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Gloria Junyan LAI

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AWE AND RELATIONSHIP QUALITY

GLORIA LAI JUNYAN

SINGAPORE MANAGEMENT UNIVERSITY

2023

Awe and Relationship Quality

Gloria Lai Junyan

Submitted to School of Social Sciences
in partial fulfillment of the requirements for the
Degree of Master of Philosophy in Psychology

Master's Thesis Committee:

Kenneth Tan (Supervisor/Chair)
Assistant Professor of Psychology
Singapore Management University


Andree Hartanto
Assistant Professor of Psychology
Singapore Management University

Cheng Chi-Ying
Associate Professor of Psychology
Singapore Management University

I hereby declare that this Master's thesis is my original work
and it has been written by me in its entirety.

I have duly acknowledged all the sources of information
which have been used in this thesis.

This Master's thesis has also not been submitted for any degree in any
university previously.



Gloria Lai Junyan

24 April 2023

Abstract

The experience of awe has been studied as having self-transcending outcomes that produce a decrease in importance of the individual's interests and an increase in the interests of others. This shift in self-concept is said to be a sense of self-diminishment vis-à-vis perceived vast stimuli. When applied to a romantic relationship context, it is possible that a shift of attention away from self-serving motives, towards relationship-enhancing motives, may promote positive relationship outcomes. As such, the current study examined how experimentally induced awe may influence relationship commitment and forgiveness via an expected increase in self-diminishment. 607 participants were randomly assigned to either awe-inducing, happiness-inducing, or a neutral mood condition. These moods were successfully induced through a narrative recall exercise. Results show that experiencing awe compared to a neutral mood marginally increased one's commitment to the relationship. However, commitment did not differ between those in the awe and the happiness condition. Awe did not differentially predict increases in forgiveness or self-diminishment. Furthermore, self-diminishment did not mediate the association of awe on commitment or forgiveness. The implications and future directions of these findings are discussed.

Table of Contents

Acknowledgements	ii
Introduction	1
Awe and self-diminishment	1
Awe, interdependence theory and self-diminishment.....	5
Awe as a predictor of commitment and forgiveness.....	7
Overview of Current Study	9
Method	11
Participants and procedure.....	11
Measures	13
Results.....	15
General Discussion	21
Conclusion	29
References	30
Tables	42

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work that I do, you have enabled it. Your quiet, constant support has not gone unnoticed. You have picked up the slack in the shared areas of our lives when I was dedicating much capacity to this thesis and for that, I am immensely grateful. I thank God for giving me such a steady partner to journey through life with. May we both continue to discover together what a truly awesome God He is. I love you.

Introduction

“The Himalayas? Don’t be absurd. Go by yourself. I’d ruin all my clothes.

*Hey. When you face Mother Nature, you will realize what an insignificant
being you are.”*

— Kwon & Yoo (2020). *Hi Bye, Mama! Episode 7, 1:00 – 1:09*

Certain experiences in life do indeed lead us to contemplate the magnitude of our existence, often coupled with the verdict of our unimportance. These self-transcendent experiences temporarily trigger self-diminishment and increases in feelings of connectedness with others (Yaden et al., 2017). Self-transcendence can also be brought on by certain positive emotions that influence mental states towards prioritizing others and moving beyond ego-centric thinking. For instance, awe has been introduced as a self-transcendent emotion that facilitates fulfilment of group interests through self-diminishment (Stellar et al., 2017). Indeed, research on awe has revealed its association with interpersonal behavioral and attitudinal outcomes such as increased prosocial behavior (Piff et al., 2015) and humility (Stellar et al., 2018), a decrease in ego-centric appraisals (Shiota et al., 2007) and more prosocial thoughts and concerns (Joye & Bolderdijk, 2015; Prade & Saroglou, 2016). Still, how do these findings on the positive interpersonal outcomes of awe extend to the context of romantic relationships, especially given the inherent interdependence characterizing them?

Awe and self-diminishment

Early writings featuring the emotion of awe center on how it is a transformative experience that causes individuals to devote themselves to their

deities (e.g., *The Bhagavad Gita*, 1969) or social causes that they believe in (Weber, 1978). Essentially, the experience of awe indicates a frame of reference that they are in the presence of greater and grander others. (Clark, 1990). In the exploration of awe within the field of psychology, Keltner and Haidt (2003) have put forth a working definition of the emotional construct, suggesting that awe is defined by two central components – perceptions of *vastness* and the need for cognitive *accommodation*. Vastness is felt when an individual encounters something that is perceived as physically or socially larger than themselves, or highly complex in detail (Keltner & Haidt, 2003; Shiota et al., 2007). Vastness is perceived not in absolute terms, rather, it is the comparison between the stimuli and an individual's usual referential experience of size. In line with this, experiencing panoramic views of nature, appreciating physical largeness, or even encountering a famous person are examples of how the vastness aspect of awe can be elicited (Keltner & Haidt, 2003; Shiota et al., 2007). Awe also elicits the need for accommodation because awe experiences typically originate from encounters that challenge one's existing mental structures. In this manner, the Piagetian understanding of accommodation is triggered, requiring a need to adjust existing mental structures in order to understand the new experience encountered (Piaget & Inhelder, 1966/1969). This need for accommodation does not have to be ultimately fulfilled. Keltner and Haidt (2003) further develop this construct to include five themes of awe: threat, beauty, ability, virtue, and supernatural causality. From these five themes, different triggers of awe can emerge. For instance, appreciating the beauty of novel artworks (Bai et al., 2017), religious and spiritual encounters (James, 1902/1985), or encountering natural disasters (Gordon et al., 2017).

Beyond just being an emotion, awe has been shown to transform one's self-concept. In studies of awe, participants have reported feeling small (Campos et al., 2013) and insignificant, coupled with a shift in attention away from their usually salient daily personal concerns (Shiota et al., 2007). This association between awe and self-diminishment was also replicated by Piff and colleagues (2015) who measured this sense of a small self as feeling insignificant compared to something greater than oneself. Furthermore, this feeling of self-diminishment is often accompanied by the salience of the individual's larger group membership, be it one's community or culture, or even nature and humanity itself (Piff et al., 2015; Shiota et al., 2007). Although awe is often felt when encountering something grand in size or complexity, it is the subsequent reflection of one's size of self that is compared to the vast stimuli which produces anecdotal perceptions of a diminished self-size. In theorizing, it is important to note that simply encountering massive stimuli is not expected to have an impact on one's sense of self, but the perception of one feeling small vis-à-vis these stimuli is what ultimately leads to potential downstream implications on behavioral outcomes that have been studied (Piff et al., 2015).

