, 1.00], $t(38)$ = 2.64, $p$ = .012 (*Hippo Dance*), and $M_{diff}$ = 0.55, $SD_{diff}$ = 1.08, 95% CI [-0.18, 0.91], $t(37)$ = 3.15, $p$ = .003 (*Fantasia-Dionysus*). Given that the mean difference was greater in *Fantasia-Dionysus* than *Hippo Dance*, we selected *Fantasia-Dionysus* for the joy condition. Finally, for the control condition, we considered *Coffee Making* and *Wall Painting* that had the lowest awe and joy scores (floor effect). We selected the former for Study 1 since it had the lowest absolute scores on awe and joy, and the latter for Study 2 because it had a relatively lower boredom score, necessary for keeping children engaged in the museum.

**Supplementary Table 3**

*Descriptive Statistics of Experienced Emotions Per Video Clip in Supplementary Study 2*

| | Experienced Emotions | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Fear | | Anger | | Boredom | | Sadness | | Joy | | Awe | |
| Video Clips | *M* (*SD*) | 95% CI | *M* (*SD*) | 95% CI | *M* (*SD*) | 95% CI | *M* (*SD*) | 95% CI | *M* (*SD*) | 95% CI | *M* (*SD*) | 95% CI |
| Rainbow | 1.05 (0.23) | [0.98, 1.13] | 1.16 (0.55) | [0.98, 1.34] | 2.45 (1.67) | [1.90, 3.00] | 1.00 (0.00) | [1.00, 1.00] | 2.11 (1.31) | [1.67, 2.54] | 1.95 (1.29) | [1.52, 2.37] |
| Waltz of Flowers | 1.16 (0.55) | [0.98, 1.34] | 1.21 (0.74) | [0.97, 1.45] | 2.53 (1.48) | [2.04, 3.01] | 1.13 (0.48) | [0.98, 1.29] | 2.18 (1.09) | [1.83, 2.54] | 1.89 (1.06) | [1.55, 2.24] |
| Whales | 1.27 (0.78) | [1.02, 1.51] | 1.27 (0.87) | [1.00, 1.54] | 1.80 (1.23) | [1.42, 2.19] | 1.15 (0.57) | [0.97, 1.33] | 2.73 (1.32) | [2.31, 3.15] | 2.66 (1.39) | [2.22, 3.10] |
| Song of the Sea | 1.21 (0.70) | [0.98, 1.44] | 1.00 (0.00) | [1.00, 1.00] | 1.95 (1.36) | [1.50, 2.39] | 1.29 (0.80) | [1.03, 1.55] | 2.39 (1.29) | [1.97, 2.82] | 2.68 (1.60) | [2.16, 3.21] |
| Boy & the World | 1.20 (0.46) | [1.06, 1.35] | 1.32 (0.88) | [1.05, 1.59] | 1.82 (1.50) | [1.36, 2.27] | 1.18 (0.58) | [1.01, 1.36] | 2.77 (1.46) | [2.33, 3.22] | 2.41 (1.40) | [1.98, 2.84] |
| Hippo Dance | 1.10 (0.31) | [1.00, 1.20] | 1.28 (0.83) | [1.01, 1.55] | 2.74 (1.57) | [2.24, 3.25] | 1.05 (0.32) | [0.95, 1.16] | 2.41 (1.25) | [2.01, 2.82] | 1.85 (1.11) | [1.49, 2.21] |
| Fantasia-Dionysus | 1.13 (0.67) | [0.91, 1.35] | 1.29 (0.80) | [1.03, 1.55] | 2.26 (1.61) | [1.74, 2.79] | 1.00 (0.00) | [1.00, 1.00] | 2.50 (1.25) | [2.09, 2.91] | 1.95 (1.25) | [1.54, 2.36] |
| Russian Flowers | 1.12 (0.64) | [0.92, 1.32] | 1.2 (0.64) | [0.99, 1.40] | 2.29 (1.52) | [1.81, 2.77] | 1.02 (0.16) | [0.98, 1.07] | 2.56 (1.34) | [2.14, 2.99] | 2.20 (1.31) | [1.78, 2.61] |
| Coffee Making | 1.00 (0.00) | [1.00, 1.00] | 1.75 (1.19) | [1.37, 2.13] | 3.35 (1.66) | [2.82, 3.88] | 1.08 (0.35) | [0.96, 1.19] | 1.65 (0.80) | [1.39, 1.91] | 1.50 (1.04) | [1.17, 1.83] |
| Wall Painting | 1.05 (0.22) | [0.98, 1.12] | 1.57 (1.13) | [1.21, 1.94] | 3.73 (1.49) | [3.25, 4.20] | 1.10 (0.44) | [0.96, 1.24] | 1.45 (0.64) | [1.25, 1.65] | 1.23 (0.53) | [1.06, 1.40] |
| Silence | 1.07 (0.34) | [0.97, 1.18] | 1.88 (1.45) | [1.43, 2.33] | 3.90 (1.74) | [3.36, 4.45] | 1.21 (0.65) | [1.01, 1.42] | 1.48 (0.80) | [1.23, 1.73] | 1.26 (0.83) | [1.00, 1.52] |
| Total | 1.19 (0.47) | [1.03, 1.21] | 1.35 (0.07) | [1.21, 1.50] | 2.62 (0.18) | [2.26, 2.99] | 1.10 (0.04) | [1.03, 1.17] | 2.14 (0.12) | [1.90, 2.38] | 1.92 (0.12) | [1.67, 2.16] |

*Note*. Sample size (*N*) differs per clip: Rainbow (38), Waltz of Flowers (38), Whales (41), Song of the Sea (38), Boy & the World (44), Hippo Dance (39), *Fantasia*-Dionysus (38), Russian Flowers (41), Coffee Making (40), Wall Painting (40), and Silence (42).




***Supplementary Figure 2.*** Mean experienced emotions per video clip in Supplementary Study 2.

**Selecting an Outgroup for the Prosociality Tasks**

For the prosociality tasks used in Studies 1 and 2, we wanted to select an outgroup that poses some degree of ambivalence about their worthiness of receiving help. We asked children ($N$ = 35) to indicate the extent to which they would be willing to help members of nine different groups in case they needed help: a classmate, an elderly person, a sick child at the hospital, a homeless person, a refugee, a mentally ill person, a child from a different school, an ex-prisoner, and a drug-addict (1 = *Definitely not*, 5 = *Definitely yes*).

We compared children's willingness to help each group member against the overall mean willingness to help ($M$ = 3.51, $SD$ = 0.13, 95% CI [3.24, 3.77]) in a series of paired-sample $t$-tests (see Supplementary Table 4). Results show that children were definitely willing to help a classmate, an elderly person, a sick child at the hospital, and a homeless person; definitely unwilling to help an ex-prisoner and a drug-addict; and ambivalent about their willingness to help a refugee, a mentally-ill person, and a child from another school (see Supplementary Figure 3). We selected a group that children were ambivalent about helping to prevent a ceiling or floor effect on the prosociality tasks. Specifically, we selected refugees as the target of the prosociality tasks because they are perceived as an outgroup, and discussion about the refugee crisis in local media makes it a salient and timely topic.

**Supplementary Table 4**

*Results of Paired-Samples t-tests*

| | $M$ ($SD$) | $M_{diff}$[1] | $t$ | $p$ | Cohen's $d$ | 95% CI |
|---|---|---|---|---|---|---|
| *A classmate* | 4.26 (0.78) | 0.75 | 5.683 | <.001 | 0.96 | [0.55, 1.36] |
| *An elderly person* | 4.29 (0.89) | 0.79 | 5.150 | <.001 | 0.87 | [0.48, 1.26] |
| *A sick child* | 4.17 (1.12) | 0.66 | 3.492 | .001 | 0.59 | [0.23, 0.95] |
| *A homeless person* | 4.17 (1.12) | 0.66 | 3.492 | .001 | 0.59 | [0.23, 0.95] |
| *A refugee* | 3.57 (1.15) | 0.06 | .328 | .745 | 0.06 | [-0.28, 0.39] |
| *A mentally ill person* | 3.43 (1.38) | -0.08 | -.341 | .736 | -0.06 | [-0.39, 0.27] |
| *Child from another school* | 3.31 (1.13) | -0.19 | -1.012 | .319 | -0.17 | [-0.50, 0.16] |
| *An ex-prisoner* | 2.40 (1.31) | -1.11 | -5.001 | <.001 | -0.85 | [-1.23, -0.45] |
| *A drug addict* | 1.97 (1.04) | -1.54 | -8.717 | <.001 | -1.47 | [-1.95, -0.99] |

[1] Mean willingness to help each group member was subtracted from overall mean willingness to help ($M$ = 3.51, $SD$ = 0.13).

## Study 1

### Supplementary Method

#### *Participants*

Out of 180 participants who started the study, 159 completed it and were included in the analyses. They participated in their first language, which was Dutch (86.2%) or English (13.8%). Most participants had Dutch or Belgian nationality (83.4%) and the rest reported another nationality or ethnicity (U.S. American, British, Australian, Italian, Egyptian, Greek, Palestinian, Uighur, or Polish). Children's parents provided active informed consent for their children.

Detailed information about the sample demographics appears in Supplementary Table 5. There were no gender differences across emotion conditions, $\chi^2$ (4) = 4.86, $p$ = .302, $R_{CS}^2$ = .03, and no age differences, $F(2, 158) = 0.10$, $p$ = .906, $\eta^2$ = .001, 95% CI[.000, .02], which indicates that randomization was successful.

