Emotion

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No One Is an Island: Awe Encourages Global Citizenship Identification

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Recent theorizing has suggested that awe is a collective emotion, as research has demonstrated a clear link between experiencing awe and behaving prosocially. The present research extends past work by investigating the scope and sources of awe-inspired prosociality, focusing on whether awe's effects extend beyond local/national interests to include global or humanitarian goals. Specifically, we examine how by increasing feelings of smallness, awe encourages a sense of global citizenship, promoting cosmopolitan (vs. parochial) prosociality. Four experiments found that varied awe elicitors (recall, pictures, videos) and cues (universe, peaceful/fearful nature scenes) boost global citizenship identification by first increasing perception of the self as small. Downstream effects included greater valuing of interconnectedness (Experiment 2) and higher appreciation of diversity (Experiment 3). In Experiment 4, awe—through small self- and global citizenship—further translated into larger donation allocations to global (vs. local) charities. Given global problems such as pandemics and climate change, our findings have implications for how emotions can promote a sense of shared responsibility when commitment across borders is essential.

Keywords: awe, positive emotion, prosocial behavior, global citizenship, cosmopolitanism

Supplemental materials: https://doi.org/10.1037/emo0001160.supp

"Though we're oceans apart, a shared moon connects hearts (山川异域,风月同天)." This line from an ancient Chinese poem was written on medical supply packages donated to China by a Japanese aid organization early in the COVID-19 pandemic, at a time when China was experiencing great suffering. Subsequently, a photo of this memo on supply boxes was widely circulated online in China, alongside comments from people suggesting perceived bonds and solidarity across the nations. Since then, the international community has continued to provide aid to other countries in need of urgent help around the world (e.g., because of medical supply shortages). In the current article, we argue when confronted with awe-provoking events (e.g., a global pandemic that is so wide-reaching in its effects that it is difficult to comprehend), people's idea of "citizenship" can shift from parochialism to cosmopolitanism (e.g., Charities Aid Foundation, 2021; Hadero, 2021). That is, we propose and examine the idea that inducing awe in people can promote their endorsement of a global citizenship identity wherein they prioritize global or humanitarian concerns over personal or national benefits. Moreover, we hypothesize this change in perspective and priority will be driven by diminished importance ascribed to the self (i.e., smallness; Bai et al., 2017; Piff et al., 2015).

Awe: A Self-Transcendent and Prosocial Emotion

Awe is a complex emotion that arises when people grapple with the idea of things so vast that it transcends their existing mental schema of the world (Chirico & Yaden, 2018; Keltner & Haidt, 2003). Importantly, awe emerges not only in response to physically expansive ideas (e.g., considering the size of the universe) but also to conceptual vastness, including overwhelming beauty, extraordinary talent, exceptional virtue, or even terrifying threats (Gordon et al., 2017; Keltner & Haidt, 2003). Because awe is a universally experienced emotion which can be induced by a wide range of elicitors, but also due to it having received less attention than other emotions (e.g., basic emotions; Ekman, 1999; Plutchik, 1980; see Haidt, 2003), researchers have recently begun to study awe in earnest. This has led to awe being classified in a number of ways, such as a member of the family of positive emotions (e.g., Campos et al., 2013; Shiota et al., 2003; Shiota et al., 2006), of aesthetic emotions (e.g., Konečni, 2005), and even of distinctly moral emotions (Haidt, 2003).

Although the focused study of awe by psychologists has only recently developed, the topic has proven generative, particularly as awe relates to prosocial behavior tendencies. For example, Piff

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Data, analysis codes, and research materials are available at the Open Science Framework: https://osf.io/aecsv.

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et al. (2015) found that both dispositional and induced awe led to ethical decision-making and generosity in economic games. Similarly, research has found that when people experience awe, they are more willing to volunteer their time to help others (Guan et al., 2019; Rudd et al., 2012), yield easy (vs. difficult) tasks to partners (Yang et al., 2016), and donate money to help people in need (Guan et al., 2019; Prade & Saroglou, 2016). Notably, these findings have emerged in both individualistic Western and collectivistic East Asian cultures, suggesting awe may operate similarly for people who differ on many culture-based psychological dimensions.

The Scope of Awe-Inspired Prosociality

Still, little is known about how wide-ranging the effects of awe are. The current article examines whether the effects of awe extend beyond ingroups to include people in other places, cultures, and humanity as a whole. Exploring this question is crucial because prosociality may motivate different behaviors depending on the recipient. For example, Bruneau et al. (2017) showed that although people who felt strong empathy for outgroups were more likely to engage in intergroup helping behaviors, people whose empathy targeted ingroups showed the opposite pattern. Likewise, people who tend to feel moral concern for a wider versus narrower group of entities (i.e., broader "circles" of moral inclusion; see Singer, 1981) were more likely to join a campaign in support of granting legal humanhood status to a chimpanzee, prioritizing animal rights over potential negative human consequences (Crimston et al., 2016).

Moreover, even general prosocial orientation does not always lead to cosmopolitanism. Rather, existing research has found that parochialism appears more prominently among prosocial people (De Dreu et al., 2014). For example, Aaldering et al. (2013) found people more oriented to prosocial values (vs. self-interest) showed more cooperation in an intergroup conflict game, but only when ingroup and outgroup benefits were aligned. Despite this, we expected awe might work to widen people's definitions of an ingroup to include those who might otherwise be excluded as recipients of prosocial benefits.

This prediction rested on the prevailing explanation linking awe to prosociality. Researchers have advanced that by exposure to things much "greater" than the self, which overwhelms existing mental structures (Keltner & Haidt, 2003; Shiota et al., 2007), awe increases the sense that the self is small. In turn, this leads to prosociality by reducing people's focus on individual interests, goals, or concerns, and increases concern for the collective aspects of self that are integrated into social communities (Bai et al., 2017; Piff et al., 2015). Indeed, the sense of a small self mediates the positive effects of awe on collective engagement (Bai et al., 2017) and prosocial behaviors (Piff et al., 2015). Thus, examining whether awe directly influences the sense of a collective identity through a sense of the self as diminished can provide further insight into awe-inspired prosociality, including how broadly it increases identification with divergent social perspectives and values.