Keltner and Haidt (2003) theorized that primordial awe likely evolved as a form of deference towards powerful others, reinforcing one's position in a social hierarchy vis-à-vis others (Clark, 1990). Self-diminishment produced from awe likely motivates the individual to internalize the values that the larger social collective holds, and thus increases commitment toward a social hierarchy through the service of group goals (Durkheim, 1972; Keltner & Haidt, 2003). The process of integrating oneself with the larger group involves negotiating self-interested demands and the demands of others (de Waal, 1986;

Willer, 2009). Self-diminishment is a shift in self-concept that likely facilitates this integration as it involves turning attention away from personal interests in response to feeling that one is part of something greater, thereby facilitating the enactment of behaviors that are other-oriented and necessary for group maintenance (Bai et al., 2017; Keltner et al., 2014; Nowak, 2006; Piff et al., 2015). Studies have found that awe has been associated with increased bonding with social groups and group activities (Horberg et al., 2011; Keltner & Haidt, 2003), to the extent that awe elicited in an individual has been shown to promote greater overlaps between that individual's self-concept and other people in general when measured on the Inclusion of the Other in Self Scale (Aron et al., 1992). Other socially positive outcomes of awe that have been found is its association with increased prosocial thoughts (Joye & Bolderdijk, 2015), greater intentions of generosity (Prade & Saroglou, 2016), and decreased aggression (Yang et al., 2016). Some research has proposed that the mechanism of self-diminishment behind the group enhancing outcomes of awe work to diminish the importance that is placed on individual interests and emphasizing the goals of the larger group. Bai and colleagues (2017) demonstrate this two-fold phenomena where participants in the awe condition reported focusing on themselves less and this was mediated by a decrease in their self-size (Study 6). Furthermore, a decrease in level of self-focus mediated the association between awe and collective engagement, demonstrating that self-diminishment induced by awe served to reduce focus on the self and this brought on an other-focused orientation. The manifestation of the hypothesized shift away from self-interested motives toward other-oriented concern was also tested through decision-making outcomes, with awed individuals having a higher tendency to

select the prosocial choice when asked to allocate scores between themselves and an “other”, and this association was mediated by self-diminishment (Piff et al., 2015).

Awe, interdependence theory and self-diminishment

The above works on awe and adaptive interpersonal outcomes have demonstrated how the emotion of awe promotes self-diminishment, shifting one’s focus away from themselves and towards the interests of others, even when these targets are strangers or imagined individuals. Given the promising effects of awe on interpersonal outcomes within non-close relationship contexts, it is conceivable that awe will produce similar relationship-promoting outcomes when studied within the context of a close interpersonal relationship. These shifts of attention away from the self and its personally motivated interests, toward emphasizing the needs and goals of others are likely to promote positive relationship maintenance behaviors. After all, individuals within romantic relationships seek to strike a balance between the fulfillment of personal and partner interests and the process of how partners behave and influence each other can be understood through the lens of Interdependence Theory (Thibaut & Kelley, 1959). Individuals carry with them emotions and cognitions that color the interpretation of situations that arise within the relationship, influencing behaviors that are enacted in response to interpersonal situations (Holmes, 2002; Rusbult & Van Lange, 1996). These thoughts and feelings may guide individuals to enact behaviors that are either self-serving or beneficial to the relationship and their partner (Kelley & Thibaut, 1978). For instance, the level of commitment towards the relationship influences how couples interpret situations with conflicts of interest, whereby more committed couples tend to

interpret such situations as opportunities to support the relationship through constructive responses and sacrifice and are more likely to inhibit negative relationship behavioral tendencies (Rusbult et al., 2012). Other factors such as self-esteem (Holmes, 2004) and generalized negative affect (Huston, 2009) have also been explored as potential influences of relationship behavior and outcomes.

Choosing to enact relationship-enhancing behaviors rather than self-serving ones requires a transformation of motivation (Rusbult et al., 1991; Yovetich & Rusbult, 1994), a process akin to that of the self-diminishing effects of awe. Both of these processes involve the redirection from behaviors or cognitions that emphasize self-interests, towards the consideration of other's interests and goals. Previous studies have explored how factors such as having more time available for consideration of responses (Yovetich & Rusbult, 1994), more cognitive bandwidth (Finkel & Campbell, 2001), and forgetting one's sense of self (Leary et al., 2006) facilitates transformation of motivation. Similarly, studies on awe have also shown how awe has self-transcendent qualities that can motivate a stronger focus on others that results in increased loyalty and group-enhancing outcomes such as willingness to sacrifice (e.g., Stellar et al., 2018). The self-transcendent qualities of awe also reduce the level of importance that individuals place on their self-interests, resulting in decreases in entitlement (Piff et al., 2015) and increases in humility (Stellar et al., 2017). As such, the self-diminishment hypothesis thus suggests that self-diminishment produced by awe serves to decrease an individual's feelings of personal importance, and that this attention may then be redirected to focus on their partner or the relationship. Since awe has been shown to be an emotion that

binds one together with their interaction partner, it is possible that such effects also carry on into romantic relationships as well.

Awe as a predictor of commitment and forgiveness

Commitment is characterized by three main components: a psychological or affective attachment to the relationship, having a long-term orientation regarding the relationship, and being motivated to persist in the relationship (Arriaga & Agnew, 2001; Rusbult et al., 1998). Research on commitment has captured how relationship outcomes may influence relationship behaviors. For instance, the personal desire for vengeance is transformed to consider behaviors beneficial for the broader relationship as commitment to the relationship can inhibit aggression when the individual is severely provoked by their partner (Slotter et al., 2012). Furthermore, commitment is associated with better relationship maintenance behaviors such as sacrificing for one's partner, a decreased vigilance for and derogating other attractive alternatives that may undermine the relationship, and forgiveness (Miller, 1997; Rusbult et al., 1991; Van Lange et al., 1997; Wieselquist et al., 1999).

Conversely, commitment has also been examined as an outcome of relationship behaviors. For instance, commitment to the relationship can be construed cognitively since commitment entails thinking of the relationship with long-term orientation and this can result in the development of a joint couple identity (Agnew et al., 1998; Lewandowski et al., 2010). Indeed, successfully resolving conflict resulted in higher levels of clarity of the joint couple identity which in turn was associated with higher commitment levels

(Emery et al., 2021). Furthermore, the Investment Model of Commitment views commitment level as the result of dependence on one's partner, and is influenced by satisfaction with the relationship, quality of partner-replacing alternatives, and investment in the relationship (Rusbult & Van Lange, 2003; Rusbult et al., 2012). In line with this, Ysseldyk and Wohl (2012) reported that forgiving one's partner when transgressions occur heightens the level of perceived investment into the relationship by the forgiveness-granting partner, which in turn buffered against declines in commitment level. As such, commitment can be influenced by behaviors that occur within the relationship that increase satisfaction with the relationship or the perceived level of investment in the relationship, both of which seem to require serving relationship interests rather than self-interests.