### Supplementary Table 5

*Sample Demographics in Studies 1 and 2*

| | Study 1 | | | | Study 2 | | | |
|---|---|---|---|---|---|---|---|---|
| | Emotion Condition | | | | Emotion Condition | | | |
| | Awe | Joy | Control | Total[a] | Awe | Joy | Control | Total |
| | Categorical Variables | | | | | | | |
| Gender | | | | | | | | |
| Girl | 34 | 26 | 24 | 84 | 45 | 49 | 57 | 162 |
| Boy | 21 | 26 | 27 | 74 | 64 | 70 | 55 | 189 |
| Non-binary/unspecified | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 2 |
| Age | | | | | | | | |
| 8 | 4 | 2 | 3 | 9 | 25 | 28 | 19 | 72 |
| 9 | 17 | 13 | 19 | 49 | 28 | 29 | 28 | 85 |
| 10 | 12 | 18 | 12 | 42 | 19 | 26 | 23 | 68 |
| 11 | 8 | 9 | 5 | 22 | 34 | 17 | 20 | 71 |
| 12 | 9 | 11 | 7 | 27 | 8 | 11 | 15 | 34 |
| 13 | 5 | 0 | 5 | 10 | 6 | 8 | 9 | 23 |
| Total[b] | 55 | 53 | 51 | 159 | 120 | 119 | 114 | 353 |
| | Continuous Variables | | | | | | | |
| Mean Age (*SD*) | 10.29 (1.47) | 10.26 (1.16) | 10.18 (1.47) | 10.25 (1.37) | 9.92 (1.44) | 9.82 (1.51) | 10.10 (1.53) | 9.94 (1.49) |

| | | | | |
|---|---|---|---|---|
| Mean Child Art Exposure (*SD*) | 3.61 (1.13) | 3.65 (1.16) | 3.42 (1.20) | 3.56 (1.17) |
| Mean Parent Art Interest (*SD*) | 3.48 (1.63) | 3.71 (1.63) | 3.23 (1.55) | 3.48 (1.61) |
| Mean Subjective SES (*SD*) | 4.75 (1.20) | 4.91 (1.05) | 5.03 (1.18) | 4.89 (1.15) |
| Mean Annual Family Income (*SD*) | 7.11 (2.82) | 7.23 (3.01) | 7.01 (3.00) | 7.12 (2.94) |

*Note*. Child art exposure, parent art interest, and subjective SES were measured on a scale from 1 (*not at all*) to 7 (*very much*). Annual family income was measured on a scale ranging from 1 (*less than €10,000*) to 12 (*more than €150,000*) with €10,000 increments on each rank.

[a] Total across genders and age groups

[b] Total across emotion conditions

### *Procedure*

Before participants viewed the main video clip, we had them practice how to play a video full-screen and use the emoji scales to rate their emotions. To practice entering full-screen mode, we presented them with a 10s video of a colorful spinning wheel with background music and asked them to play it while wearing headphones. We explained the concepts of "joy" and "awe" by providing concrete examples to make sure children had the same understanding of the emotion terms. The example for joy read "You feel joy when something makes you laugh or smile. For example, playing with your friends, hearing a funny story, or eating your favorite food". The example for awe read "You feel in awe when something takes your breath away. For example, a sky full of stars, an amazing sunset, or fireworks". After reading these examples, participants were asked to indicate the extent to which they experience joy and awe at that moment using the respective emoji scales.

After the practice session, participants watched the main video clip. They then reported how the video made them feel using the emoji scale. Next, they were asked whether they had seen the video before (yes/ no) and how much they liked the video on a scale from 1 (*not at all*) to 5 (*extremely*). Subsequently, they answered five questions that assessed the psychological experience of "small self", which measures children's perception of their symbolic size in relation to the world (Bai et al., 2017). Three of the questions were visual and two were textual. However, the reliability of the 5-item scale was low ($\alpha = .62$), but improved significantly

($\alpha$ = .70) after removing the item "I feel important", which had the lowest inter-item correlations. We therefore created a four-item scale which was used in the analyses. We also assessed how close children feel to strangers, as an assessment of participants' interpersonal closeness to others, using an adjusted version of the Inclusion of Other in Self (IOS) scale.

**Supplementary Results**

In the main text we presented the results of *t*-tests comparing experienced awe and joy within each condition as a manipulation check. We also tested the effects of emotion condition on both prosociality tasks.

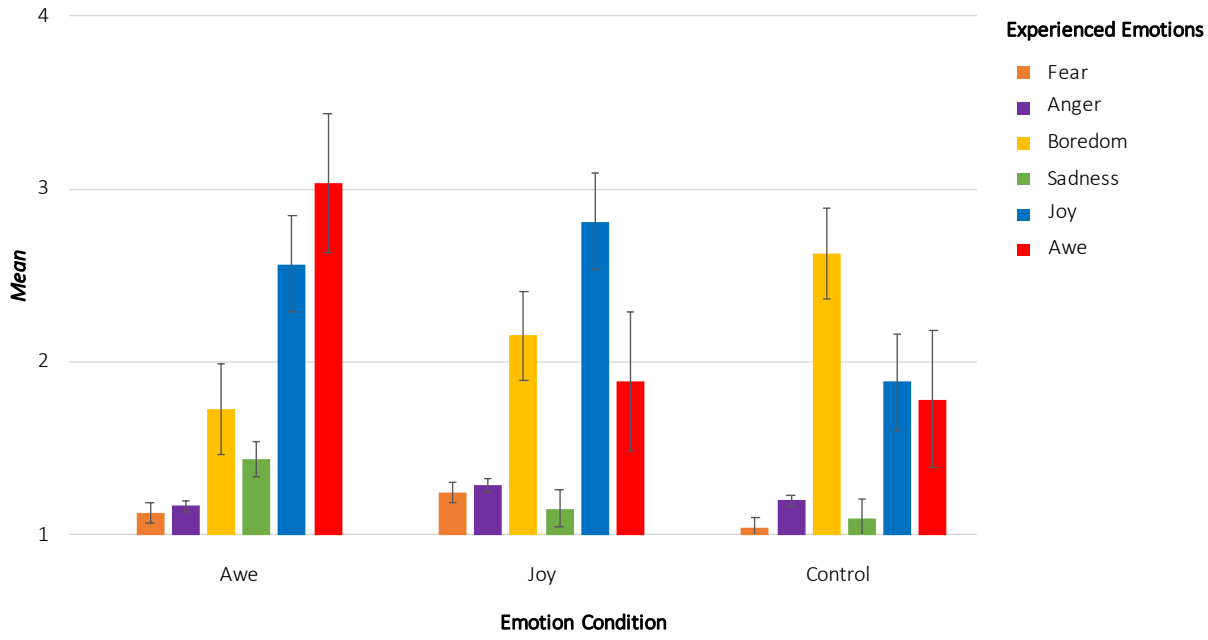
Here we report the results of a series of ANOVAs that tested the effect of emotion condition on experienced emotions in response to the main clip, liking of the main clip, experienced self-smallness, and interpersonal closeness to strangers. We finally explore whether experienced emotions mediate the effect of emotion condition on ticket donation.

***Experienced Emotions***

Descriptive statistics for experienced emotions are reported in Supplementary Table 6 and means are plotted in Supplementary Figure 3. Participants' feelings of fear and anger in response to the video clips did not differ across conditions, $F$ (2, 156) = 1.98, $p$ = .141, $\eta_p^2$ = .03 and $F$ (2, 156) = 0.42, $p$ = .660, $\eta_p^2$ = .005, respectively. All other experienced emotions differed across conditions (awe: $F$ (2, 156) = 18.30, $p$ < .001, $\eta_p^2$ = .19; joy: $F$ (2, 156) = 8.87, $p$ < .001, $\eta_p^2$ = .10; boredom: $F$ (2, 156) = 6.49, $p$ = .002, $\eta_p^2$ = .08; and sadness: $F$ (2, 156) = 5.93, $p$ = .003, $\eta_p^2$ = .07).

Probing these effects showed that participants in the awe condition experienced more awe than participants in the joy condition, $b$ = -1.15, $SE$ = 0.23, 95% CI [-1.60, -0.70], $t$(156) = -5.01, $p$ < .001, $\eta_p^2$ = .14, and control condition, $b$ = -1.25, $SE$ = 0.23, 95% CI [-1.71, -0.79], $t$(156) = -5.40, $p$ < .001, $\eta_p^2$ = .16. Participants in the awe condition experienced less joy than participants in the control condition, $b$ = -0.68, $SE$ = 0.23, 95% CI [-1.13, -0.24],

$t(156) = -3.01$, $p = .003$, $\eta_p^2 = .06$, and they did not differ from participants in the joy condition, $b = 0.25$, $SE = 0.22$, 95% CI [-0.19, 0.69], $t(156) = 1.11$, $p = .270$, $\eta_p^2 = .01$. Participants in the awe condition experienced less boredom than participants in the control condition, $b = 0.90$, $SE = 0.25$, 95% CI [0.41, 1.39], $t(156) = 3.60$, $p < .001$, $\eta_p^2 = .08$, and they did not differ from participants in the joy condition, $b = 0.42$, $SE = 0.25$, 95% CI [-0.07, 0.91], $t(156) = 1.71$, $p = .089$, $\eta_p^2 = .02$. Finally, participants in the awe condition experienced more sadness than participants in the joy condition, $b = -0.29$, $SE = 0.11$, 95% CI [-0.49, -0.08], $t(156) = -2.71$, $p = .008$, $\eta_p^2 = .05$, and control condition, $b = -0.34$, $SE = 0.11$, 95% CI [-0.55, -0.13], $t(156) = -3.18$, $p = .002$, $\eta_p^2 = .06$.