Global Citizenship as Identification With All Humanity

The concept of global citizenship identity has been framed differently across disciplines (Davies, 2006). However, recent psychological work has described it as "awareness, caring, and embracing cultural diversity while promoting social justice and sustainability, coupled with a sense of responsibility to act" (Reysen et al., 2012, p. 860). Global awareness, the first component in the description, is an antecedent to global citizenship and refers to a person having knowledge of the world and understanding their interdependence with it (Reysen & Katzarska-Miller, 2013; see also Snider et al., 2013).

Although considering diversity can increase global citizenship, increased global citizenship identification also leads to a greater *appreciation* and *valuing* of diversity, higher intergroup empathy and helping, and a stronger sense of global responsibility above and beyond other collective identities, such as state or national identity (Reysen et al., 2012, 2013). For example, people who tend to identify as global citizens are more likely to choose Fairtrade product alternatives over conventional choices (Reese & Kohlmann, 2015), are more motivated to engage in environmental behaviors (Assis et al., 2017), and are more willing to protest unethical corporations (Reysen et al., 2017).

Given that awe leads to a sense of the self as smaller, shifting attention toward individuals' relationships to others within broader social contexts, a prediction that awe will facilitate greater endorsement of global citizenship seems reasonable. We also predict that experiencing awe will, in turn, lead to cosmopolitan rather than parochial identity and that global citizenship identification will mediate awe-inspired prosociality. Importantly, efforts to increase people's sense of interconnectedness are urgently required. As people across the world confront challenges requiring collective action within and across national boundaries, the promotion of global citizenship identification can play a vital role in facilitating effective partnerships aimed at solving the many problems facing all of humanity. Thus, beyond examining important theoretical questions, the current work has practical relevance.

The Present Research

Four experiments investigated whether (and if so, how) experiencing awe can promote global citizenship identification, and whether this can lead to a stronger sense of connectedness to others and a greater willingness to commit to global and humanitarian issues. Experiments 1–3 used a variety of eliciting stimuli to establish whether the induction of awe through different methods encourages global citizenship identification, which was measured both directly and indirectly. Experiment 4 examined whether an increase in global citizenship identification as a function of awe—extended to include "negative" awe—would translate into prosocial behavior being directed more toward dissimilar (vs. similar) others, indexed by whether participants prioritized donations to global (vs. local) charities. Across all experiments, we sought to examine whether a sense of the self as small worked as an underlying mechanism explaining the effects of awe on global citizenship.

Transparency and Openness

We report all manipulations and measures used. All participants who provided complete data were included in the analyses. Research materials and sample size determinations are reported in the online supplemental materials. All data and analysis codes are available at https://osf.io/aecsv. None of the experiments were preregistered.

Experiment 1

Experiment 1 had two aims. The first was to examine whether recalling an experience of awe would increase people's sense of smallness and global citizenship. The second was to examine whether smallness mediated the effects of awe on global citizenship.

Method

Ethical Principles

All reported studies were approved by an Institutional Review Board at the University of Illinois at Urbana-Champaign where the research was conducted, and we have complied with APA ethical standards in the treatment of our human samples. All participants read an informed consent document describing the research and provided their consent before participating in any of the reported studies.

Participants, Procedure, and Measures

Three-hundred and eight adults (located in the United States by IP address) were recruited from Amazon's Mechanical Turk (AMT) to take part in a study on "memory" in exchange for monetary compensation (36% men; M_{age} = 36.64; *SD* = 10.94). Following previously validated procedures (Piff et al., 2015), we randomly assigned participants to recall and describe an occasion when they felt awe, pride, or performed a neutral action.

Participants then rated their agreement (1 = *strongly disagree*, 7 = *strongly agree*) with two statements before providing demographic information.[1] One measured smallness and was adapted from Piff et al. (2015, Study 1): "I felt the presence of something greater than myself." The second measured global citizenship, "I would describe myself as a global citizen."[2]

Results

Table 1 provides *M, SD*, and 95% confidence intervals of the dependent measures by condition. For global citizenship, an omnibus test revealed significant differences across the three conditions, $F(2, 305) = 4.16$, $p = .017$, $\eta_p^2 = .03$. Planned contrasts showed that participants in the awe condition reported greater identification as a global citizen than those in the pride and neutral affect conditions, respectively, $Fs(1, 305) = 6.81$ and 5.58, $ps = .010$ and .019, $ds = .36$ and .35. The difference between the pride and the neutral affect conditions was not significant, $F(1, 305) = .06$, $p = .809$. The same pattern was found for smallness. An omnibus test revealed significant differences among the three conditions, $F(2, 305) = 23.42$, $p < .001$, $\eta_p^2 = .13$. Participants in the awe condition reported greater smallness than those in the pride and neutral affect conditions, respectively, $Fs(1, 305) = 26.41$ and 42.02, $ps < .001$, $ds = .72$ and .96. The difference between the pride and the neutral affect conditions was not significant, $F(1, 305) = 1.84$, $p = .176$.

To explore whether smallness mediated the effect of awe (0 = pride/neutral, 1 = awe) on global citizenship, we used bootstrapping (10,000 resamples) to generate confidence intervals of the indirect effect (Hayes, 2017). Consistent with our hypothesis, condition positively predicted smallness ($b = 1.59$, $p < .001$), which positively predicted global citizen identification, $b = .09$, $p = .020$. The indirect effect of condition on global citizen identification through smallness was significant, $b = .15$, 95% CI [.01, .30]. The direct effect of condition on global citizen identification was not significant, $b = .34$, $p = .060$.

Experiment 2

Experiment 1 found that using a previously validated task—recalling an experience of awe (vs. pride or a neutral control)—increased feelings of smallness and the sense of being a global citizen. In addition, awe impacted global citizenship at least in part by increasing smallness. Experiment 2 aimed to conceptually replicate the effect of awe on global citizenship using by having people view awe-inspiring pictures of nature (Jiang et al., 2018; Piff et al., 2015). To increase reliability, rather than using single-item measures, Experiment 2 included multiitem measures of smallness and global citizenship. In addition, we included a less direct measure of connectedness: evaluation of the John Donne poem "No Man Is an Island." Theorists have argued that global citizenship can manifest as an individual's understanding of their interdependence with the world (Reysen & Katzarska-Miller, 2013; see also Snider et al., 2013). To the extent that Sir. John Donne's poem highlights individuals' awareness of human interdependence and common destiny, we believed that favorable evaluations of this poem would imply receptivity toward the notion of global citizenship, or one facet of it. Therefore, we hypothesized that because of awe-induced smallness, participants would feel more understanding of and positivity toward a poem that encapsulates values related to connectedness and shared human experience. Moreover, we tentatively predicted the effects of smallness on poem evaluation would be further mediated by global citizenship.