Of particular interest to the current investigation is the prosocial enactment of forgiveness. When transgressions occur, feelings of unforgiveness and injustice arise. However, forgiveness requires the individual to forgo personal desires for vengeance and instead behave in a manner beneficial for the relationship as a whole (McCullough et al., 2001). Forgiveness at its core, is thus a prosocial shift in the victim's motivation away from harmful tendencies, towards more harmonious outcomes (McCullough, 2001), reflecting an instance of psychological transformation of motives explored earlier in Interdependence Theory. Furthermore, forgiveness requires the characterization of moving towards a positive state when considering the transgressor, rather than returning simply to a baseline state of neutrality (Braithwaite et al., 2011). In close relationships especially, this approach towards a positive state with the transgressor promotes feelings of

connectedness with the other (Bono et al., 2008) and is an indispensable aspect of ongoing relational repair (Maio et al., 2008; McNulty, 2008). In marital relationships, forgiveness has been associated with less conflict and more positive behavioral tendencies (Fincham et al., 2004), and promotes both satisfaction with and commitment to the relationship (Bradbury & Fincham, 1990; Fehr et al., 2010; Finkel et al., 2002; Karremans et al., 2003).

These lines of reasoning dovetail to elucidate how awe may have a positive influence on relationship commitment and forgiveness. Both commitment and forgiveness require a redirection of attention away from self-centered interests towards considering the interests of others. Such a shift likely requires the diminishment of importance placed on personal desires and an increase in the importance of group goals, as presented by the self-diminishment hypothesis of awe (Bai et al., 2017). As such, it is conceivable that awe, which produces self-diminishment, will likely enhance relationship commitment and forgiveness in the relationship.

Overview of Current Study

The present research seeks to examine the association between the emotion of awe and romantic relationship outcomes. As previously explored, awe has been associated with prosocial outcomes as a result of self-diminishment that the emotion elicits (e.g., increased generosity in economic games and hypothetical situations; Piff et al., 2015; Prade & Saroglou, 2016). Self-diminishment is theorized to incite feelings that one is small or insignificant vis-à-vis encountered stimuli of immense proportions, which in turn should promote a motivation to enact prosocial relationship behaviors over

self-interested ones. As such, it is conceivable that this motivation to behave in other-promoting ways should increase relationship commitment and forgiveness.

The current study sought to examine the causal effects of awe on relationship commitment and forgiveness through an experimental design. The following hypotheses were tested and summarized in Figures 1 and 2:

H1a – Awe is associated with greater relationship outcomes such that individuals in the awe condition will report greater commitment to the relationship compared to participants who do not feel awe.

H1b – Individuals in the awe condition will report greater forgiveness towards their partner compared to participants not induced to feel awe.

H2 – Awe is positively associated with self-diminishment.

H3a – Self-diminishment will mediate the positive association between awe and commitment.

H3b – Self-diminishment will mediate the positive association between awe and forgiveness.

Importantly, to rule out alternative explanations that it could be general positive emotions that are driving our effect, awe was pitted against two other emotional states (happiness and neutral affect). Although both awe and happiness are positive emotions, awe is expected to induce self-diminishment whereas this association was not found for other positive affect such as amusement and contentment (e.g., Bai et al., 2017; Piff et al., 2015).

Figure 1

Model for the Mediating Effect of Self-diminishment on Awe and Commitment

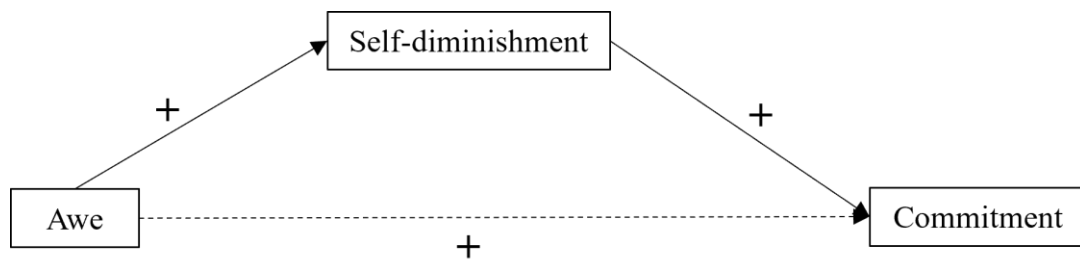
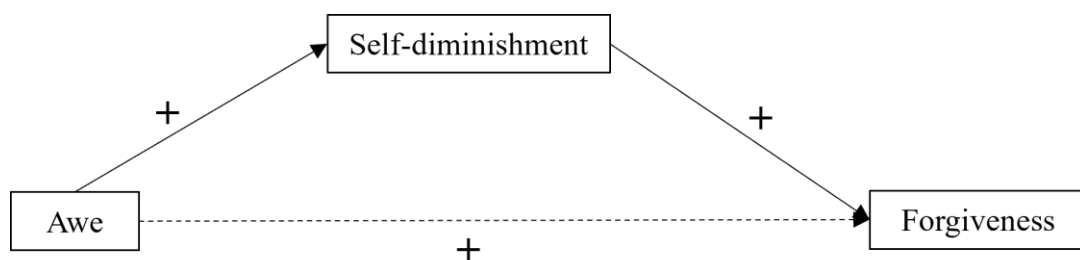


Figure 2

Model for the Mediating Effect of Self-diminishment on Awe and Forgiveness



Method

Participants and procedure

Participants were recruited from the Connect platform on CloudResearch and were compensated with USD 1. An a priori power analysis was conducted using the G*Power 3.1 calculator (Faul et al., 2009) revealed that a sample size of $N = 540$ was necessary to obtain 95% power to detect a small to medium effect size of $f^2 = 0.17$. To account for attrition, we aimed to collect 600 participants, resulting in 200 participants per condition. Only participants who are currently in a romantic relationship were recruited for the study. Ultimately, more than 600 participants were collected. After filtering out participants who reported being single, as well as participants whose total time taken to complete the questionnaire was above and below 3SD of the mean

(920.1 secs), a final sample of 607 participants were left. Of these, 194 experienced the awe manipulation, 206 experienced the happiness manipulation, and a final 207 underwent the neutral condition manipulation. Participants were aged between 18 – 80 years ($M_{\text{age}} = 40.62$ years, $SD_{\text{age}} = 12.03$ years) and the average relationship length was 144.71 months ($SD = 149.96$ months).

Participants were first briefed and provided with an informed consent before they proceeded with the questionnaires. Participants were then randomly assigned to either the awe, happiness, or neutral condition where they read the instructions for a narrative recall practice found below (adapted from Griskevicius et al., 2010).

Awe: When experiencing awe, people usually feel like they are in the presence of something or someone that is so great in terms of size or intensity that their current understanding of the world, their surroundings, or themselves is challenged in some way. Please take a few minutes to think about a particular time, fairly recently, during which you felt awe. In no less than 5 sentences, please describe the events that occurred in that experience and the emotions that you felt.

Happiness: When experiencing happiness, people usually feel positive and upbeat. Please take a few minutes to think about a particular time, fairly recently, during which you felt happy. In no less than 5 sentences, please describe the events that occurred in that experience and the emotions that you felt.

Neutral: Please take a few minutes to think about something you did fairly recently. This might have been riding a bike, studying for a test, or any other thing that happened during your day. In no less than 5 sentences, please describe the events that occurred in that experience.