***Supplementary Figure 3.*** Mean experienced emotions as a function of condition in Study 1.

**Supplementary Table 6**

*Descriptive Statistics of Experienced Emotions Across Conditions in Studies 1 and 2*

| | Experienced Emotions | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Fear | | Anger | | Boredom | | Sadness | | Joy | | Awe | |
| | *M (SD)* | 95% CI | *M (SD)* | 95% CI | *M (SD)* | 95% CI | *M (SD)* | 95% CI | *M (SD)* | 95% CI | *M (SD)* | 95% CI |
| Condition | Study 1 | | | | | | | | | | | |
| Awe | 1.13[a] (0.34) | [0.99, 1.27] | 1.16[a] (0.60) | [0.98, 1.35] | 1.73[a] (1.15) | [1.39, 2.07] | 1.44[a] (0.67) | [1.29, 1.58] | 2.56[a] (1.15) | [2.25, 2.87] | 3.04[a] (1.29) | [2.72, 3.35] |
| Joy | 1.25[a] (0.83) | [1.10, 1.39] | 1.28[a] (0.84) | [1.09, 1.47] | 2.15[a,b](1.32) | [1.80, 2.50] | 1.15[b] (0.50) | [1.00, 1.30] | 2.81[a] (1.36) | [2.50, 3.13] | 1.89[b] (1.09) | [1.56, 2.21] |
| Control | 1.04[a] (0.20) | [0.89, 1.19] | 1.20[a] (0.63) | [1.00, 1.39] | 2.63[b,c](1.39) | [2.72, 2.98] | 1.10[b] (0.47) | [0.95, 1.25] | 1.88[b] (0.93) | [1.56, 2.20] | 1.78[b] (1.19) | [1.45, 2.11] |
| Total | 1.14 (0.53) | [1.05, 1.22] | 1.21 (0.70) | [1.11, 1.32] | 2.16 (1.33) | [1.97, 2.37] | 1.23 (0.57) | [1.14, 1.31] | 2.43 (1.22) | [2.24, 2.60] | 2.25 (1.32) | [2.05, 2.42] |
| Condition | Study 2 | | | | | | | | | | | |
| Awe | 1.22[a] (0.57) | [1.13, 1.30] | 1.11[a] (0.43) | [1.03, 1.19] | 1.93[a,c](0.98) | [1.72, 2.13] | 1.26[a,c](0.56) | [1.18, 1.34] | 2.38[a] (1.15) | [2.18, 2.58] | 2.74[a] (1.23) | [2.54, 2.95] |
| Joy | 1.13[a] (0.36) | [1.04, 1.21] | 1.11[a] (0.36) | [1.03, 1.19] | 2.24[b,c](1.05) | [2.03, 2.44] | 1.13[b,c](0.51) | [1.04, 1.21] | 2.45[a] (1.02) | [2.25, 2.65] | 2.02[b] (1.06) | [1.81, 2.23] |
| Control | 1.11[a] (0.47) | [1.02, 1.19] | 1.19[a] (0.51) | [1.11, 1.27] | 2.56[b] (1.32) | [2.36, 2.77] | 1.04[b] (0.21) | [0.96, 1.13] | 2.02[b] (1.14) | [1.81, 2.22] | 1.95[b] (1.16) | [1.74, 2.16] |
| Total | 1.15 (0.47) | [1.10, 1.20] | 1.14 (0.44) | [1.09, 1.18] | 2.24 (1.15) | [2.12, 2.36] | 1.14 (0.46) | [1.10, 1.19] | 2.29 (1.12) | [2.17, 2.40] | 2.24 (1.20) | [2.12, 2.36] |

*Note.* $N = 159$ in Study 1. $N = 353$ in Study 2. CI = confidence interval. Means that share a letter superscript are statistically different from one another when compared between conditions.

***Liking***

Seven participants had missing data on this question and were not included in the analysis, resulting in a sample of 152 participants. Participants across conditions differed in how much they liked the clips, $F$ (2, 149) = 12.20, $p < .001$, $\eta_p^2 = .14$. Participants in the awe condition ($M$ = 3.13, $SD$ = 1.32, 95% CI [2.80, 3.46]) liked the movie clip more than participants in the control condition ($M$ = 1.98, $SD$ = 0.92, 95% CI [1.64, 2.32]), $b$ = -1.15, $SE$ = 0.24, 95% CI [-1.63, -0.68], $t$(149) = -4.80, $p < .001$, $\eta_p^2 = .13$. Participants in the awe condition did not differ from participants in the joy condition ($M$ = 2.82, $SD$ = 1.34, 95% CI [2.48, 3.16]), $b$ = -0.31, $SE$ = 0.24, 95% CI [-0.78, 0.16], $t$(149) = -1.31, $p$ = .193, $\eta_p^2 = .01$.

***Small Self***

There was a significant difference in participants' experience of symbolic self-size across conditions, $F$ (2, 156) = 3.46, $p$ = .034, $\eta_p^2 = .04$. Participants in the awe condition ($M$ = 3.24, $SD$ = 0.84, 95% CI [3.04, 3.44]) felt smaller than participants in the control condition ($M$ = 3.63, $SD$ = 0.66, 95% CI [3.42, 3.84]), $b$ = 0.39, $SE$ = 0.15, 95% CI [0.10, 0.68], $t$(156) = 2.63, $p$ = .009, $\eta_p^2 = 04$. Participants in the awe condition did not differ from participants in the joy condition ($M$ = 3.44, $SD$ = 0.75, 95% CI [3.23, 3.64]), $b$ = 0.20, $SE$ = 0.15, 95% CI [-0.90, 0.49], $t$(156) = 1.36, $p$ = .176, $\eta_p^2 = 01$.

***Interpersonal Closeness***

Participants across conditions differed in how close they felt to strangers, $F$ (2, 156) = 4.58, $p$ = .012, $\eta_p^2 = .06$. Participants in the awe condition ($M$ = 2.31, $SD$ = 1.44, 95% CI [1.96, 2.66]) felt closer to strangers than participants in the control condition ($M$ = 1.53, $SD$ = 1.56, 95% CI [1.16, 1.90]), $b$ = -0.78, $SE$ = 0.26, 95% CI [-1.29, -0.27], $t$(156) = -3.02, $p$ = .003, $\eta_p^2 = 06$. There was no difference between participants in the awe condition and joy condition ($M$ = 1.98, $SD$ = 1.37, 95% CI [1.62, 2.34]), $b$ = -0.33, $SE$ = 0.26, 95% CI [-0.83, -0.18], $t$(156) = -1.28, $p$ = .202, $\eta_p^2 = 01$.

***Effects of Emotion Condition on Prosocial Behavior After Controlling for Age and Gender***

We explored whether the effect of emotion condition on prosocial behavior (item count and ticket donation) holds after controlling for children's age and gender.

Results are reported on Supplementary Table 7. A negative binomial regression showed that after controlling for age and gender, there was a significant difference in the number of items counted across conditions, Wald $\chi^2$ (2) = 12.29, $p$ = .002. Participants in the awe condition ($M$=43.52, $SD$=6.03) counted 1.49 times (95% CI[1.02, 2.19]) more food items than participants in the joy condition ($M$=29.18, $SD$=4.09), Wald $\chi^2$ (1)=4.16, $b$=0.40, $SE$=0.20, 95% CI[0.02, 0.78], $p$=.041. They also counted 2.06 times (95% CI[1.37, 3.09]) more food items than participants in the control condition ($M$=21.14, $SD$=3.14), Wald $\chi^2$ (1)=12.11, $b$=0.72, $SE$=0.21, 95% CI[0.32, 1.13], $p$<.001. There was no significant difference between the joy and control conditions, Wald $\chi^2$ (1)=2.44, $b$=0.32, $SE$=0.21, 95% CI[-0.08, 0.73], $p$=.118.

Logistic regression also showed that, after controlling for age and gender, participants' probability to donate their ticket differed across conditions, Wald $\chi^2$ (2) = 11.35, $p$ = .003. Odds ratio analysis showed that participants in the awe condition were 2.84 times (95% CI [1.29, 6.27]) more likely to donate their ticket than participants in the joy condition, Wald $\chi^2$ (1) = 6.66, $b$ = 1.04, $SE$ = 0.40, $p$ = .010. They were also 3.74 times (95% CI [1.66, 8.45]) more likely to donate their ticket than participants in the control condition, Wald $\chi^2$ (1) = 10.09, $b$ = 1.32, $SE$ = 0.42, $p$ = .001.

**Supplementary Table 7**

*Parameter Estimates of the Effect of Emotion Condition on Item Count and Ticket Donation After Controlling for Age and Gender in Study 1*

| | Item Count | | | | | Ticket Donation | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Predictors | *b* (*SE*) | Wald $\chi^2$ | *p* | OR | 95% CI | *b* (*SE*) | Wald $\chi^2$ | *p* | OR | 95% CI |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Age | 0.02 (0.06) | 0.06 | .807 | 1.02 | [0.90, 1.15] | 0.11 (0.12) | 0.83 | .364 | 1.12 | [0.88, 1.42] |
| Gender | -0.04 (0.17) | 0.05 | .817 | 0.96 | [0.70, 1.33] | 0.23 (0.33) | 0.49 | .486 | 1.26 | [0.66, 2.38] |
| Emotion Condition | | 12.29 | .002 | | | | 11.35 | .003 | | |
| Intercept | 2.95 (0.68) | 18.93 | <.001 | 19.07 | [5.05,72.00] | -2.19 (1.37) | 2.56 | .109 | 0.11 | |

***Correlation Between Prosocial Behavior Measures***

To examine whether the item count task and ticket donation task tapped the same construct, prosocial behavior, we calculated the correlation between them. Results indicate that the more items participants counted the more likely they were to donate their ticket, $r(159) = -.25$, $p = .001$, providing evidence for convergent validity.

***Mediation Analysis***

After testing the effect of emotion condition on ticket donation, we explored whether experienced emotions mediate the effect of emotion condition on ticket donation (parallel mediation; PROCESS, model 4, 5000 iterations; Hayes, 2017). The model we estimated included 6 indirect effects tested for the contrast between the awe and joy conditions as well as the contrast between awe and control conditions, as illustrated in Supplementary Figure 4. Parameter estimates of the effects of emotion condition on experienced emotions ("a" paths), the effects of experienced emotions on ticket donation ("b" paths), and the indirect effects of emotion condition on ticket donation through experienced emotions ("a*b" paths or the indirect effects) are reported in Supplementary Table 8.