Method

Participants and Procedure

Eighty-four adults located in the United States were recruited from AMT to take part in a study on "social perception" in exchange for monetary compensation (50% men; M_{age} = 49.42; *SD* = 10.96). After giving consent, participants were randomly assigned to view a series of ten pictures designed to elicit awe or not (i.e., neutral content). Participants in the awe condition viewed images of nature (e.g., natural landscapes, plants, and nonhuman animals; see Jiang et al., 2018; Piff et al., 2015). Those in the neutral condition looked at neutral pictures (e.g., a bus stop, a desk, a bedroom; see the online supplemental materials). To encourage active processing, participants viewed photographs for at least three seconds and were asked to describe each of the pictures they viewed, writing a caption for the picture they found most emotionally touching. Participants then completed dependent measures and provided basic demographic information.

[1] In all experiments, in addition to reporting their gender and age, participants reported one or more of the following: race, religiosity, and political orientation. With no a priori predictions regarding how these variables would influence results, we choose not to report them in the main text for succinctness. See the online supplemental materials for details.

[2] No definition of global citizenship was provided. Although this limits our ability to understand how participants interpreted its meaning, we note that this term is commonly used and may have a widely shared meaning (see, e.g., Reysen et al., 2013). In addition, by leaving interpretation to participants, it also broadens our ability to generalize beyond any single meaning.

Table 1
Descriptive Statistics for Key Variables in Experiment 1

	Awe (n = 102)				Pride (n = 103)				Neutral affect (n = 103)			
Variable	*M*	*SD*	95% CI		*M*	*SD*	95% CI		*M*	*SD*	95% CI	
Smallness	5.46	1.70	5.13	5.79	4.05	2.17	3.63	4.47	3.68	2.00	3.29	4.07
GC	5.38	1.32	5.12	5.63	4.86	1.54	4.57	5.16	4.91	1.37	4.64	5.18

Note. GC = global citizenship

Measures

Manipulation Check. Participants rated the degree to which they felt seven emotions (e.g., Piff et al., 2015; Valdesolo & Graham, 2014): awe, anger, disgust, fear, amusement, sadness, and happiness (1 = *not at all*, 7 = *extremely*).

Smallness (α = .95). Following prior research (e.g., Huta & Ryan, 2010; Piff et al., 2015; Shiota et al., 2007), participants rated their agreement with the following statements: "I feel the presence of something greater than myself," "I feel part of some greater entity," and "I feel like I am in the presence of something grand" (1 = *strongly disagree*, 7 = *strongly agree*).

Global Citizenship (α = .77). Participants again indicated the extent to which they saw themselves as a "global citizen" (1 = *not at all*, 7 = *very much so*). In addition, we adapted existing measures of identification with humankind (McFarland et al., 2013) and spiritual connectedness (Piedmont, 1999), asking participants how much they "identify with (that is, feel a part of, feel love toward, have concern for) all humans everywhere" and "want to help all humans everywhere" (1 = *not at all*, 5 = *very much so*). They also indicated whether they "share a common destiny with other fellow human beings" and "belong to humanity as a whole" (1 = *strongly disagree*, 7 = *strongly agree*). Responses to all items were then standardized before aggregation (Song et al., 2013).

Poem Evaluation (α = .84). Participants were presented with John Donne's poem "No Man Is an Island," and reported how well they thought they understood it (1 = *not at all*, 7 = *very well*), how creative they found it to be (1 = *not at all creative*, 7 = *highly creative*), and how much they liked it (1 = *not at all*, 7 = *like it a lot*).

Results

Total Effects

Participants in the awe condition (M = 5.80, SD = 1.58) reported greater awe than participants in the control condition (M = 3.38, SD = 1.98), $F(1, 82) = 38.64$, $p < .001$, $d = 1.35$.[3] Amusement, anger, disgust, and sadness did not vary by condition (ps > .120). Participants in the awe (vs. control) condition reported greater happiness ($p < .001$) and fear ($p = .048$). Controlling for awe, differences in happiness and fear were not significant, ps > .137. In contrast, controlling for both happiness and fear, the effects of condition on awe remained significant, $p < .001$. These results suggest that condition-based differences in general happiness and fear were driven by differences in awe (Piff et al., 2015). Participants in the awe (vs. control) condition also reported greater smallness (M = 5.96, SD = 1.19, 95% CI [5.60, 6.33]; control M = 3.80, SD = 1.82, 95% CI [3.22, 4.38]), $F(1, 82) = 42.07$, $p < .001$, d = 1.40. Likewise, they reported higher global citizenship identification (M = .21, SD = .66, 95% CI [.01, .42]; control M = −.24, SD = .71, 95% CI [−.46, −.01]), $F(1, 82) = 9.02$, $p = .004$, d = .65. However, contrary to our prediction, there was no significant difference in how the poem was evaluated across conditions (M_{Awe} = 6.55, SD = 1.58, 95% CI [6.07, 7.03]; M_{Control} = 6.65, SD = 1.43, 95% CI [6.19, 7.10]), $F(1, 82) = .09$, $p = .770$.

Indirect Effects

Smallness. We again examined whether awe exerted effects on downstream variables through its effect on smallness. In all models reported below, condition (0 = control, 1 = awe) was used to predict smallness and a second dependent variable which was also predicted by smallness. The effect of condition on smallness was significant and the same in all models, $b = 2.16$, $p < .001$.

Smallness significantly predicted global citizenship, b = .29, $p < .001$. The indirect effect of condition on global citizenship, through smallness, was also significant, b = .62, 95% CI [.40, .86]. The direct effect of condition on global citizenship was not significant, $b = -.17$, p = .235. Smallness also predicted evaluation of the John Donne poem, b = .25, p = .019. The indirect effect of condition on poem evaluation was also significant, b = .55, 95% CI [.13, .97]. The direct effect of condition on poem evaluation was not significant, $b = -.65$, p = .106.