After participants had described their experience and emotions, they then rated their emotions on a manipulation check question and thereafter proceeded with the rest of the survey which included questions on their perceived self-size, relationship functioning, and demographic background. Finally, participants were debriefed.

Measures

Manipulation check. To ensure that the narrative recall practice induced the target emotion for the condition participants were assigned to, participants reported the degree to which they feel the following emotions after the recall practice: anger, awe, disgust, fear, pride, sadness, happiness. The degree of emotions felt in that moment was rated on a 7-point scale from 1 (*Not at all*) to 7 (*Extremely*). Higher scores reflect a greater intensity of that particular emotion felt.

Self-Diminishment. To assess participants' tendencies to experience a sense of small self as elicited by awe, a measure created by Piff and colleagues (2015) was used. The ten-item Small Self Scale captures the two facets of self-diminishment and feelings of vastness compared to the self, and these two facets are aggregated to create an overall self-diminishment score ($\alpha = .82$). Scale items measuring the facet of self-diminishment only include "I feel small or insignificant", "I feel like my own day-to-day concerns are relatively trivial",

“In the grand scheme of things, my own issues and concerns do not matter as much”, “I feel small relative to something more powerful than myself” and “I feel insignificant in the grand scheme of things”. The facet of vastness was captured by the following items “I feel the presence of something greater than myself”, “I feel part of some greater entity”, “I feel like I am in the presence of something grand”, “I feel like I am part of a greater whole” and “I feel the existence of things more powerful than myself”. Participants rated these statements on a 7-point scale from 1 (*Not true at all*) to 7 (*Very true*), with higher scores indicating more self-diminishment vis-à-vis vastness experienced.

Commitment. Commitment was measured using the commitment subscale of the Perceived Relationship Quality Components Scale (Fletcher et al., 2000) ($\alpha = .95$). Participants rated their relationship in response to items such as “How committed are you to your relationship?”, “How dedicated are you to your relationship?” and “How devoted are you to your relationship?”, on a scale of 1 (*Not at all*) to 7 (*Extremely*). Higher scores indicate greater commitment to the relationship.

Forgiveness. Participants’ tendencies to forgive their partner was measured on the forgiveness subscale of the Dispositional Marital Forgiveness Scale (Fincham & Beach, 2002) which captures the extent to which individuals are likely to forgive their spouse ($\alpha = .75$). Items such as “I try to live by the motto “Let bygones be bygones” in my marriage”, “I am quick to forgive my partner”, and “When my partner wrongs me, I just accept their humanness, flaws and failures” were be rated on a 6-point scale from 1 (*Strongly disagree*) to 6 (*Strongly agree*). Higher scores reflect a greater tendency for the individual to forgive their partner.

Results

All statistical analyses were conducted using SPSS. Descriptive statistics and bivariate correlations of all variables of interest can be found in Table 1. For all analyses of variance (ANOVAs) models run on dependent variables wherein the assumption of homogeneity of variance was violated (i.e., Levene's test of homogeneity of variance was significant), results from the Brown-Forsythe test and the corresponding degrees of freedom correction are reported. This ensures that statistical power is retained in the event of violations of equal variances and normality (Brown & Forsythe, 1974).

Mood manipulation check

After participants recalled their experiences and elaborated on them, they then scored themselves on a few emotions. Since the homogeneity of variance assumption was violated for both the dependent variables of awe and happiness (respectively, Levene's test: $F = 74.30, p < .001$; Levene's test: $F = 40.26, p < .001$), results from the Brown-Forsythe test are reported. Participants who underwent the awe manipulation ($M = 4.41$) rated themselves as feeling significantly more awe than participants in the happiness ($M = 3.36$) and neutral ($M = 2.28$) conditions, Brown-Forsythe $t(523.29) = 142.23, p < .001$. Likewise, participants in the happiness ($M = 4.61$) manipulation condition rated themselves as feeling significantly more happy than participants in the awe ($M = 4.14$) and neutral conditions ($M = 3.68$), Brown-Forsythe $t(455.27) = 38.01, p < .001$. These results suggest that the manipulation was effective at inducing the intended moods.

Commitment

To examine the effects of the manipulations on relationship commitment, a one-way ANOVA was conducted. Again, the homogeneity of variance assumption was violated (Levene's test: $F = 7.99, p < .001$), hence results from the Brown-Forsythe test are reported. The three conditions differed in the level of relationship commitment, Brown-Forsythe $t(563.48) = 3.51, p < .05$. We created an "awe contrast" (awe = 1, neutral = -0.5, happiness = -0.5) to test whether participants who experienced awe ($M = 6.39, SD = 1.05$) reported greater levels of commitment than those in the neutral ($M = 6.18, SD = 1.32$) and happiness ($M = 6.46, SD = 0.95$) conditions. The awe contrast was not significant, $t(403.38) = 0.73, p = .47$, revealing that awe did not significantly increase commitment over happiness and a neutral mood. LSD post hoc test results revealed that compared to the neutral condition, individuals in the awe condition reported marginally higher levels of commitment ($p = .06$), whereas participants in the happiness condition reported significantly greater levels of commitment ($p < .05$). Participants in the awe and happiness conditions did not differ from each other in their level of relationship commitment. These results can be found in Figure 3. As such, hypothesis H1a was not supported since participants in the awe condition did not report higher levels of commitment compared to non-awed participants. Furthermore, post-hoc analysis comparing between awe and neutral condition participants only revealed marginally significant results.

Forgiveness

To examine whether there was a difference between the levels of dispositional forgiveness across the three conditions, a one-way ANOVA was conducted. The three conditions did not differ in the level of forgiveness

towards their partner, $F(2, 603) = 0.31, ns$. Thus, hypothesis H1b was not supported.

Self-diminishment

To examine the effects of the manipulations on self-diminishment experienced by the participants, a one-way ANOVA was conducted. The three conditions did not differ in the level of self-diminishment perceived, $F(2, 604) = 1.87, ns$. Hence, hypothesis H2 was not supported.

Mediations

To test hypotheses H3a and H3b that self-diminishment will mediate the association between awe and the relationship outcomes of commitment and forgiveness, mediation analyses using bootstrapping procedures was conducted using Model 4 from Hayes' (2017) PROCESS version 4.1 package in SPSS. Since the independent variable was categorical, an indicator contrast was used that resulted in the following dummy codes: X1 – awe = 1, neutral = 0, happiness = 0; X2 – awe = 0, neutral = 0, happiness = 1. Only results from X1 are reported, which compare between awe and the neutral mood condition. The results of the mediation analyses with commitment and forgiveness as the outcome variables can be found in Figures 4 and 5 respectively. All 95% Confidence Intervals (CI) for the indirect effects of awe on commitment and forgiveness were computed using 10,000 bootstrapped samples.

Commitment. The effect of awe (X) on self-diminishment (M) did not reach significance (pathway a; $b = 0.128, t(604) = 1.069, p = .286, 95\% \text{ CI} [-0.107, 0.363]$), and neither did the effect of self-diminishment on commitment (Y; pathway b; $b = -0.057, t(603) = -1.506, p = .133, 95\% \text{ CI} [-0.132, 0.017]$).