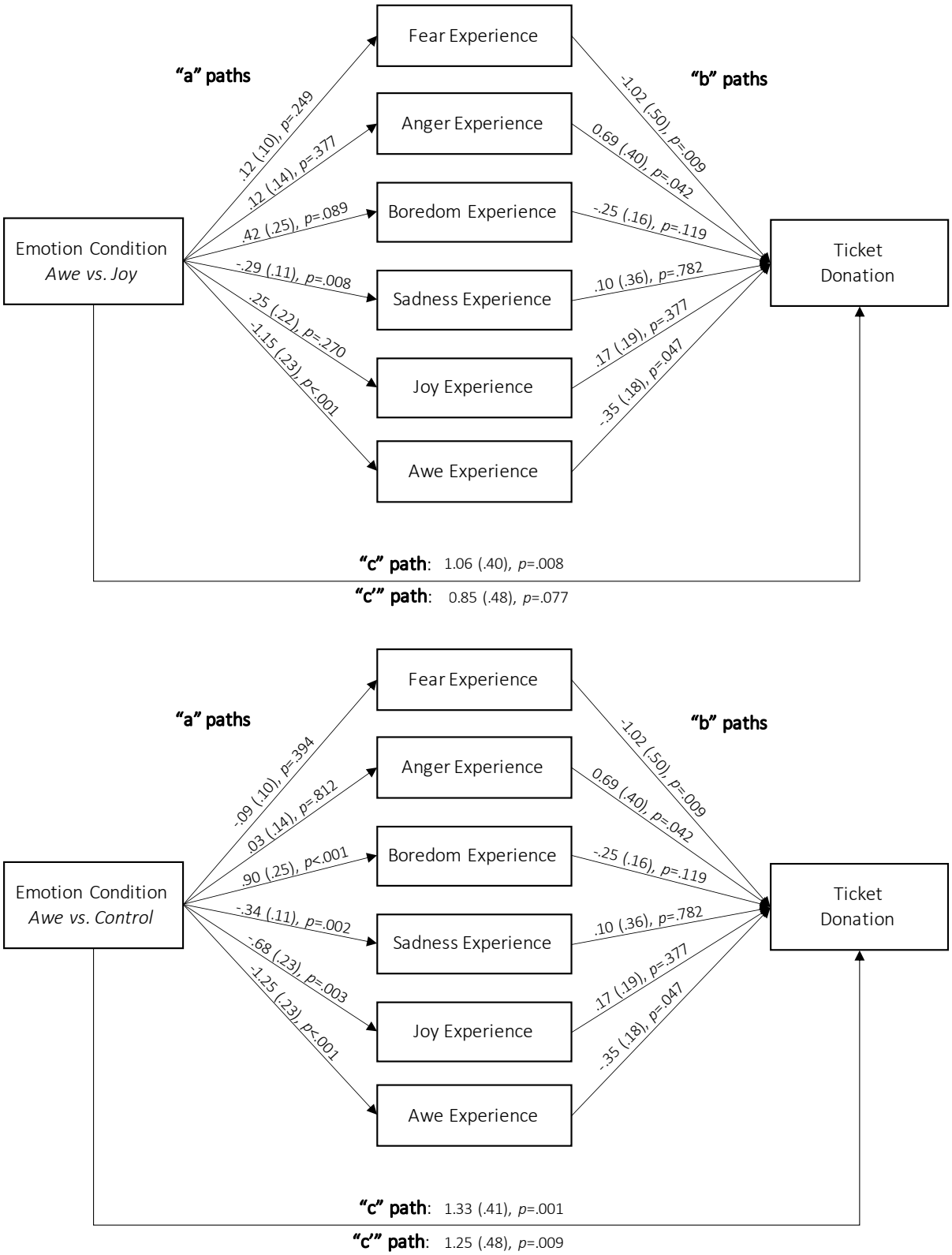
Results indicate that only the indirect effect through experienced awe was significant when comparing both the awe to the joy condition and the awe to the control condition, while indirect effects through all other experienced emotions were not significant. The direct effect of emotion condition on ticket donation ("c' " paths) became non-significant after including the mediators when comparing the awe condition to the joy condition, but it remained significant when comparing the awe condition to the control condition.

**Supplementary Table 8**

*Parallel Mediation Model of the Effects of Emotion Condition (Awe vs. Joy and Awe vs. Control) on Ticket Donation Through Experienced Emotions in Study 1*

| | "a" paths | | | | "b" paths | | "a*b" paths (indirect) | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Awe vs. Joy | | Awe vs. Control | | | | Awe vs. Joy | | Awe vs. Control | |
| | *b* (*SE*) | 95% CI | *b* (*SE*) | 95% CI | *b* (*SE*) | 95% CI | *b* (*SE*) | 95% CI | *b* (*SE*) | 95% CI |
| Fear | 0.12 (0.10) | [-0.08, 0.32] | -0.09 (0.10) | [-0.29, 0.12] | -1.02 (0.50) | [-2.01, -0.4] | -0.12 (0.38) | [-0.81, 0.10] | 0.09 (0.18) | [-0.03, 0.40] |
| Anger | 0.12 (0.14) | [-0.15, 0.39] | 0.03 (0.14) | [-0.24, 0.30] | 0.69 (0.40) | [-0.10, 1.48] | 0.08 (0.28) | [-0.35, 0.47] | 0.02 (0.30) | [-0.31, 0.50] |
| Boredom | 0.42 (0.25) | [-0.07, 0.91] | 0.90 (0.25) | [0.41, 1.39] | -0.25 (0.16) | [-0.57, 0.07] | -0.11 (0.13) | [-0.42, 0.04] | -0.23 (0.21) | [-0.74, 0.08] |
| Sadness | -0.29 (0.11) | [-0.50, -0.08] | -0.34 (0.11) | [-0.55, -0.13] | 0.10 (0.36) | [-0.61, 0.81] | -0.03 (0.18) | [-0.28, 0.32] | -0.03 (0.21) | [-0.31, 0.40] |
| Joy | 0.25 (0.22) | [-0.19, 0.69] | -0.68 (0.23) | [-1.13, -0.24] | 0.17 (0.19) | [-0.21, 0.54] | 0.04 (0.09) | [-0.06, 0.28] | -0.12 (0.13) | [-0.41, 0.13] |
| Awe | -1.15 (0.23) | [-1.60, -0.70] | -1.25 (0.23) | [-1.71, -0.79] | -0.35 (0.18) | [-0.70, -0.004] | 0.41 (0.25) | [0.03, 1.01] | 0.44 (0.27) | [0.03, 1.09] |

*Note*. CI = confidence interval. CIs that exclude the null value indicate a significant effect. For the "a*b" paths (indirect effects), we report bias-corrected bootstrap coefficients, standard errors, and confidence intervals based on 10,000 resamples. The beta coefficients of the indirect effects are on log-odds metric.




***Supplementary Figure 4***. Mediation model of emotion condition on ticket donation through experienced emotions in Study 1. Top panel illustrates the contrast between the awe and joy conditions. Bottom panel illustrates the contrast between awe and control conditions.

## Study 2

### Supplementary Method

#### *Participants*

Study 2 was conducted at NEMO Science Museum, Amsterdam, the Netherlands. Parents provided active informed consent for themselves and their children. We initially recruited 384 children, out of whom we excluded the data of 31 children who met one or more of the following conditions: their physiological recording failed (12); they participated in the pilot we ran on the first day (4); they quit the study (5); they could not partake in the chocolate snack we offered as part of the donation task due to dietary restrictions (3); they had a neurodevelopmental disorder that could affect prosocial behavior (7); or they did not make an independent decision about the donation task because their parent intervened (4). We also excluded the data of these children's parents. The final sample comprised 353 children (162 girls, 189 boys, 2 non-binary/unspecified) and one of their parents (194 women, 159 men).

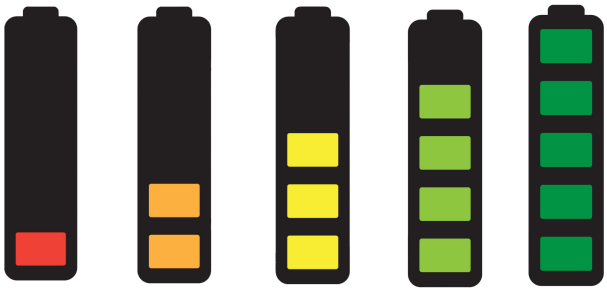
Three-hundred-and-sixteen child-parent dyads completed the study in Dutch (89.5%) and 37 in English (10.5%). With regard to nationality, most participants had Dutch nationality (84.7%) and the rest reported another nationality (Belgian, Russian, Indian, Romanian, Swiss, Austrian, Brazilian, British, German, French, Indonesian, Surinamese, Spanish, South Korean, Moroccan, U.S. American, Chinese, Danish, Filipino, Iraqi, Italian, New Zealander, Peruvian, Serbian, Slovak, South African, and Sri Lankan). Most parents had attended some type of formal education, with 94.5% having obtained a college, undergraduate, or graduate degree. Most parents (95.8%) were biological parents to their child. Most children attended regular primary or secondary school (96%). Regarding family structure, 13.6% of children lived in a single-parent household and 79.9% lived with two parents.

Detailed information about the sample demographics appears in Supplementary Table 5. We tested for differences in basic demographics across conditions and found no differences in gender, $\chi^2$ (4) = 4.49, $p$ = .343, $R_{CS}^2$ = .01, age, $F$(2, 352) = 1.06, $p$ = .349, $\eta^2$ = .006, 95% CI[.000, .03], child art exposure, $F$(2, 352) = 1.31, $p$ = .272, $\eta^2$ = .007, 95% CI[.000, .03], parent art interest, $F$(2, 352) = 2.56, $p$ = .079, $\eta^2$ = .014, 95% CI[.000, .045], subjective SES, $F$(2, 352) = 1.84, $p$ = .160, $\eta^2$ = .01, 95% CI[.000, .04], and family annual income, $F$(2, 344) = 0.17, $p$ = .848, $\eta^2$ = .001, 95% CI[.000, .01], providing evidence that randomization was successful.

