Does Awe Increase Timelessness, Helpfulness, and Overall Well-Being?

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ABSTRACT
Does awe expand the perception of time? If so, how does that sense of timelessness influence behavior? Two experiments were conducted using university students to investigate awe's impact on time perception, emotion, purchasing preferences, and helpfulness. In Experiment 1, participants watched either an awe-inspiring nature video, a boredom-inducing instructional video, or no video. Afterwards participants answered a questionnaire about mood, time and purchasing preferences, and were presented with a volunteer opportunity by a confederate. In Experiment 2, participants watched an awe-inspiring nature video or no video, and filled out a similar questionnaire. Analyses of both experiments failed to show a significant relationship between awe, time perception, purchasing preferences and helpfulness.

Author Keywords
Emotion. Cognitive Design, Nature, Altruism, Time Perception, Consumption Preferences.

INTRODUCTION
Emotion research is gaining more and more traction as researchers are noting the way emotions affect everything from productivity to buying behavior. Yet in cognitive science, awe is an understudied emotional state, and its full application for designers is inconclusive.

Awe is a particularly elusive and complex emotion, unique in its "standing as an emotion rooted in joy, but tinged with that Kierkegaardian fear and trembling" [1]. As many people can attest, it is an emotion often involving both feelings of enlightenment and epiphany. Awe has associated feelings of submission, a difficulty in comprehension, and a mixture of other emotions including confusion, surprise, and wonder. One reason awe is so powerful is because it challenges our mental structures to make sense of something vast, resulting in a need for accommodation (such as a change in behavior or beliefs) [2].

Existing research links induced awe to an increase in time availability, relative to other emotional states [3]. Awe typically requires the experiencer to devote time to savor present feelings and sensations. Increasing time availability has been associated with greater well-being and volunteerism, and the preference to acquire experiences as opposed to material goods [3].

However, studying awe can present certain difficulties. Awe can be troublesome to capture in a lab because of its proximity to other positive emotions. Scale and correlation present other issues: one can't exactly reconstruct Niagara Falls in a lab, and awe is often experienced when time pressure is already minimal. Psychologists have not devoted much attention to awe because it has not been shown to have a distinctive facial expression [2].

In my study, I wanted to know whether induced awe increases time perception, improves mood, alters purchasing preferences, and/or increases generosity. With a better understanding of awe's effects, designers might improve people's lives by crafting awe-inducing environments that encourage volunteerism or that guide people to invest in an experiential purchase.

RELATED WORK
A 2012 study published in *Psychological Science* and led by Melanie Rudd at Stanford University found that induced awe gives people greater time-availability, reduces irritability, makes them act more generously with their time, and enhances overall life satisfaction. The experimenters also found that people in awe were more likely to invest money in experiences over products.

In one of Rudd's experiments, students were asked to complete unrelated tasks (such as unscrambling words) followed by watching commercials designed to evoke either happiness or awe. Following the videos, students were given a survey with carefully embedded questions about their perception of time. Once in a state of awe, participants were tested to see if their perception of time would lead them to be less irritable and more willing to volunteer their time. A separate awestruck group was asked to make a hypothetical purchase, with a choice of buying either material goods (a watch or a jacket) or experiences (Broadway show tickets or a massage).

EXPERIMENTS

Because awe is closely related to happiness, I altered Rudd's experiment to contrast awe with boredom instead. A nature video clip was played to instill awe in one group, and a video clip of an unexciting instructional guide was played to instill boredom in another group.[1] Consistent with Rudd's experiment, I masked each experiment's intention with unrelated word scrambles and questions about the environment or internet security. Unlike Rudd's experiment, I did not ask participants questions about charity, but instead had participants demonstrate their generosity by hiring another student as a confederate who asked if they would be interested in signing a form to volunteer in a fake campus clean-up event.

4.1 Purchasing Preferences and Volunteerism

The first experiment took place in the Graduate Design Studio at California College of the Arts. 12 students were divided into 3 groups. Group A was shown a video with awe-inspiring images of nature. Group B watched a video with boredom-inducing social network privacy instructions. Group C did not watch a video. All groups answered a questionnaire to measure mood, time perception, and purchasing preferences. Afterwards, participants were asked by a confederate to volunteer for a campus clean-up event.

4.1.1 Results for Purchasing Preferences and Volunteerism

In Experiment 1, Group A successfully instilled awe in participants, but only by a slight margin (0.53 using a Likert scale) in contrast to Groups B and C. Group A demonstrated an average score in time availability (3.56), the highest awe score (3), the lowest boredom score (1.5), and a tied experiential purchase score with Group B (67%). In comparison, Group B scored the lowest in time availability (2), and an average score in both awe (2.25) and boredom (1.75). Group C scored the highest in time availability (4.06) and boredom (2.25), and the lowest in awe (1) and experiential purchases (56%). All participants but one (in Group C) agreed to volunteer for a campus clean-up event.

4.2 Time and Purchasing Preferences

The second experiment took place in the Nave at California College of the Arts. 10 students were divided into 2 groups. Group A was shown a video with awe-inspiring images of nature. Group C did not watch a video. Both groups answered a questionnaire to measure mood and time perception (unchanged from Experiment 1), and purchasing preferences (amended options).

4.2.1 Results for Time and Purchasing Preferences

In Experiment 2, Group A scored highest in awe (2.4 vs. 1.2 in Group C) and lowest in boredom (2 vs. 3). Group A also scored highest in experiential purchases (80% vs. 76%), and time availability (3.05 vs. 2.85).

DISCUSSION

These two experiments failed to demonstrate a strong relationship between awe and time availability, experiential purchasing preferences, well-being and helpfulness. I believe the ambiguous results are a product of the experiment's topic, limited demographic, and public settings. As mentioned, awe's elusive nature makes it a difficult mood state to reproduce in an experiment. Furthermore, watching a video of awe-inspiring scenes of nature indoors will produce different emotions than experiencing an awe-inspiring nature scene outdoors.

My participants were limited to 22 art university students, who might possess particular attitudes and outlooks that are not representative of the general public at large. I also failed to fully isolate participants: both experiments took places in locations that had moderate foot-traffic (necessary to attract participants). Interestingly, Experiment 1 took place in the middle of a busy work week, yet participants reported greater time availability on average. Experiment 2 took place in the Nave, whose high ceilings may have inspired a preference for experiential goods.

CONCLUSION

The unclear results of these experiments suggest that awe's effect might best be measured in settings which are more naturally conducive to instilling awe, such as a scenic outdoor overlook. More accurate averages would be obtained from a larger pool of people with a more diverse demographic. Intervening in a situation where people have been found to be unhelpful might make awe's relationship to generosity more apparent. However, awe is still a relatively understudied area in cognitive science. Much more research is needed to fully understand its influence on behavior - especially its differentiating qualities from other emotions.

REFERENCES

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[1] In a 2003 article, "Approaching Awe, a Moral, Spiritual, and Aesthetic Emotion," researchers Dacher Kaltner and Jonathan Haidt propose that the most common experience of awe is in response to large natural objects, such as mountains, vistas, storms and oceans [2]. With this in mind, I presented video clips featuring time-lapse photography of the Grand Canyon to induce awe in participants.