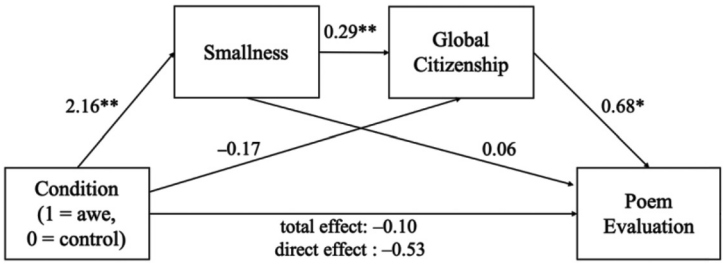
Serial Mediation. We then examined whether condition impacted poem evaluation by first increasing perception of smallness, which then increased a sense of global citizenship (i.e., serial mediation). In this model, condition predicted all variables, smallness predicted global citizenship and poem evaluation, and global citizenship predicted poem evaluation. Results supported the serial mediation model (see Figure 1). After controlling for global citizenship identification, smallness did not directly predict poem evaluation, p = .670. Global citizenship, however, did predict poem evaluation. The indirect effect of condition on poem evaluation through smallness was not significant, b = .13, 95% CI [−.47, .66]. Likewise, the indirect effect of condition on poem evaluation through global citizenship alone was not significant, $b = -.12$, 95% CI [−.36, .08]. However, the serial path from condition → smallness → global citizenship → poem evaluation was significant, b = .43, 95% CI [.08, .86]. The direct effect of condition on poem evaluation was not significant, p = .177.

Experiment 3

Experiment 2 built on Experiment 1 by showing that viewing awe-inducing pictures also leads to increased identification as a global citizen, driven by diminished importance ascribed to the self

[3] Descriptive statistics and mean comparisons of all emotions are available in Table S1 (Experiment 2), Tables S2–S3 (Experiment 3), and Tables S4–5 (Experiment 4) in the online supplemental materials.

Figure 1
Serial Mediation Model of the Effect of condition on Poem Evaluation Through Smallness and Global Citizenship in Experiment 2



* $p < .05$. ** $p < .001$.

(i.e., smallness). Also, via feelings of smallness and global citizenship, awe indirectly increased people's reported understanding and appreciation of the John Donne's poem, a work that embodies a sense of connectedness with all humankind. Experiment 3 sought to extend Experiments 1 and 2 in several ways. First, to further increase generalization, we presented videos rather than using photographs or recollection to manipulate awe. In addition, we explored whether awe induced by the universe itself and not only by earthly images would yield similar effects. Third, we introduced a new indirect measure of global citizenship (or orientation) that asked people to evaluate a "typical" hamburger that embodies values of the local community (i.e., America) and a "foreign" burger that embodies a more global community. Because some theorists have suggested global citizenship involves both an appreciation for diversity and cultural openness (Leung et al., 2015; Reysen et al., 2012, 2013), we drew on prior research related to cultural inclusiveness (Torelli et al., 2011) in Experiment 3, assessing participants' receptiveness toward a culturally atypical, diverse product (i.e., a global style burger). We expected that feelings of awe, potentially through enhanced smallness and sequentially through global citizenship, would lead people to evaluate this likely unfamiliar food more favorably.

Method

Participants and Procedures

In exchange for partial course credit, 159 college students were recruited from a university in the Midwestern United States to take part in a study on "social perception" (47% men; M_{age} = 19.98; *SD* = 1.71). After consenting to participate, students were randomly assigned to view a short video clip depicting one of the three themes (see the online supplemental materials). Two were designed to induce awe (the universe; the earth). The other was a neutral control about potato chip manufacturing.

Measures

The manipulation was checked using the same method employed in Experiment 2. To measure smallness (α = .89), the statement "I feel small or insignificant" (Piff et al., 2015, Study 3) was included alongside the three items used in Experiment 2. Global citizenship (α = .79) was measured using the same single-item measure used in Experiments 1 and 2, along with items asking participants about the extent to which they felt they "share a common destiny with other fellow human beings," "belong to humanity as a whole," and "are closely connected with other people in the world" (1 = *strongly disagree*, 7 = *strongly agree*). A less direct measure of global citizenship asked participants to evaluate two burger recipes (American-style or global-style). The American-style burger was prototypically American (e.g., sesame bun, beef patty, American cheese). The global-style burger was less typical, with ingredients featuring a portobello mushroom bun, black bean patty, and mozzarella cheese (see the online supplemental materials). Participants evaluated each, indicating how much they liked the recipes (1 = *not at all*, 9 = *like it a lot*) and how interested they would be in preparing the dishes (1 = *not at all interested*, 9 = *highly interested*). Responses to the two items were separately aggregated for the American-style (r = .80, $p < .001$) and global-style (r = .76, $p < .001$) burger.

Results

Total Effects

Table 2 provides descriptive statistics. Omnibus results showed that participants reported significantly different levels of awe across conditions, $F(2, 156) = 17.82$, $p < .001$, $\eta_p^2 = .19$. Planned contrasts indicated participants in both awe conditions reported greater awe than participants in the control condition, respectively, Fs(1, 156) = 27.88 and 25.79, ps $< .001$, ds = 1.03 and 1.05. The two awe conditions did not significantly differ, $p = .858$. Significant differences were also observed for anger, fear, and happiness, ps $< .022$, but not for disgust, amusement, and sadness, ps $> .058$. The effect of condition on self-reported awe was robust to the simultaneous inclusion of all other emotions, $p < .001$.

Smallness significantly differed across conditions, $F(2, 156) = 42.82$, $p < .001$, $\eta_p^2 = .35$. Planned contrasts showed that participants in both awe conditions (universe and earth) reported greater smallness than participants in the control condition, respectively, Fs(1, 156) = 74.39 and 52.78, ps $< .001$, ds = 1.64 and 1.48. The two awe conditions did not differ in smallness, $p = .184$. Global citizenship identification varied significantly across conditions, $F(2, 156) = 4.49$, $p = .013$, $\eta_p^2 = .05$. Participants in the universe and earth conditions (vs. control) reported greater global citizenship identification, respectively, Fs(1, 156) = 3.94 and 8.64, ps =

Table 2
Descriptive Statistics for the Key Variables in Experiment 3

	Universe (n = 54)				Earth (n = 53)				Control (n = 52)			
Variable	*M*	*SD*	95% CI		*M*	*SD*	95% CI		*M*	*SD*	95% CI	
Awe	4.59	2.05	4.03	5.15	4.53	1.86	4.02	5.04	2.69	1.62	2.24	3.14
Smallness	4.97	1.44	4.57	5.36	4.62	1.28	4.27	4.98	2.73	1.28	2.37	3.08
GC	4.03	1.08	3.73	4.32	4.26	1.28	3.91	4.61	3.55	1.32	3.18	3.92
ABE	6.54	2.32	5.90	7.17	6.92	1.85	6.42	7.43	7.13	1.69	6.65	7.60
GBE	5.97	2.01	5.42	6.52	5.54	2.30	4.91	6.17	5.54	1.98	4.99	6.09

Note. GC = global citizenship; ABE = American-style burger evaluation; GBE = global-style burger evaluation.