***Procedure***

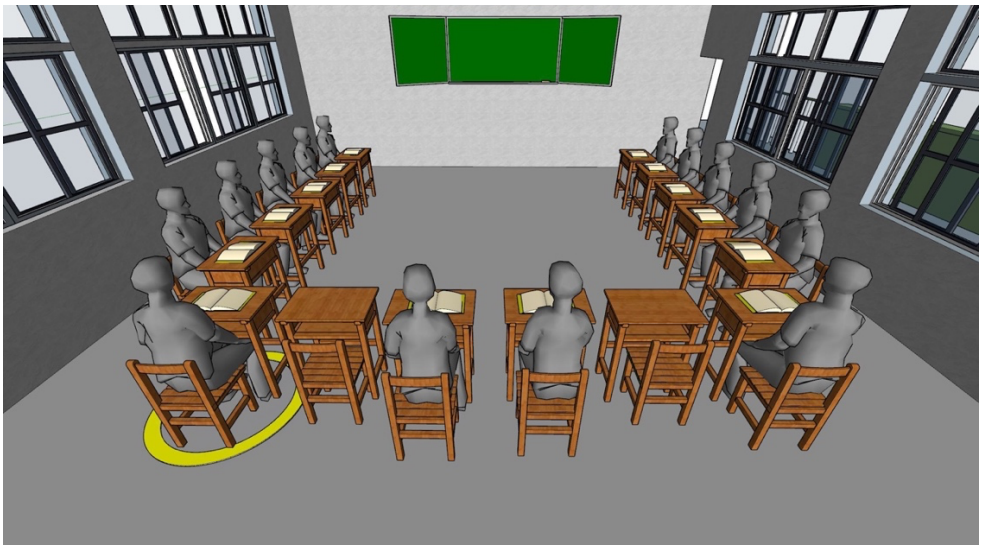
Before participants viewed the main video clip, they watched two videos explaining the emotions joy and awe, and practiced how to report on their emotions (practice session). The joy explanation video included the example "You feel joy when something makes you laugh or smile. For example, playing with your friends, hearing a funny story, or eating your favorite food". The awe explanation video included the example "You feel in awe when something takes your breath away. For example, a sky full of stars, an amazing sunset, or fireworks". Both explanations were accompanied by images and GIFs to help convey the respective expression and make the instructions more engaging. After watching each video, participants were asked to indicate the extent to which they experience joy or awe at that moment using the emoji Likert scales.

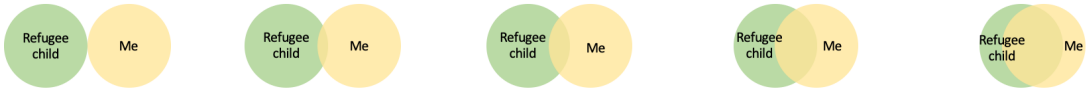
After the practice session, participants watched the main video clip. They then reported how the video made them feel using the emoji scale. Next, they were asked whether they had seen the video before (*yes/ no*), how much they liked the video on a scale from 1 (*not at all*) to 5 (*extremely*), and how depleted they felt with the question "How much energy do you have right now?" which was answered on a pictorial scale depicting a battery ranging from 1 (*not at all*) to 5 (*very much*) (see Supplementary Figure 5).



***Supplementary Figure 5.*** Pictorial scale used to measure depletion. Answer options ranged from 1 (not at all) to 5 (very much).

After they completed the food counting task, we measured interpersonal closeness to refugees using two pictorial items (see Supplementary Figure 6). The first item included an image of a classroom in which a new classmate, a refugee, was sitting at the left-most seat in a row with two empty seats, one right next to the refugee and one three seats apart. Participants were asked to choose one of the two seats. The second item was an adjusted version of the IOS scale, which showed the two circles representing participants' self and a refugee that varied in how much they overlapped, with greater overlap representing greater closeness. Next, children learned that the experiment was finished and were asked to call the experimenter, who proceeded with the snack donation task. While children were doing the experiment, their parents completed a questionnaire.

(A) 




(B)

***Supplementary Figure 6***. Pictorial items used to measure interpersonal closeness to (A) a refugee classmate in a virtual classroom and (B) a refugee child.

***Parents' Questionnaire***

The parents' questionnaire first assessed children's dispositional awe and joy, which were measured with two subscales from the validated Dispositional Positive Emotion Scale (DPES; Shiota et al., 2006). The awe subscale contained six items, for instance, "My child often feels awe" and "My child feels wonder almost every day" ($\alpha = .83$). The joy subscale was made up of six items, such as "My child often feels bursts of joy" and "My child is an intensely cheerful person" ($\alpha = .86$). Parents reported their level of agreement with each statement on a 7-point Likert scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*).

Parents were also asked to describe the last time they could recall their child experiencing awe. They were asked to describe the awe-inducing event, including who their child was with, where their child was, what their child saw, and how their child felt (Bai et al., 2017). After they provided these awe narratives, we asked parents to indicate the extent to which different events that have emerged as typical awe elicitors in previous research with adults would elicit awe in their children. The events were "something in nature", "another person", "a piece of art or music", "a building or an aspect of architecture", "a spiritual or religious experience", "technology", "oneself", and the category "other", where parents were given the option to specify another event that may elicit awe in their children. These items were answered on 7-point Likert scales ranging from 1 (*not at all*) to 7 (*very much*).

Next, we measured child's art exposure with five items that inquired about the frequency with which the child engaged with art, such as "How often do you visit museums

or art galleries together with your child (painting, sculpture, photography, and other visual art)" (α = .76). The response options for these items ranged on a 7-point scale (1 = *less than once per year* to 7 = *once per week or more often*). We then assessed parent's art interest with a 6-item subscale from the VAIAK scale (Specker et al., 2020), which included items like "I enjoy talking about art with others" and "I am always looking for new artistic impressions and experiences" (α = .94). These items were answered on 7-point Likert scales (1 = *not at all* to 7 = *very much*).

Finally, the parents' questionnaire included socioeconomic status questions. We assessed parents' subjectively experienced socioeconomic status with a 6-item validated scale that included items like "I don't need to worry too much about paying my bills" (α = .85) (Griskevicius et al., 2011). These items were answered on 7-point Likert scales (1 = *not at all* to 7 = *very much*). To assess objective socioeconomic status, we asked parents to indicate the total annual income of their household on a scale ranging from 1 (*less than €10,000*) to 12 (*more than €150,000*) with €10,000 increments on each rank.

**Supplementary Results**

In the main text we present the results of *t*-tests comparing experienced awe and joy within each condition as a manipulation check. We also test the effects of emotion condition on prosocial behavior. We then test the effects of emotion condition on respiratory sinus arrythmia (RSA) and skin conductance level (SCL), which are considered pure indices of PNS and SNS activation, respectively.

Here we report the results of a series of ANOVAs that test the effect of emotion condition on experienced emotions in response to the main clip, liking of the main clip, experienced depletion after watching the main clip, and interpersonal closeness to refugees. We also test whether the effect of emotion condition on prosocial behavior holds after controlling for child art exposure, parent art interest, and family socioeconomic status. We

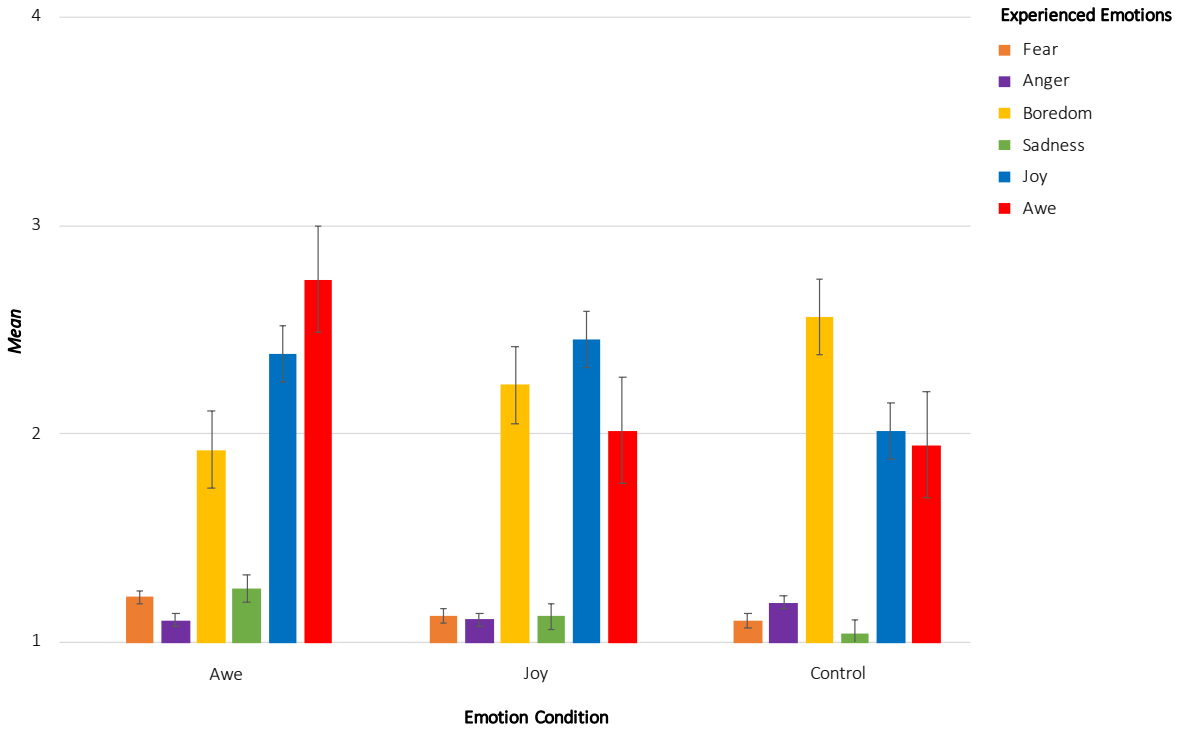
then provide detailed statistics on multilevel regression analyses testing the effect of emotion condition on RSA and SCL presented in the main text. In addition to RSA and SCL, we computed scores for heart rate (HR), which was considered less informative for the main analyses because it reflects the activation of both the PNS and SNS. We nevertheless report the effects of emotion condition on HR to provide a comprehensive image of the physiological findings. Finally, we report descriptive statistics for children's dispositional awe and joy as well as a frequency analysis of awe elicitors in children as reported by their parents.

***Experienced Emotions***

Descriptive statistics for experienced emotions are reported in Supplementary Table 5 and means are plotted in Supplementary Figure 7. Participants' feelings of fear and anger in response to the main video clip did not differ across conditions, $F$ (2, 156) = 1.98, $p$ = .141, $\eta_p^2$ = .03 and $F$ (2, 156) = 0.42, $p$ = .660, $\eta_p^2$ = .005, respectively. All other experienced emotions differed across conditions (awe: $F$ (2, 156) = 18.30, $p$ < .001, $\eta_p^2$ = .19; joy: $F$ (2, 156) = 8.87, $p$ < .001, $\eta_p^2$ = .10; boredom: $F$ (2, 156) = 6.49, $p$ = .002, $\eta_p^2$ = .08; and sadness: $F$ (2, 156) = 5.93, $p$ = .003, $\eta_p^2$ = .07).