However, the direct effect of awe (X) on commitment (Y) was marginally significant (pathway c'; $b = 0.216$, $t(603) = 1.935$, $p = .053$, 95% CI [-0.003, 0.436]). The bootstrap analysis with 10,000 samples for the indirect path of awe (X) on commitment (Y) through self-diminishment (M) was not significant ($b = -0.007$, 95% CI = [-0.032, 0.010]). As such, hypothesis H3a was not supported.

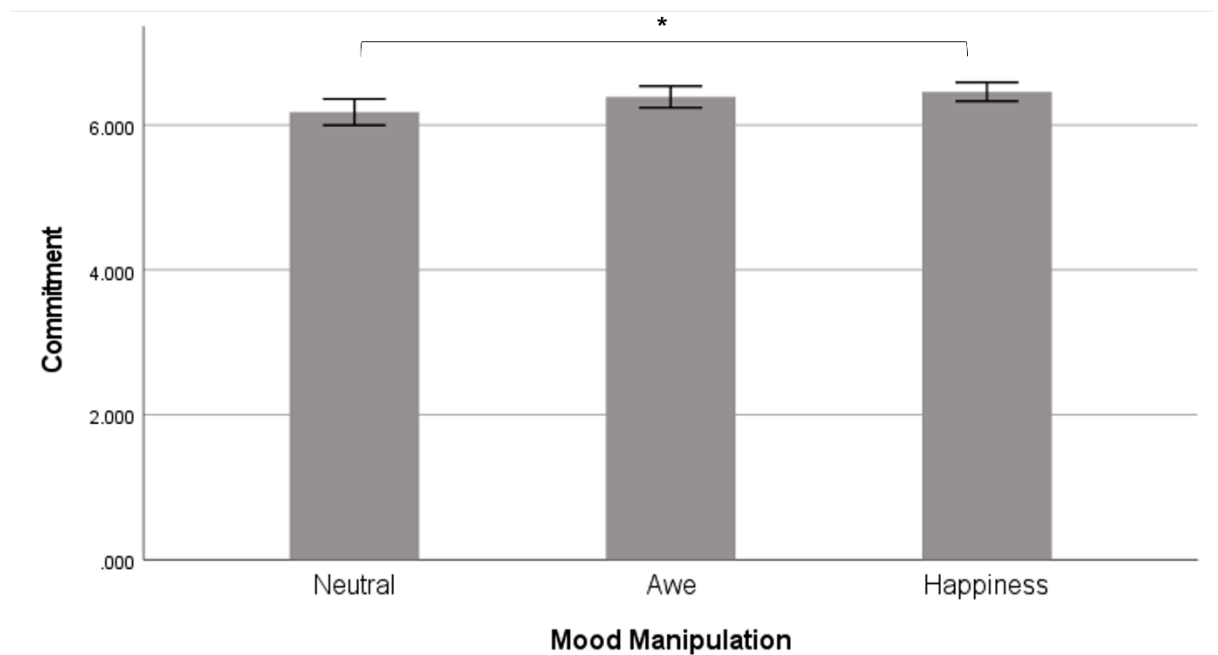
Forgiveness. Again, the effect of awe (X) on self-diminishment (M) did not reach significance (pathway a; $b = 0.128$, $t(603) = 1.069$, $p = .286$, 95% CI [-0.107, 0.363]). However, there was a significant effect of self-diminishment on forgiveness (Y; pathway b; $b = 0.143$, $t(602) = 4.337$, $p < .001$, 95% CI [0.078, 0.208]). The direct effect of awe (X) on forgiveness (Y) was not significant (pathway c'; $b = 0.059$, $t(602) = 0.604$, $p = .546$, 95% CI [-0.132, 0.249]). The bootstrap analysis with 10,000 samples for the indirect path of awe (X) on forgiveness (Y) through self-diminishment (M) was not significant as well ($b = 0.018$, 95% CI = [-0.015, 0.059]). As such, hypothesis H3b was not supported as well.

The results from the study do not support hypothesis H1a to H3b. Regarding the direct associations between mood manipulation and self and relationship outcomes, only the level of commitment seemed to differ based on condition. Even then, awed participants only scored marginally higher in commitment when compared to participants in the control condition, and there was no difference between awed and happy participants. Mood manipulation did not differ in its effects on forgiveness or self-diminishment. Furthermore, mediation analyses show that self-diminishment did not mediate the association

between awe and commitment, and awe and forgiveness, when comparing awe against the neutral mood condition.

Figure 3

Influence of mood manipulation conditions on commitment level



Note: * $p < .05$.

Figure 4

Mediation Model for the Mediating Effect of Self-diminishment on Awe and Commitment

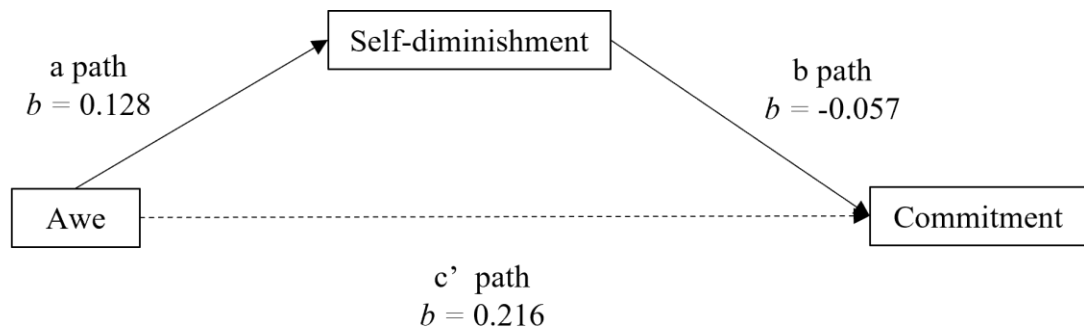
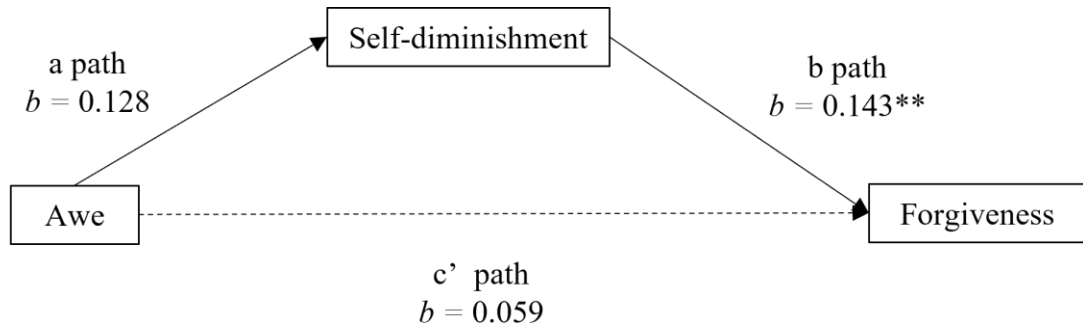


Figure 5

Mediation Model for the Mediating Effect of Self-diminishment on Awe and Forgiveness



General Discussion

The emotions brought on by the experiences that the individual faces can spillover to have an impact on the many other aspects of their lives. The current paper examined awe as one such emotion that may have a positive impact on the individual's closest interdependent relationship, their romantic relationship. Given the potential positive impact that this emotion may have, it is thus important to elucidate just how experiences that elicit awe may influence one's romantic relationship. We proposed that the emotion of awe will elicit the perception of self-diminishment, which is the feeling that one has a decreased self-size vis-à-vis the grandness of other stimuli. In turn, self-diminishment can have a positive influence on romantic relationship outcomes, motivating individuals to turn their attention away from themselves and towards the relationship or their partner instead, thereby resulting in increased commitment and forgiveness within the relationship.