.049 and .004, *d*s = .40 and .57. The two awe conditions did not significantly differ, $p = .332$.

No significant differences emerged across conditions for the American-style burger, $F(2, 156) = 1.22$, $p = .299$. Neither awe condition differed significantly from control, ps $> .128$. Likewise, the two awe conditions did not significantly differ, $p = .312$. Contrary to our prediction, however, no total effects of condition were observed for the global-style burger either, $F(2, 156) = .76$, $p = .469$. Again, neither awe condition differed from control, ps $> .289$. The two awe conditions also did not significantly differ, $p = .286$.

Indirect Effects

Smallness. Because the two awe conditions did not significantly differ for any dependent measure, these conditions were combined. Across analyses, the effect of condition (0 = control, 1 = awe) on smallness was significant and did not change, $b = 2.07$, $p < .001$.

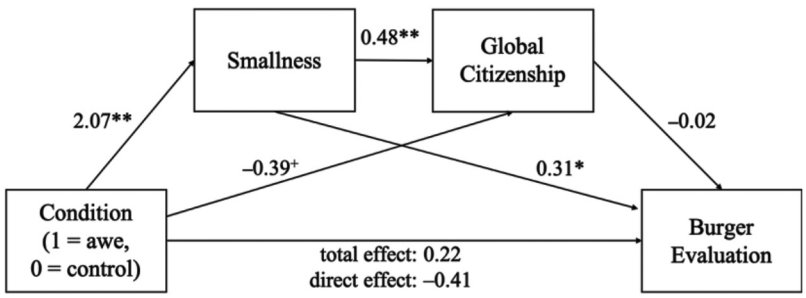
Smallness significantly predicted global citizenship, $b = .48$, $p < .001$. The indirect effect of condition via smallness was significant, $b = .98$, 95% CI [.71, 1.28]. The direct effect of condition on global citizenship was not significant, $b = -.39$, $p = .076$. Consistent with our theoretical reasoning, smallness did not significantly predict evaluation of the American-style burger, $b = -.03$, $p = .822$. The indirect effect of condition on evaluation of this burger recipe via smallness was also not significant, $b = -.05$, 95% CI [−.57, .45], and the direct effect of condition was not significant, $b = -.34$, $p = .412$. However, consistent with our hypothesis, smallness *did* predict evaluation of the global-style burger, $b = .30$, $p = .017$. In addition, the indirect effect was significant, $b = .62$, 95% CI [.15, 1.16]. The direct effect of condition was not significant, $b = -.40$, $p = .357$.

Serial Mediation. Results did not support the serial mediation model (see Figure 2). Specifically, although condition predicted smallness and smallness predicted global citizenship identification, after controlling for global citizenship identification, smallness still directly predicted evaluation of the global-style burger. In addition, global citizenship did not predict burger evaluation, $p = .900$. The indirect effect of condition on burger evaluation through smallness was significant, $b = .64$, 95% CI [.04, 1.30]. The indirect effect of condition on burger evaluation through global citizenship was not significant, $b = .008$, 95% CI [−.15, .18]. The serial path from condition → smallness → global citizenship → burger evaluation was also not significant, $b = -.02$, 95% CI [−.38, .33]. The direct effect of condition on burger evaluation was not significant, $p = .355$.

Discussion

Using video clips rather than photographs, Experiment 3 conceptually replicated the findings from Experiments 1 and 2, again showing that awe increased global citizenship via smallness. The results also revealed that both universe-induced and earth-induced awe had comparable effects on promoting global citizen identification. Experiment 3 also showed that a sense of smallness driven by awe statistically mediated cultural openness as indicated by favorable attitudes toward the global-style recipe. However, results failed to support a serial mediation model. Speculatively, the peculiarity of the ingredients of the global-style burger might have influenced this result. For example, because mozzarella cheese and portobello mushrooms are both Italian in origin, and Italian food is popular in the United States, this recipe may have seemed more American (or strange) than global to some participants, limiting

Figure 2
Serial Mediation Model of the Effect of Condition on Burger Evaluation by Smallness and Global Citizenship in Experiment 3



$^{+}$ $p < .10$. * $p < .05$. ** $p < .001$.

the ability of global citizenship to predict this outcome. Future research might examine this, perhaps by presenting an even more exotic recipe that contains very unfamiliar ingredients.

Experiment 4

Experiments 2–3 used positively valenced stimuli to manipulate awe. Because awe also emerges in response to negatively valenced stimuli, typically accompanied by anxiety or fear (Keltner & Haidt, 2003; Piff et al., 2015), we wanted to further broaden our ability to generalize by examining whether our findings would also emerge in response to a negative form of awe.

Once again, we used a multiitem measure to capture global citizenship. However, rather than directly asking participants about their identification as global citizens, our new measure focused on our a priori conceptualization, including concepts such as shared responsibility, a sense that people should work together to promote the prosperity of humankind regardless of nationality, and a belief that the earth's resources belong to everyone rather than a select few. Given the multifaceted nature of global citizenship, we expected this new measure to better capture people's endorsement of the construct.

In addition, rather than focusing on indirect measures such as poem evaluation (Experiment 2) or burger recipes (Experiment 3), Experiment 4 focused on donation behavior, which represents a more concrete assessment of people's caring about others in general. Specifically, we asked participants to allocate a donation that would be made on their behalf to a charity that primarily benefited a local (United States) cause or one that benefited people more broadly across the world. We expected that participants in the awe conditions would allocate more of the donation that was given on their behalf to the global versus local charity, mediated by increased sense of the self as small and global citizenship (i.e., serial mediation).