Probing these effects showed that participants in the awe condition experienced more awe than participants in the joy condition, $b$ = -0.73, $SE$ = 0.15, 95% CI [-1.02, -0.43], $t$(350) = -4.86, $p$ < .001, $\eta_p^2$ = .06, and the control condition, $b$ = -0.79, $SE$ = 0.15, 95% CI [-1.09, -0.50], $t$(350) = -5.27, $p$ < .001, $\eta_p^2$ = .07. Participants in the awe condition did not differ in experienced joy from participants in the joy condition, $b$ = 0.07, $SE$ = 0.14, 95% CI [-0.21, 0.35], $t$(350) = 0.49, $p$ = .623, $\eta_p^2$ < .01, but they experienced more joy than participants in the control condition, $b$ = -0.37, $SE$ = 0.15, 95% CI [-0.65, -0.08], $t$(350) = -2.52, $p$ = .012, $\eta_p^2$ = .02. Participants in the awe condition experienced less boredom than participants in the joy condition, $b$ = 0.31, $SE$ = 0.15, 95% CI [0.03, 0.60], $t$(350) = 2.14, $p$ = .033, $\eta_p^2$ = .01, and

the control condition, $b$ = 0.64, $SE$ = 0.15, 95% CI [0.35, 0.93], $t(350) = 4.34$, $p < .001$, $\eta_p^2 = .05$. Participants in the awe condition experienced more sadness than participants in the joy condition, $b$ = -0.13, $SE$ = 0.06, 95% CI [-0.25, -0.02], $t(350) = -2.24$, $p = .026$, $\eta_p^2 = .01$, and the control condition, $b$ = -0.21, $SE$ = 0.06, 95% CI [-0.33, -0.10], $t(350) = -3.59$, $p < .001$ $\eta_p^2 = .04$.




***Supplementary Figure 7.*** Mean experienced emotions as a function of condition in Study 2

### *Liking*

There were significant differences in participants' liking of the videos in different conditions, $F$ (2, 350) = 5.32, $p = .005$, $\eta_p^2 = .03$. Participants in the awe condition ($M$ = 2.71, $SD$ = 1.23, 95% CI [2.50, 2.91]) liked the movie clip more than participants in the control condition ($M$ = 2.22, $SD$ = 1.08, 95% CI [2.01, 2.43]), $b$ = -0.49, $SE$ = 0.15, 95% CI [-0.78, -0.19], $t(350) = -3.26$, $p = .001$ $\eta_p^2 = .03$, and they did not differ from participants in the joy condition ($M$ = 2.22, $SD$ = 1.08, 95% CI [2.01, 2.43]), $b$ = -0.23, $SE$ = 0.15, 95% CI [-0.52, 0.06], $t(350) = -1.55$, $p = .123$ $\eta_p^2 = .01$.

***Depletion***

There were no differences in how depleted participants felt across conditions, $F$ (2, 350) = 1.91, $p$ = .150, $\eta_p^2$ = .01 (awe: $M$ = 3.53, $SD$ = 1.06, 95% CI [3.34, 3.71]; joy: $M$ = 3.65, $SD$ = 1.03, 95% CI [3.46, 3.84]; control: $M$ = 3.38, $SD$ = 1.08, 95% CI [3.18, 3.57]).

***Interpersonal Closeness***

A logistic regression showed no effect of emotion condition on the chair participants selected to be seated in the virtual classroom, Wald $\chi^2$ (2) = 0.52, $p$ = .770. Most participants (79%) selected the chair next to the refugee child over the chair further apart, $b$ = -1.26, $SE$ = 0.22, Wald $\chi^2$ (1) = 32.37, $p$ < .001, which suggests that participants might have responded to the norm of seating next to a new classmate, leading to a ceiling effect.

There was also no effect of emotion condition on how much overlap participants perceived between themselves and a refugee child, $F$(2, 347) = 0.11, $p$ = .897, $\eta_p^2$ < .01 (awe: $M$ = 2.69, $SD$ = 1.20, 95% CI [2.47, 2.92]; joy: $M$ = 2.63, $SD$ = 1.31, 95% CI [2.41, 2.86]; control: $M$ = 2.63, $SD$ = 1.22, 95% CI [2.40, 2.86]).

***Effects of Emotion Condition on Prosocial Behavior After Controlling for Age, Gender, Art Interest, Art Exposure, and Socioeconomic Status***

We explored whether the effect of emotion condition on prosocial behavior (item count and snack donation) holds after controlling for child's age and gender, child's art exposure, parent's art interest, parent's subjective SES, and annual family income. Because of missing data in a few control variables, the sample used in this analysis was slightly smaller, $N$ = 344.

Results are reported on Supplementary Table 9. Logistic regression showed that, after controlling for all demographics, participants' probability to donate their snack differed across conditions, Wald $\chi^2$ (2) = 9.46, $p$ = .009. Odds ratio analysis showed that participants in the awe condition were 2.30 times (95% CI [1.29, 3.87]) more likely to donate their snack

than participants in the joy condition, Wald $\chi^2$ (1) = 8.31, $b$ = 0.81, $SE$ = 0.28, $p$ = .004. They were also 1.93 times (95% CI [1.11, 3.36]) more likely to donate their snack than participants in the control condition, Wald $\chi^2$ (1) = 5.47, $b$ = 0.59, $SE$ = 0.28, $p$ = .019.

**Supplementary Table 9**

*Parameter Estimates of the Effect of Condition on Item Count and Snack Donation After Controlling for Age, Gender, Art Exposure, Art Interest, and Socioeconomic Status in Study 2*

| | Item Count | | | | | Snack Donation | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Predictors | *b* (*SE*) | Wald $\chi^2$ | *p* | OR | 95% CI | *b* (*SE*) | Wald $\chi^2$ | *p* | OR | 95% CI |
| Age | 0.20 (0.04) | 30.04 | <.001 | 1.23 | [1.14, 1.32] | -0.31 (0.08) | 15.39 | <.001 | 0.73 | [0.63, 0.86] |
| Gender | -0.11 (0.11) | 1.00 | .318 | 0.90 | [0.72, 1.11] | 0.23 (0.23) | 1.03 | .309 | 1.26 | [0.81, 1.97] |
| Child Art Exposure | 0.02 (0.06) | 0.07 | .786 | 0.96 | [0.90, 1.15] | 0.03 (0.13) | 0.04 | .845 | 1.03 | [0.80, 1.31] |
| Parent Art Interest | -0.01 (0.04) | 0.02 | .901 | 1.03 | [0.91, 1.09] | -0.01 (0.09) | 0.01 | .945 | 0.99 | [0.83, 1.19] |
| Parent Subjective SES | -0.06 (0.05) | 1.08 | .299 | 0.93 | [0.85, 1.05] | 0.17 (0.11) | 2.25 | .134 | 1.18 | [0.95, 1.46] |
| Family Annual Income | 0.05 (0.02) | 4.73 | .030 | 1.05 | [1.00, 1.09] | -0.11 (0.04) | 6.40 | .011 | 0.90 | [0.82, 0.98] |
| Emotion Condition | | 2.38 | .304 | | | | 9.46 | .009 | | |
| Intercept | 1.77 (0.55) | 10.34 | .001 | 5.88 | [2.00,17.31] | 2.25 (1.07) | 4.40 | .036 | 9.44 | |

### *Correlation Between Prosocial Behavior Measures*

We tested whether performance on the item count task correlated with performance on the snack donation task. Results showed a significant correlation, $r$(353) = -.15, $p$ = .005, such that counting more items related to a greater likelihood of donating one's snack. This finding provides evidence for convergent validity and supports the conclusion that both tasks tapped the construct of prosociality.

### *Effects of Emotion Condition on Physiological Measures*

The analytical procedure for testing effects on RSA, SCL, and HR was identical. In a first stage, we explored whether a linear or quadratic trend best captures changes in RSA, SCL, and HR over time (Fortunato et al., 2013; Miller et al., 2016). These initial analyses showed that RSA, SCL, and HR significantly changed over time (see Supplementary Table 10), and the pattern of change was captured by both linear and quadratic trends (see Supplementary Table 11).

**Supplementary Table 10**

Parameter Estimates of Time Effects on RSA, SCL, and HR

| | RSA | | | | SCL | | | | HR | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Predictors | γ | *SE* | *t* | *p* | γ | *SE* | *t* | *p* | γ | *SE* | *t* | *p* |
| Intercept | 0.40 | 0.15 | 2.61 | .009 | 0.22 | 0.06 | 3.64 | <.001 | 5.57 | 1.37 | 4.06 | <.001 |
| *Level 1* | | | | | | | | | | | | |
| Time | -0.01 | 0.00 | -2.16 | .031 | -0.01 | 0.00 | -5.68 | <.001 | 0.16 | 0.02 | 6.88 | <.001 |
| *Level 2* | | | | | | | | | | | | |
| Baseline | 0.24 | 0.04 | 5.60 | <.001 | 0.01 | 0.05 | 0.25 | .802 | 0.28 | 0.04 | 7.25 | <.001 |
| Practice | 0.71 | 0.04 | 16.73 | <.001 | 0.92 | 0.04 | 20.68 | <.001 | 0.62 | 0.04 | 16.18 | <.001 |

*Note*. Nine timepoints (level 1) nested within *N*=353 participants (level 2). Degrees of freedom equal 2823 for level-1 effects and 350 for level-2 effects.

**Supplementary Table 11**

Polynomial Contrasts of Time Effects on RSA, SCL, and HR

| | RSA | | | | SCL | | | | HR | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | γ | *SE* | *t* | *p* | γ | *SE* | *t* | *p* | γ | *SE* | *t* | *p* |
| Linear trend | -1.02 | 0.46 | -2.22 | .027 | -1.63 | 0.29 | -5.69 | <.001 | 22.83 | 3.22 | 7.09 | <.001 |
| Quadratic trend | 2.96 | 0.44 | 6.73 | <.001 | 0.63 | 0.17 | 3.73 | <.001 | -24.46 | 3.03 | -8.07 | <.001 |

*Note*. Degrees of freedom equal 2822.