The focus on awe within the field of psychology has burgeoned in the last few years and much research has focused on the outcomes of awe on interpersonal and intrapersonal outcomes. The current research extends other findings on the positive influence of awe on interpersonal outcomes, and we examined the self-diminishment hypothesis via an experimental method. In the current study, awe was experimentally manipulated alongside a happiness and a neutral condition. Despite past findings that awe elicits feelings of self-diminishment (e.g., Bai et al., 2017; Prade & Saroglou, 2016), the current study showed that awe, happiness, and a neutral mood did not result in differentially increased feelings of self-diminishment. As such, hypothesis H2 was not

supported, with awe not evoking the expected feelings of self-diminishment previously demonstrated in other studies.

Furthermore, whilst awe was significantly associated with increased levels of relationship commitment when compared against individuals who experienced a neutral mood, awed individuals and happy individuals were similar in their level of relationship commitment, which may be reflective of the effects of positive affect in general. This finding is unsurprising given other studies that have demonstrated how individuals high in trait positive affect tend to experience better relationship quality (Berry & Hansen, 1996) and are more likely to engage in constructive conflict responses rather than negative ones (Berry & Willingham, 1997). As such, hypothesis H1a was only partially supported when comparing between awe and neutral conditions. None of the three conditions differed in their effects on forgiveness in the relationship, therefore, hypothesis H1b was not supported. The mediation analyses revealed that self-diminishment did not mediate the associations between awe and commitment or awe and forgiveness. Hence, hypotheses H3a and H3b were not supported.

The experience of awe has been theorized to result in feelings of self-diminishment since one integral aspect of awe experiences involves the perception of vastness (Keltner & Haidt, 2003). Perceiving stimuli that are vast in size or scale and subsequently comparing one's self-size to that, is meant to bring out feelings that one is diminished in size (Piff et al., 2015), which evolutionarily speaking was adaptive in facilitating social order via deference towards powerful leaders and adherence to social hierarchy (Durkheim, 1972; Keltner & Haidt, 2003). This association between awe and self-diminishment

has been widely demonstrated across different studies (e.g., Bai et al., 2017; Piff et al., 2015; Shiota et al., 2007; Stellar et al., 2018). For this reason, it is surprising that despite the successful current manipulation of awe (participants in the awe condition felt significantly more awe than participants in the neutral and happy condition) and care taken to ensure that the study was adequately powered, this emotion did not result in more self-diminishment than feeling happy or neutral. The self-diminishment scale was scored from 1 to 7, with higher scores indicating more self-diminishment. However, participants across all three conditions scored around the mid-point of the scale (Awe = 3.95; Neutral = 3.82; Happy = 3.71). Upon further investigation, one-way ANOVAs conducted on the separate sub-scales of vastness and self-diminishment (not to be confused with the overall scale of being self-diminished vis-à-vis vast stimuli) revealed that while the emotion manipulations did not have an effect on perceptions of vastness, it did lead to differential perceptions of self-diminishment¹. Individuals in the awe condition experienced significantly more self-diminishment compared to individuals in the happy condition. However, individuals in the awe and neutral condition did not differ in their levels of self-diminishment. Hence, these results seem to be more reflective of some suppression of self-diminishment for individuals in the happy condition rather than an elevation of feeling diminished for individuals in the awe condition.

¹ The three conditions differed in their scores on the self-diminishment subscale, $F(2, 604) = 5.96, p = .003$. LSD post hoc test results revealed that compared to the happiness condition ($M = 3.26, SD = 1.51$), individuals in the awe condition ($M = 3.80, SD = 1.69$) and neutral condition ($M = 3.61, SD = 1.58$) reported significantly higher levels of self-diminishment. Participants in the awe and neutral condition did not differ in their levels of self-diminishment.

Given previous findings that awe leads to feelings of self-diminishment, the lack of self-diminishment in the current study is perplexing. It might be that a narrative recall manipulation does not produce a strong enough induction of awe to warrant the reflection of a smaller self-size vis-à-vis vast stimuli, whereas measuring self-diminishment on the full scale after a video manipulation or an actual awe experience may yield better results. Indeed, in a previous study utilizing the narrative recall manipulation method, the effect of a narrative recall manipulation was not tested on the full self-diminishment scale, but on a face valid item of how much participants felt that they were in “the presence of something greater than myself” which belonged to the vastness sub-scale in the overall self-diminishment scale used in the current study (Piff et al., 2015)². It might be that a stronger elicitor of awe is needed (such as field experiments or the use of videos that are highly realistic; Chirico et al., 2018) is needed for participants to report the self-diminishing effects of awe. This may be especially so since the current sample was made up of 97.5% of individuals who are American citizens, and these individuals are therefore more likely to be influenced by America’s independent culture, rendering them with a larger perceived self-size to begin with as compared to others from interdependent cultures (Kitayama et al., 2009; Talhelm et al., 2014). As such, a higher intensity of awe may be needed before self-diminishment is reported on scale items such as “I feel small or insignificant”, which was the item with the lowest score on

² Participants in the different mood conditions did not score differently on this scale item alone.

the scale ($M = 2.82$) and which arguably contradicts the viewpoint of an individual with an independent self-construal (Markus & Kitayama, 1991).

The current study with its manipulation of awe alongside happiness and a neutral control condition allowed us to examine the proposed outcome that was specific to awe, namely self-diminishment, to be teased apart from the effects of positive affect in general. Furthermore, by experimentally manipulating awe, the temporal order of awe and self-diminishment as influencing relationship outcomes could be established, thereby ruling out potential reverse causation. The happiness condition in the current study also acted as a way of controlling for the effects of any positive emotions in general such as gratitude.

Limitations and Future Directions

Firstly, the scale item used to measure forgiveness in the current study was the Dispositional Marital Forgiveness Scale (Fincham & Beach, 2002) which measures the individual's propensity to forgive a spouse's transgressions within a marital relationship. Since the current study was interested in the effects of awe experiences on forgiveness, a better measure would have been a state forgiveness measure which would have more accurately captured whether forgiveness in that moment changes as a result of mood manipulations. Theoretically, state versus trait distinctions can be made with regard to how stable or not a variable manifests itself in an individual, the duration of this manifestation, whether it is likely the cause of a situation or an individual trait, and how directly observable it is (Fridhandler, 1986). Furthermore, taking the variable of anxiety as an example, the difference of state and trait anxiety have

been associated with the activation of different brain regions (Saviola et al., 2020), making it conceivable that even state and dispositional forgiveness may imply physiological differences in brain activation.