Method

Participants and Procedure

Three-hundred and 45 college students were recruited from a large, Midwestern university in the United States to take part in a study on emotion in exchange for course credit (36% men; M_{age} = 20.08; *SD* = 1.19). After providing consent, participants were randomly assigned to a positive awe, negative awe, or neutral control condition. In the negative awe condition, participants viewed 10 dramatic photographs depicting threatening natural disasters (e.g., a volcanic eruption, lightening; see online supplemental materials). Positive awe and neutral control conditions used the same photographs as in Experiment 2. Procedures were identical to Experiment 2.

Measures

The manipulation check and measure of smallness (α = .84) were identical to those used in Experiment 3.

Global Citizenship (α = .82). Participants responded to seven items on a 7-point scale (1 = *strongly disagree*, 7 = *strongly agree*). Three were the same as were used in Experiments 2 and 3 (i.e., "common destiny," "belong to humanity," "closely connected"). Four new items using the same 7-point scale probed, "As a human being, being a 'citizen of the earth' is more important to me than being a citizen of my country," "The earth and all of its resources belong to all people everywhere, not just to those countries and corporations that currently control them," "Leaders all around the word should work together in promoting human rights, even if doing so comes with substantial monetary costs," and "I would be willing to personally devote time, effort, or resources to help people who are very different from me."

Donation Allocation. Participants were told, "For every person who participates in this study and through a partnership with humanitarian organizations, $.15 is donated on their behalf to help children in need."[4] Two programs were then presented, described as devoted to either saving children in the United States (i.e., local) or around the world (i.e., global; see the online supplemental materials). Participants then indicated how they would like to allocate the $.15 using a slider question (0 = donate 100% to the U.S. program, 5 = 50/50%, 10 = donate 100% to the international program).

Results

Total Effects

Table 3 provides a summary of descriptive statistics. Across conditions, participants reported significantly different levels of awe, $F(2, 342) = 111.29$, $p < .001$, $\eta_p^2 = .39$. Both awe-inducing conditions were effective: Planned contrasts showed positive and negative awe conditions reported greater awe than participants in the control condition, respectively, Fs(1, 342) = 216.24 and 91.74, ps $< .001$, ds = 2.08 and 1.23. However, participants in the positive awe condition reported greater awe than those in the negative awe condition, $F(1, 342) = 26.73$, $p < .001$, $d = .66$.

Significant differences were also observed for anger, disgust, fear, amusement, sadness, and happiness, ps $< .001$. Corroborating that the valence of each form of awe was consistent with expectations, higher sadness, fear, anger, and disgust were reported in the negative awe condition relative to the positive awe (ps $< .001$) and control (ps $< .063$) conditions. Likewise, higher happiness and amusement was reported in the positive awe condition than in the negative awe (ps $< .001$) and control (ps $< .001$) conditions. The effect of condition on self-reported awe remained significant when including all other emotions simultaneously, $p < .001$.

Smallness. Reported smallness significantly differed across conditions, $F(2, 342) = 105.70$, $p < .001$, $\eta_p^2 = .38$. Consistent with hypotheses and Experiments 1–3, participants in the positive and negative awe conditions reported stronger feelings of smallness than those in the control condition, respectively, $F(1, 342)$ = 169.99 and 146.94, ps $< .001$, ds = 1.69 and 1.50. No significant difference in smallness was found between the two awe conditions, $p = .344$.

Global Citizenship. Across conditions, participants also varied in the extent to which they self-reported global citizenship identification, $F(2, 342) = 10.17$, $p < .001$, $\eta_p^2 = .06$. Participants in the positive and negative awe conditions reported stronger global citizenship identification than those in the control condition, respectively, Fs(1, 342) = 15.09 and 14.48, ps $< .001$, ds = .57 and .49. The two awe conditions did not significantly differ, p = .966.

[4] These donations were made on participants' behalf.

Table 3
Descriptive Statistics for the Key Variables in Experiment 4

	Positive awe (n = 114)				Negative awe (n = 116)				Control (n = 115)			
Variable	*M*	*SD*	95% CI		*M*	*SD*	95% CI		*M*	*SD*	95% CI	
Awe	5.79	1.62	5.49	6.09	4.62	1.93	4.27	4.98	2.45	1.59	2.15	2.74
Smallness	5.44	1.02	5.25	5.63	5.29	1.14	5.08	5.50	3.39	1.38	3.13	3.64
GC	5.20	0.88	5.04	5.36	5.21	0.91	5.04	5.37	4.68	1.24	4.45	4.91
DA	6.59	2.53	6.12	7.06	6.09	2.15	5.69	6.48	5.45	2.66	4.95	5.94

Note. GC = global citizenship; DA = donation allocation.

Donation Allocation. Donation allocations significantly differed across conditions, $F(2, 342) = 6.23$, $p = .002$, $\eta_p^2 = .04$. Participants in the positive and negative awe conditions allocated more money to the global charities than those in the control condition, respectively, $Fs(1, 342) = 12.40$ and 3.88, $p < .001$ and $p = .049$, $ds = .44$ and .26. Allocation decisions did not significantly differ across the two awe conditions, $p = .119$.

Indirect Effects

Smallness. Given that the awe conditions did not differ from one another on any measure except for self-reported awe—which had large effects relative to control in both awe conditions—the two awe conditions were combined in subsequent analyses that tested whether smallness mediated the effects of condition (0 = control, 1 = awe) on other variables. Because the effect of condition on smallness did not differ across analyses, it is reported here only, $b = 1.97$, $p < .001$.

Smallness significantly predicted global citizenship, $b = .37$, $p < .001$. The indirect effect, through smallness, was also significant, $b = .72$, 95% CI [.50, .98]. After controlling for the effects of smallness, no direct effect of condition on global citizenship was observed, $b = -.20$, $p = .145$. Smallness did not significantly predict donation allocation, $b = .10$, $p = .390$. The indirect effect, through smallness, was also not significant, $b = .19$, 95% CI [−.26, .63]. After controlling for the effects of smallness, the direct effect of condition on donation allocation was marginally significant, $b = .70$, $p = .051$.