In a second stage, we conducted multilevel regression analyses because physiological responses at nine time points (level 1) were nested within participants (level 2). We first established the appropriateness of conducting multilevel analyses by comparing the goodness of fit of three nested models: Model 1 included only fixed effects, Model 2 included a random intercept, and Model 3 included a first-order autoregressive (AR(1)) covariance structure. Each model regressed RSA, SCL, or HR on time, emotion condition, and their interaction, while controlling for mean baseline and practice round RSA, SCL, or HR respectively. Model 3 had superior fit across measures, thereby justifying our use of multi-level modeling. Model comparison statistics appear in Supplementary Table 12.

**Supplementary Table 12**

Model Comparisons for RSA, SCL, and HR

| | | RSA | | | | | SCL | | | | | HR | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Model | *df* | AIC | BIC | logLik | Lik Ratio | *p* | AIC | BIC | logLik | Lik Ratio | *p* | AIC | BIC | logLik | Lik Ratio | *p* |
| 1 | 9 | 5138.01 | 5192.59 | -2560.01 | | | 832.08 | 886.65 | -407.04 | | | 17900.97 | 17955.54 | -8941.49 | | |
| 2 | 10 | 4071.15 | 4131.79 | -2025.58 | 1068.86 | <.001 | -1701.69 | -1641.06 | 860.85 | 2535.77 | <.001 | 16321.53 | 16382.17 | -8150.77 | 1581.44 | <.001 |
| 3 | 11 | 4020.21 | 4086.92 | -1999.11 | 52.94 | <.001 | -3811.10 | -3744.40 | 1916.55 | 2111.41 | <.001 | 16207.82 | 16274.51 | -8092.91 | 115.72 | <.001 |

*Note*. Maximum likelihood estimation was used in all models. *df*=degrees of freedom.

Parameter estimates for Model 3 appear in Supplementary Table 13. Emotion condition variable is converted into two dummy variables to allow for comparisons between conditions with 'awe' as the reference category. Cross-level interactions between time and each of the emotion condition dummy variables were significant for RSA and SCL, indicating that the pattern of physiological changes over time differed depending on the emotion condition participants were assigned to. Cross-level interactions between time and emotion condition dummy variables were not significant for HR, indicating no differences in temporal changes across conditions.

**Supplementary Table 13**

Parameter Estimates for Model 3 Effects on RSA, SCL, and HR After Controlling for Baseline and Practice Session Physiological Scores

| | RSA | | | | SCL | | | | HR | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Predictors | γ | *SE* | *t* | *p* | γ | *SE* | *t* | *p* | γ | *SE* | *t* | *p* |
| Intercept | 0.28 | 0.16 | 1.75 | .080 | 0.24 | 0.06 | 3.94 | <.001 | 5.83 | 1.37 | 4.25 | <.001 |
| *Level 1* | | | | | | | | | | | | |
| Time | 0.01 | 0.01 | 1.62 | .106 | -0.00 | 0.00 | -0.74 | .457 | 0.16 | 0.04 | 4.00 | <.001 |
| *Level 2* | | | | | | | | | | | | |
| Baseline | 0.24 | 0.04 | 5.75 | <.001 | -0.00 | 0.05 | -0.02 | .986 | 0.29 | 0.04 | 7.54 | <.001 |
| Practice | 0.70 | 0.04 | 16.71 | <.001 | 0.93 | 0.04 | 21.83 | <.001 | 0.61 | 0.04 | 16.25 | <.001 |
| Awe_Joy[a] | 0.12 | 0.06 | 1.93 | .055 | 0.01 | 0.04 | 0.25 | .799 | -1.47 | 0.48 | -3.03 | .003 |
| Awe_Control[b] | 0.23 | 0.06 | 3.68 | <.001 | -0.01 | 0.04 | -0.27 | .787 | 0.48 | 0.49 | 0.99 | .324 |
| *Cross-level Interactions* | | | | | | | | | | | | |
| Time * Awe_Joy[a] | -0.02 | 0.01 | -2.73 | .007 | -0.01 | 0.00 | -2.84 | .005 | 0.07 | 0.06 | 1.23 | .220 |
| Time * Awe_Control[b] | -0.03 | 0.01 | -3.44 | <.001 | -0.01 | 0.00 | -3.07 | .002 | -0.07 | 0.06 | -1.23 | .220 |

*Note*. Nine timepoints (level 1) nested within *N*=353 participants (level 2). Degrees of freedom equal 2821 for level-1 effects and 348 for level-2 effects.
[a] Emotion condition dummy variable (0=awe, 1=joy)
[b] Emotion condition dummy variable (0=awe, 1=control)

We followed up the cross-level interactions on RSA and SCL with polynomial contrasts to examine whether the interaction trend was best modeled as linear or quadratic. Parameter estimates of the polynomial trends are presented in Supplementary Table 14. For both RSA and SCL, a linear trend best captured the interaction when comparing the awe and joy conditions, and the awe and control conditions.

**Supplementary Table 14**

Polynomial Contrasts of the Time * Emotion Condition Interactions

| | RSA | | | | SCL | | | |
|---|---|---|---|---|---|---|---|---|
| | γ | *SE* | *t* | *p* | γ | *SE* | *t* | *p* |
| Time * Awe_Joy[a] | | | | | | | | |
| Linear trend | -3.06 | 1.11 | -2.77 | .006 | -1.80 | 0.69 | -2.60 | .009 |
| Quadratic trend | 0.32 | 1.06 | 0.30 | .766 | 0.23 | 0.41 | 0.57 | .572 |
| Time * Awe_Control[b] | | | | | | | | |
| Linear trend | -3.91 | 1.12 | -3.49 | <.001 | -2.26 | 0.70 | -3.22 | .001 |
| Quadratic trend | -0.06 | 1.08 | -0.05 | .957 | -0.42 | 0.41 | -1.02 | .310 |

*Note*. Degrees of freedom equal 2818. Models include baseline and practice session physiological scores as control variables.
[a] Emotion condition dummy variable (0=awe, 1=joy)
[b] Emotion condition dummy variable (0=awe, 1=control)

In the main text, we probe the linear trends by plotting RSA and SCL across timepoints and conditions (see Figure 5, left panels). We also estimated changes in RSA and SCL (i.e., reactivity) by subtracting physiological scores during the last 1m of the main video from scores during the first 1m (Figure 5, right panels). We then examined whether emotion condition predicts RSA and SCL by means of ANOVA. We report the results of the ANOVAs in the main text and descriptive statistics of RSA and SCL reactivity scores across conditions in Supplementary Table 15.

**Supplementary Table 15**

Descriptive Statistics of RSA and SCL Reactivity Across Emotion Conditions in Study 2

| | RSA Reactivity | | SCL Reactivity | |
|---|---|---|---|---|
| Emotion Condition | *M* (*SD*) | 95% CI | *M* (*SD*) | 95% CI |
| Awe | 0.08 (0.41) | [0.004, 0.16] | -0.19 (2.08) | [-0.56, 0.17] |
| Joy | -0.08 (0.49) | [-0.16, 0.002] | -0.57 (1.96) | [-0.93, -0.20] |
| Control | -0.08 (0.42) | [-0.16, -0.004] | -0.93 (2.08) | [-1.31, -0.56] |
| Total | -0.03 (0.44) | [-0.07, 0.02] | -0.56 (2.06) | [-0.78, -0.35] |

### *Correlation Between RSA Reactivity and Self-Reported Emotions*

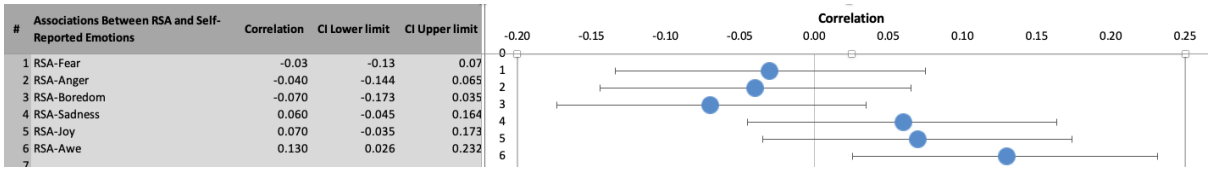
To examine whether RSA is a physiological marker of the experience of awe, we estimated the correlation between children's RSA reactivity from the end to the start of the video and their self-reported experiences of different emotions while watching the video. Supplementary Table 16 shows the intercorrelation matrix of these variables, which indicates that RSA reactivity positively correlates with self-reported awe experiences but does not correlate with any other emotional experience. This finding provides suggestive evidence that RSA reactivity is a physiological marker of awe experiences in children, consistent with previous research findings on adults (e.g., Gordon et al., 2017).

We also tested whether the association between RSA reactivity and awe is significantly different than the association between RSA and other emotional experiences by plotting the correlations with their 95% confidence intervals (see Supplementary Figure 8). Inspection of the overlap between the confidence intervals in the plots suggests that the RSA-awe association is not significantly stronger than the association between RSA and any other emotions. Thus, although our findings show that RSA may be an important aspect of the physiological signature of awe, based on RSA alone, we may not be able to reliably distinguish between awe and other positive emotions.