Also, as previously mentioned, the current study utilized a narrative recall paradigm to experimentally induce awe versus happiness or a neutral mood. However, there might be differences in the strength of awe induced via a narrative recall method as opposed to other methods such as experiencing nature first-hand, or listening to novel pieces of music which are other approaches to inducing awe (e.g., Shiota et al., 2017; Graziosi & Yaden, 2021). Granted, the current method of allowing participants to select and write about the most salient awe-inducing experience to them had taken into account how individuals can be differentially awed by the same experience. For instance, Shiota and colleagues (2017) found that while some experiences elicit awe more commonly than others, the same stimulus does not always elicit awe for everyone. As such, each individual's recall of an awe-inducing experience they had encountered allowed for different experiences to be called upon for the awe-inducing paradigm. Still, because it was retrospective and not experienced in the moment, the effects of awe in inducing perceptions of self-diminishment vis-à-vis vastness may not have been recognized fully in that moment. This could have been accounted for with manipulations conducted via a field experiment or the viewing of immersive videos. Furthermore, the recall practice did not allow us to control for when these awe experiences were encountered. For instance, there may have been a difference in the effects for encounters a few months ago as opposed to a few years ago. As such, this speaks to how there is a need to examine time-lagged effects of awe experiences and whether the

potential positive outcomes of awe can only be realized in the short-term rather than in the long-term. Perhaps even the perceived temporal distance of these encounters could have been accounted for in this narrative recall practice.

Another factor that was not accounted for with the narrative recall practice was the valence of the induced awe-inducing experience. One of the five themes of awe-inducing experiences that Keltner and Haidt (2003) had propose was threat. For instance, threat-based awe can be induced through encounters with socially powerful others or acts of nature such as lightning. These threat-based awe experiences had different effects from positive awe experiences, leading to higher levels of fear (Valdesolo & Graham, 2014) and increased feelings of powerlessness (Gordon et al., 2017). However, Piff and colleagues (2015) found that despite inducing higher levels of fear, threat-based awe still led to similar levels of self-diminishment as non-threatening awe, compared to a neutral state. Nonetheless, it is conceivable that different participants may have recalled different types of awe-inducing experiences, including both threatening and non-threatening experiences. It is unknown what the outcomes of threat-based awe are when applied to a close relationship context. It could be that threat-based awe experiences may have induced greater feelings of powerlessness that could have negatively influenced relationship outcomes. However, more research is needed to verify the true effects of this ominous side of awe on close relationships. There may even be a difference on relationships outcomes if these awe-elicitors are a shared experience between the couple.

Given the common understanding of awe as comprising both a perception of vastness and a need for accommodation (Keltner & Haidt, 2003),

the current exploration of the self-diminishment hypothesis does not account for the latter component of awe. The component of a need for accommodation may present changes in one's point of view in a more cognitive manner as opposed to an emotional one. As such, future research could look into first understanding how awe may lead to positive outcomes via the need for accommodation aspect of it, and furthermore how it plays out in romantic relationships. Furthermore, it would be beneficial to see if pathways generated from the two aspects of awe have opposing or complementary outcomes.

Our line of theorizing about how awe may have a positive impact on relationship outcomes focuses heavily on the self-diminishing change that awe is expected to bring about. In the current investigation, no distinction was made between awe derived from one's partner versus awe experienced from other sources. However, whilst self-diminishment in general was pitted in a positive light here, it is conceivable that partner-derived awe and the expected accompanying self-diminishing effects may further exacerbate existing power asymmetries in a manner unfavorable to healthy relationship functioning. For instance, the individual in awe of their partner may feel that their sense of self has been diminished to the extent that they would tend to accede to their partner's requests in maladaptive manners. However, previous research has also highlighted that self-diminishment elicited by awe differs from that elicited by shame. While both emotions can trigger a change in self-concept towards smallness, self-diminishment brought on by shame tends to be accompanied by similar feelings of diminished social status and self-esteem, whereas self-diminishment elicited by awe did not involve such a shift in power (Bai et al., 2017). As such, the potential backfire effect of awe leading to maladaptive

power imbalances might not be realized given the finding that awe does not influence perceived power. However, given the implications that power shifts have on relationship maintenance, it would thus be worth examining in future studies if there truly are any backfire effects of awe.

Conclusion

The current study extended findings on the burgeoning body of research on awe and applied it to the context of romantic relationships. While we failed to find support for positive effects of awe on relationship outcomes via the self-diminishment hypothesis, the successful manipulation of awe alongside other moods suggest that should other research find the any positive effects of awe on relationships, it is highly likely that these benefits can be realized through active recall of previous awe experiences. More research is still needed on this emotion that adds flavor to life experiences and we remain hopeful of further promising results of the interpersonal benefits of awe.

References

- Agnew, C. R., Van Lange, P. A., Rusbult, C. E., & Langston, C. A. (1998). Cognitive interdependence: Commitment and the mental representation of close relationships. *Journal of personality and social psychology*, 74(4), 939.
- Aron, A., Aron, E. N., & Smollan, D. (1992). Inclusion of Other in the Self Scale and the structure of interpersonal closeness. *Journal of Personality and Social Psychology*, 63(4), 596–612. <https://doi.org/10.1037/0022-3514.63.4.596>
- Arriaga, X. B., & Agnew, C. R. (2001). Being Committed: Affective, Cognitive, and Conative Components of Relationship Commitment. *Personality & Social Psychology Bulletin*, 27(9), 1190–1203. <https://doi.org/10.1177/0146167201279011>
- 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>
- Berry, & Hansen, J. S. (1996). Positive Affect, Negative Affect, and Social Interaction. *Journal of Personality and Social Psychology*, 71(4), 796–809. <https://doi.org/10.1037/0022-3514.71.4.796>
- Berry, & Willingham, J. K. (1997). Affective Traits, Responses to Conflict, and Satisfaction in Romantic Relationships. *Journal of Research in Personality*, 31(4), 564–576. <https://doi.org/10.1006/jrpe.1997.2198>

- Bono, G., McCullough, M. E., & Root, L. M. (2008). Forgiveness, feeling connected to others, and well-being: Two longitudinal studies. *Personality and social psychology bulletin*, 34(2), 182-195. <https://doi.org/10.1177/0146167207310025>
- Bradbury, T. N., & Fincham, F. D. (1990). Attributions in marriage: review and critique. *Psychological bulletin*, 107(1), 3. <https://doi.org/10.1037/0033-2909.107.1.3>
- Braithwaite, S. R., Selby, E. A., & Fincham, F. D. (2011). Forgiveness and relationship satisfaction: Mediating mechanisms. *Journal of Family Psychology*, 25(4), 551. <https://doi.org/10.1037/a0024526>
- Brown, & Forsythe, A. B. (1974). 372: The Anova and Multiple Comparisons for Data with Heterogeneous Variances. *Biometrics*, 30(4), 719–724. <https://doi.org/10.2307/2529238>
- Campos, B., Shiota, M. N., Keltner, D., Gonzaga, G. C., & Goetz, J. L. (2013). What is shared, what is different? Core relational themes and expressive displays of eight positive emotions. *Cognition and Emotion*, 27(1), 37–52. <https://doi.org/10.1080/02699931.2012.683852>
- Chirico, Ferrise, F., Cordella, L., & Gaggioli, A. (2018). Designing Awe in Virtual Reality: An Experimental Study. *Frontiers in Psychology*, 8, 2351–2351. <https://doi.org/10.3389/fpsyg.2017.02351>
- Clark, C. (1990). Emotions and micropolitics in everyday life. *Research agendas in the sociology of emotions*, 305-33.