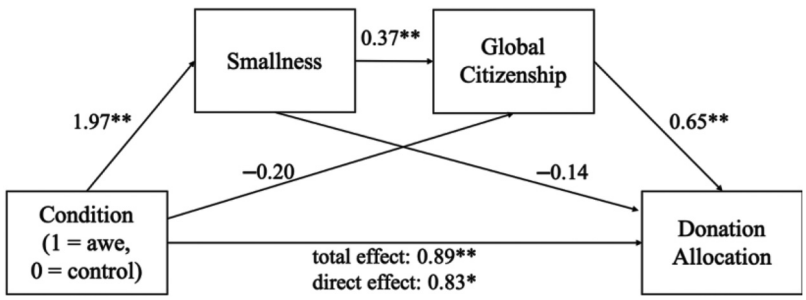
Serial Mediation. We again tested a serial mediation model, which supported our hypothesis (see Figure 3). Specifically, condition predicted smallness and smallness predicted global citizenship identification. Although smallness did not directly predict donation allocation ($p = .233$), global citizenship did. Moreover, although the indirect effects of condition on donation allocation through smallness alone ($b = -.28$, 95% CI [−.73, .16]) and global citizenship alone were not significant ($b = -.13$, 95% CI [−.35, .05]), the serial path from condition → smallness → global citizenship → donation allocation was significant, $b = .47$, 95% CI [.23, .76]. The direct effect of condition on donation allocation remained significant, $b = .83$, $p = .018$.

General Discussion

Across four studies, we found that awe boosts people's global citizenship identification. In terms of process, it may do so by first leading people to feel "smaller" than they might have otherwise felt, which in turn makes them feel more interconnected, leading them to value and care for others more and see themselves more as global (vs. local) citizens. These studies also showed different types of awe elicitors and cues—including pictures of the earth or the universe, videos, and recall tasks—can work equally well to promote global citizenship identification. Experiment 4 further showed negative and fear-inspiring forms of awe may work similarly to positive, joy-inspiring forms in promoting a broadened identity. Notably, the effects of awe, working through smallness and global citizenship, had impacts on a variety of downstream outcomes, such as the appreciation of a poem, interest in trying a new food, and a desire to help distant (vs. close) others in need.

Specifically, using single-item measures following a validated recall and writing manipulation in Experiment 1, we found initial support that awe increases global citizenship by influencing smallness. Experiments 2–4 extended this further, using different awe

Figure 3
Serial Mediation Model of the Effect of Condition on Donation Allocation by Smallness and Global Citizenship in Experiment 4



* $p < .05$. ** $p < .001$.

elicitors for enhanced generalizability and replicating effects using multiitem measures with better reliability, finding impacts of awe on both attitudes (Experiments 2–3) and behaviors (Experiment 4). These findings indicate that the effects of awe on global citizenship hold across various contexts, working through the same mechanism(s).

Theoretical and Practical Implications

The present research contributes to the existing literature on awe by documenting that awe leads people to identify more with a global collective, which promotes cosmopolitan prosociality. Although past work has examined whether and how awe can promote prosociality, we believe the present research takes a further step, showing the scope of awe-inspired prosociality and examining why exactly—beyond a sense of the self as small—that this might be the case. For example, although Piff et al. (2015) explored the influence of awe on several facets of prosociality, including generosity and helping, the beneficiaries were actual or hypothetical others with whom participants interacted or played economic games with. Thus, prosociality beyond the immediate, local context was not examined. Likewise, although work has shown that awe can influence different prosocial behaviors such as donating to a needy stranger (e.g., Guan et al., 2019), this work is still limited to a "local" context. Prosociality in situations in which helping ingroup or promoting local interests counteracts outgroup or global benefits also has not yet been investigated.

In contrast, the studies presented here strongly suggest experiencing awe broadens people's sense of connection beyond the local to potentially include people from across the world, encouraging people to engage with global issues. Moreover, this tendency impacted real-world behavior—albeit for the low stakes of a small monetary bonus donated on their behalf—shifting people toward wanting to donate more to an international versus a national charity. In particular, the effect of awe on this prioritization was not mediated by smallness alone; instead, it was serially mediated through global citizenship identification, which suggests that global citizenship can play a critical role in explaining when and why awe might lead people to help others with whom they have never (and will never) interact. Although this might be seen as a downside or as a simple tradeoff that has no real consequence (i.e., because people everywhere need help), we see this finding as important. That is, we do not believe enhanced global citizenship would limit local giving; instead, we think it is likely to broaden people's sphere of concern, perhaps enhancing their selectivity regarding where their prosociality might be best aimed. Realistically, despite great poverty for some at home, people in nations beyond the borders of the United States are arguably in greater need of resources, and currency from our country can have a greater impact in places where each dollar buys more.

This research also compliments previous work on global citizenship by introducing an emotional factor into the analysis. This is an important contribution given that many researchers have been striving to find ways to promote global citizenship identifications (e.g., Brito-Pons et al., 2018; McFarland et al., 2013; Morrison et al., 2017; Reese et al., 2015; Smith et al., 2017; Stürmer et al., 2016). The present study joins these previous efforts, broadening our understanding of variables that can increase global citizenship and testing a process model to explain why. Future work might also examine whether repeated experiences of awe (e.g., in a longitudinal design) or individual differences in the likelihood of (or frequency of) experiencing awe in natural life can help to "fix" levels of global citizenship, questions that the current research cannot address. For example, educational programs that directly address global concerns might be enhanced by activities that work to promote awe using situational cues and emotional factors, increasing the likelihood that young people would cultivate a global citizenship identification.

Limitation and Future Research

Some limitations of the current work are worth noting. However, these limitations also suggest potentially fruitful future directions that should be explored. First, while indirect effects of awe induction through the small self were consistently found on different measures across experiments, these manipulations did not exert *total* effects on poem and global-style burger evaluations. For the latter, we also failed to find serial mediation (i.e., the effects of awe on burger evaluation were significant through smallness alone but were not further transmitted through global citizenship identification). One possible explanation for the failure to find total effects is that individual preferences irrelevant to global citizenship were not sufficiently controlled with both measures. Because we did not create novel stimuli but used existing objects (e.g., John Donne's poem "No Man Is an Island"), participants' preexisting inclinations may have weakened the effects of manipulations. Particularly in Experiment 2, awe may have had no total effect on poem evaluation because people's evaluations were already close to the ceiling in both conditions (i.e., people in both conditions viewed the poem quite favorably). In Experiment 3, total effects may have failed to emerge because of wide individual-level variability in people's preferences for various ingredients in an unfamiliar combination. Similarly, the serial mediation effect through global citizenship may also have been obscured by prior preferences for already well-known Italian-origin ingredients like mozzarella cheese and portobello mushrooms. Using stimuli that prompts greater variability and examining these possible individual difference factors as moderators in future research could be fruitful.