**Supplementary Table 16**

*Intercorrelation Matrix of RSA Reactivity and Self-Reported Emotions*

| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|---|
| 1. | Fear | - | | | | | | |
| 2. | Anger | .26** | - | | | | | |
| 3. | Boredom | -.14** | .16** | - | | | | |
| 4. | Sadness | .28** | .09 | -.08 | - | | | |
| 5. | Joy | .11* | -.05 | -.45** | .07 | - | | |
| 6. | Awe | .23** | -.05 | -.46** | .16** | .58** | - | |
| 7. | RSA | -.03 | -.04 | -.07 | .06 | .07 | .13* | - |



| # | Associations Between RSA and Self-Reported Emotions | Correlation | CI Lower limit | CI Upper limit |
|---|---|---|---|---|
| 1 | RSA-Fear | -0.03 | -0.13 | 0.07 |
| 2 | RSA-Anger | -0.040 | -0.144 | 0.065 |
| 3 | RSA-Boredom | -0.070 | -0.173 | 0.035 |
| 4 | RSA-Sadness | 0.060 | -0.045 | 0.164 |
| 5 | RSA-Joy | 0.070 | -0.035 | 0.173 |
| 6 | RSA-Awe | 0.130 | 0.026 | 0.232 |



***Supplementary Figure 8.*** Associations between RSA reactivity and self-reported emotions

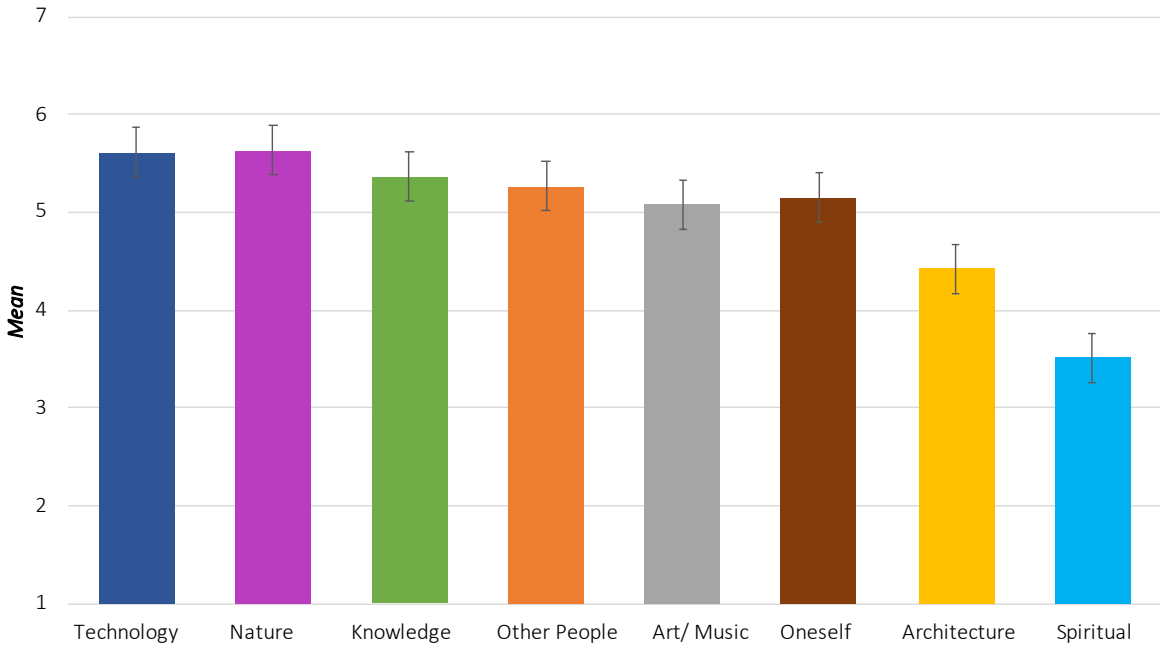
### *Dispositional Awe and Joy*

A paired-samples t-test showed that children's dispositional joy ($M$ = 5.35, $SE$ = 0.05, 95% CI [85.50, 86.62]) was higher than their dispositional awe ($M$ = 5.12, $SE$ = 0.05, 95% CI [85.50, 86.62]), $t(352)$ = -5.26, $p$ < .001, $d$ = -.28, 95% CI [-0.39, -0.17]. However, both emotions were well above the mid-point of the scale, $t(352)$ = 23.09, $p$ < .001, $d$ = .91, 95% CI [1.09, 1.37] for awe and $t(352)$ = 28.36, $p$ < .001, $d$ = .89, 95% CI [1.36, 1.66] for joy, indicating that children experience both emotions very frequently.

### *Awe Elicitors in Children*

To understand the extent to which typical awe elicitors effectively induce awe in children, we first computed descriptive statistics for the different events that emerged as awe elicitors in adult studies (see Supplementary Figure 9). Parents indicated that their children experience awe in response to most of these events, including technology ($M$ = 5.62, $SD$ = 1.33, 95% CI [5.48, 5.76]), nature ($M$ = 5.63, $SD$ = 1.24, 95% CI [5.50, 5.76]), new knowledge ($M$ = 5.36, $SD$ = 1.34, 95% CI [5.22, 5.50]), other people ($M$ = 5.27, $SD$ = 1.22,

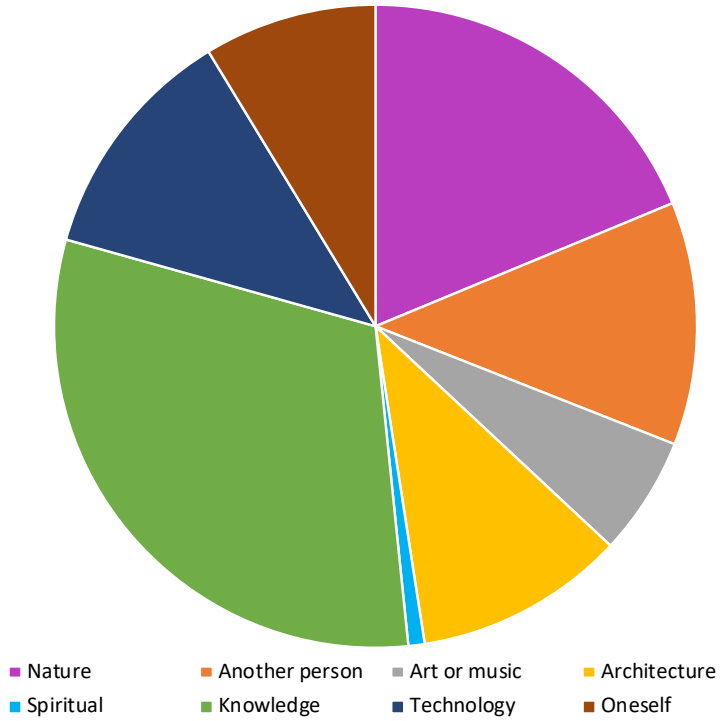
95% CI [5.14, 5.39]), art and music (*M* = 5.08, *SD* = 1.39, 95% CI [4.94, 5.23]), their own self (*M* = 5.15, *SD* = 1.31, 95% CI [5.01, 5.29]), and architecture (*M* = 4.42, *SD* = 1.52, 95% CI [4.26, 4.58]). However, spiritual and religious experiences that have been found to elicit awe in adults, was a category that was considered a less potent elicitor of awe in children (*M* = 3.52, *SD* = 1.62, 95% CI [3.35, 3.69]).




***Supplementary Figure 9***. Prevalence of different types of awe elicitors in Study 2.

We then coded each parent-reported awe narrative into one of eight mutually exclusive categories: (a) something in nature; (b) another person; (c) a piece of art or music; (d) a building or some aspect of architecture; (e) some kind of spiritual experience (religious or spiritual more broadly); (f) some kind of knowledge; (g) some kind of technology; and (h) oneself (Bai et al., 2017). Twenty-four of the narratives did not mention anything related to an awe experience and were excluded from this analysis. Knowledge was mentioned as the main awe elicitor in 31% of the narratives, nature in 19%, technology in 12%, another person in 12%, architecture in 11%, oneself in 9%, and art and music in 6%. Again, religious or

spiritual experiences were mentioned in less than 1% of the narratives, suggesting that this category of events may not be a common awe elicitor in children. Supplementary Figure 10 presents the frequency with which each kind of awe elicitor was reported in the parents' narratives.




***Supplementary Figure 10***. Frequency of different types of awe elicitors in Study 2.

## Supplementary References

Bai, Y., Maruskin, L. A., Chen, S., Gordon, A. M., Stellar, J. E., McNeil, G. D., Peng, K., & Keltner, D. (2017). Awe, the diminished self, and collective engagement: Universals and cultural variations in the small self. *Journal of Personality and Social Psychology*, *113*(2), 185–209. https://doi.org/10.1037/pspa0000087

Cowen, A. S., Fang, X., Sauter, D., & Keltner, D. (2020). What music makes us feel: At least 13 dimensions organize subjective experiences associated with music across different cultures. *Proceedings of the National Academy of Sciences of the United States of America*, *117*(4), 1924–1934. https://doi.org/10.1073/pnas.1910704117

Fortunato, C. K., Gatzke-Kopp, L. M., & Ram, N. (2013). Associations between respiratory sinus arrhythmia reactivity and internalizing and externalizing symptoms are emotion specific. *Cogn Affect Behav Neurosci*, 14.

Gordon, A. M., Stellar, J. E., Anderson, C. L., McNeil, G. D., Loew, D., & Keltner, D. (2017). The dark side of the sublime: Distinguishing a threat-based variant of awe. *Journal of Personality and Social Psychology*, *113*(2), 310–328. https://doi.org/10.1037/pspp0000120

Griskevicius, V., Tybur, J. M., Delton, A. W., & Robertson, T. E. (2011). The influence of mortality and socioeconomic status on risk and delayed rewards: A life history theory approach. *Journal of Personality and Social Psychology*, *100*(6), 1015–1026. https://doi.org/10.1037/a0022403

Hayes, A. F. (2017). *Introduction to Mediation, Moderation, and Conditional Process Analysis, Second Edition: A Regression-Based Approach*. Guilford Publications.

Ji, Q., Janicke-Bowles, S. H., Leeuw, R. N. H. D., & Oliver, M. B. (2019). The melody to inspiration: The effects of awe-eliciting music on approach motivation and positive

well-being. *Media Psychology*, *0*(0), 1–27. https://doi.org/10.1080/15213269.2019.1693402

Miller, J. G., Nuselovici, J. N., & Hastings, P. D. (2016). Nonrandom Acts of Kindness: Parasympathetic and Subjective Empathic Responses to Sadness Predict Children's Prosociality. *Child Development*, *87*(6), 1679–1690. https://doi.org/10.1111/cdev.12629

Shiota, M. N., Keltner, D., & John, O. P. (2006). Positive emotion dispositions differentially associated with Big Five personality and attachment style. *The Journal of Positive Psychology*, *1*(2), 61–71. https://doi.org/10.1080/17439760500510833

Specker, E., Forster, M., Brinkmann, H., Boddy, J., Pelowski, M., Rosenberg, R., & Leder, H. (2020). The Vienna Art Interest and Art Knowledge Questionnaire (VAIAK): A unified and validated measure of art interest and art knowledge. *Psychology of Aesthetics, Creativity, and the Arts*, *14*(2), 172–185. https://doi.org/10.1037/aca0000205