Another limitation related to the burger and poem evaluation tasks as evidence for global citizenship is they may not fully reflect the richness of the construct of cosmopolitanism. That is, rather than directly assessing globally oriented prosociality, the burger evaluation was meant to capture openness toward an atypical cultural product, while the poem evaluation was meant to capture people's feeling of connectedness to other humans and the common destiny that all people share. However, we openly acknowledge that these novel measures—which we believe tap into aspects of a cosmopolitan orientation—have not been previously validated as measures of cosmopolitanism, and as such, may not have the same ecological or convergent validity as more direct measures (e.g., the donation measure used in Experiment 4).

It is worth noting, when constructing the burger evaluation task, we were inspired by prior research that has used similarly inventive approaches. For example, Torelli et al. (2011) assessed cultural inclusion by asking American participants to evaluate Nike's global expansion initiatives, such as the introduction of Arabic characters to replace the swoosh mark in its logo. Although our measure was not the same, hamburgers are, like Nike, regarded as

a cultural icon in the United States (Liu et al., 2017). Thus, we thought this evaluation task would be one way to tap into interest in a modification to a product with cultural significance. Despite this, we acknowledge that given the measure's novelty, results should be interpreted cautiously. We also note others have conceptualized a cosmopolitan orientation in ways that move beyond prosociality. For example, Leung et al. (2015) proposed "cultural openness" and "respect for diversity" are two distinct facets of cosmopolitanism in addition to "global sociality." Although the current research was primarily focused on prosociality, these novel measures were an attempt to broaden our ability to generalize. Thus, we view our research as a cautious start, but believe future research should more systematically examine the extent to which awe can exert impacts on other aspects of cosmopolitanism, above and beyond prosociality.

Third, given that our (serial) mediation analyses throughout this article rely on measured rather than manipulated variables (i.e., with awe being the only variable manipulated), results of these analyses should be treated with some caution. That is, given this design limitation, we cannot be certain of the causal ordering or whether other unmeasured mediating variables play a role in explaining dependent measures. To help rule out reverse mediation, we examined the same models, reversing the direction of the mediators such that global citizenship predicted smallness rather than the reverse. Results indicated indirect effects were no longer significant in the simple (Experiment 1) and serial mediation models (Experiments 2–4). However, we acknowledge that without experimentally manipulating mediators, we cannot fully establish causal ordering. In addition, it is possible that other moderating or mediating variables could exist (e.g., individual differences in openness and travel abroad). As noted by Bullock et al. (2010), tests of mediation can be biased in the direction of inflating indirect effects and deflating direct effects because of third variables that covary with both dependent variables and mediators. However, we note that given the designs we used, any other putative mediators would need to be impacted by experimental manipulations of awe, and that when random assignment is used, it would be unlikely for stable individual differences to be confounded with condition. Despite this, to more firmly establish causal ordering, future research should attempt to manipulate the mediators we proposed and attempt to control other variables that might covary with the mediators and dependent variables.

Fourth, although we found that seeing the self as small worked well to explain the effects of awe on global citizenship, it is worth noting that we treated two potentially distinct facets (i.e., the small self vis-à-vis something larger and a sense of the self as diminished) as a unidimensional construct. This approach has been used by others (e.g., Piff et al., 2015, Study 3; Shiota et al., 2007), which somewhat justifies the method. However, Piff et al. (2015) also found smallness can be conceptualized as having more than one facet, with one aspect capturing a feeling of self-diminishment and another capturing a sense of vastness in relation to the self. Although these facets are correlated, they may also have unique predictive power. To address this, we conducted additional analyses which found that although self-diminishment worked alone to significantly mediate the effects of awe on global citizenship, it also showed that when self-diminishment and vastness were treated as two separate and competing mediators, the indirect effect through vastness (but not self-diminishment) was significant. This suggests the possibility that although the two facets share variance related to global citizenship, effects through vastness might sometimes be stronger. However, it is also worth noting this finding differs from what was reported in Piff et al. (2015), who found that self-diminishment was the stronger predictor. Thus, further research will likely be needed to understand how these variables work together and separately to help explain the effects of awe on other constructs. One useful avenue for future research would be to manipulate (i.e., rather than measure) these different facets to see if both work independently (or similarly) to facilitate the effects of awe on downstream measures.

Fifth, although we examined multiple inductions of awe—including an induction in Experiment 1 that asked participants to recall and describe an occasion when they felt awe, which allowed experiences to naturalistically vary—and explored negative as well as positive awe, our work primarily focused on awe inspired by nature (i.e., in Experiments 2–4). Other types of awe remain relatively unexplored. To the extent that awe—a self-transcendent emotion—generally promotes concern for the welfare of others (e.g., Stellar et al., 2017), awe elicitors such as historical artifacts (e.g., the Great Wall) or moral exemplars (e.g., Ghandi; see Jiang et al., 2018) might work in the same way as nature-based awe inductions. However, some awe elicitors, such as viewing extraordinary performances by local or national (vs. international) athletes, might limit the scope of prosociality somewhat, such that it does not lead as strongly to global citizenship orientation. Future research might examine this possibility by contrasting multiple forms of awe to test whether elicitor type moderates effects on smallness or global citizenship.

Lastly, this research was conducted mostly with American participants. Considering that the concept of global citizenship involves a collective identity shared across all people on earth, it would be particularly meaningful to test whether the effects of awe on global citizenship identification also appear among people outside the United States. Importantly, recent cross-cultural studies on awe have reported cultural variations in people's predisposition to feel positive and negative awe (Nakayama et al., 2020), as well as factors such as the elicitors, magnitude, and content of the small-self effect (Bai et al., 2017). Thus, future research should examine whether and how these cultural differences affect the association between awe and global citizenship.

Conclusion

To our knowledge, this article is the first to report an investigation examining the association between awe and global citizenship. Across four experiments, we showed that awe, via increasing the sense of small self, promotes global citizenship identification. In addition, through the same mechanism(s), awe increases appreciation for sentiments suggesting human connectedness, openness to new and unfamiliar experiences, and encourages prosocial behaviors that prioritize global needs over local. In this era of worldwide problems that can only be solved through the cooperation of all humankind, a sense of collective identity and responsibility shared across borders is urgently needed. We believe these findings will contribute to a better understanding of awe and global citizenship and further the development of effective campaigns and educational programs that use emotional appeals, thereby encouraging more people to become global citizens.

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