- de Waal, F. B. (1986). The integration of dominance and social bonding in primates. *The Quarterly review of biology*, 61(4), 459-479.
- Durkheim, E. (1972). *Emile Durkheim: selected writings*. Cambridge University Press.
- Emery, L. F., Gardner, W. L., Carswell, K. L., & Finkel, E. J. (2021). Who are “We”? Couple Identity Clarity and Romantic Relationship Commitment. *Personality & Social Psychology Bulletin*, 47(1), 146–160. <https://doi.org/10.1177/0146167220921717>
- Faul, F., Erdfelder, E., Buchner, A., & Lang, A. G. (2009). Statistical power analyses using G* Power 3.1: Tests for correlation and regression analyses. *Behavior research methods*, 41(4), 1149-1160. <https://doi.org/10.3758/BRM.41.4.1149>
- Fehr, R., Gelfand, M. J., & Nag, M. (2010). The road to forgiveness: a meta-analytic synthesis of its situational and dispositional correlates. *Psychological bulletin*, 136(5), 894. <https://doi.org/10.1037/a0019993>
- Fincham, F. D., & Beach, S. R. (2002). Forgiveness in marriage: Implications for psychological aggression and constructive communication. *Personal Relationships*, 9(3), 239-251. <https://doi.org/10.1111/1475-6811.00016>
- Fincham, F. D., Beach, S. R., & Davila, J. (2004). Forgiveness and conflict resolution in marriage. *Journal of family Psychology*, 18(1), 72. <https://doi.org/10.1037/0893-3200.18.1.72>

Finkel, E. J., & Campbell, W. K. (2001). Self-Control and Accommodation in Close Relationships: An Interdependence Analysis. *Journal of Personality and Social Psychology*, *81*(2), 263–277.

<https://doi.org/10.1037/0022-3514.81.2.263>

Finkel, E. J., Rusbult, C. E., Kumashiro, M., & Hannon, P. A. (2002). Dealing with betrayal in close relationships: Does commitment promote forgiveness?. *Journal of personality and social psychology*, *82*(6), 956.

<https://doi.org/10.1037/0022-3514.82.6.956>

Fletcher, G. J., Simpson, J. A., & Thomas, G. (2000). The measurement of perceived relationship quality components: A confirmatory factor analytic approach. *Personality and Social Psychology Bulletin*, *26*(3), 340-354. <https://doi.org/10.1177/0146167200265007>

Fridhandler. (1986). Conceptual Note on State, Trait, and the State-Trait Distinction. *Journal of Personality and Social Psychology*, *50*(1), 169–174. <https://doi.org/10.1037/0022-3514.50.1.169>

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>

Graziosi, & Yaden, D. (2021). Interpersonal awe: Exploring the social domain of awe elicitors. *The Journal of Positive Psychology*, *16*(2), 263–271. <https://doi.org/10.1080/17439760.2019.1689422>

- Griskevicius, V., Shiota, M. N., & Neufeld, S. L. (2010). Influence of different positive emotions on persuasion processing: a functional evolutionary approach. *Emotion, 10*(2), 190. <https://doi.org/10.1037/a0018421>
- Hayes, A. F. (2017). Introduction to mediation, moderation, and conditional process analysis: A regression-based approach. Guilford publications.
- Holmes, J. G. (2002). Interpersonal Expectations as the Building Blocks of Social Cognition: An Interdependence Theory Perspective. *Personal Relationships, 9*(1), 1–26. <https://doi.org/10.1111/1475-6811.00001>
- Holmes, J. G. (2004). The Benefits of Abstract Functional Analysis in Theory Construction: The Case of Interdependence Theory. *Personality and Social Psychology Review, 8*(2), 146–155.
https://doi.org/10.1207/s15327957pspr0802_8
- Horberg, E. J., Oveis, C., & Keltner, D. (2011). Emotions as Moral Amplifiers: An Appraisal Tendency Approach to the Influences of Distinct Emotions upon Moral Judgment. *Emotion Review, 3*(3), 237–244. <https://doi.org/10.1177/1754073911402384>
- Huston, T. L. (2009). What's love got to do with it? Why some marriages succeed and others fail. *Personal Relationships, 16*(3), 301–327.
<https://doi.org/10.1111/j.1475-6811.2009.01225.x>
- James, W. (1902). *The varieties of religious experience*. Harvard University Press. (Original work published 1985)

- Joye, Y., & Bolderdijk, J. W. (2015). An exploratory study into the effects of extraordinary nature on emotions, mood, and prosociality. *Frontiers in Psychology*, 5, 1–9. <https://doi.org/10.3389/fpsyg.2014.01577>
- Karremans, J. C., Van Lange, P. A., Ouwerkerk, J. W., & Kluwer, E. S. (2003). When forgiving enhances psychological well-being: the role of interpersonal commitment. *Journal of personality and social psychology*, 84(5), 1011. <https://doi.org/10.1037/0022-3514.84.5.1011>
- Kelley, H. H., & Thibaut, J. W. (1978). *Interpersonal relations: A theory of interdependence*. New York: Wiley.
- Keltner, D., & Haidt, J. (2003). Approaching awe, a moral, spiritual, and aesthetic emotion. *Cognition and Emotion*, 17(2), 297–314. <https://doi.org/10.1080/026999303022297>
- Keltner, D., Kogan, A., Piff, P. K., & Saturn, S. R. (2014). The sociocultural appraisals, values, and emotions (SAVE) framework of prosociality: Core processes from gene to meme. *Annual review of psychology*, 65, 425-460. <https://doi.org/10.1146/annurev-psych-010213-115054>
- Kitayama, Park, H., Sevincer, A. T., Karasawa, M., & Uskul, A. K. (2009). A Cultural Task Analysis of Implicit Independence: Comparing North America, Western Europe, and East Asia. *Journal of Personality and Social Psychology*, 97(2), 236–255. <https://doi.org/10.1037/a0015999>
- Kwon, H. J. (Writer) & Yoo, J. W. (Director). (2020, March 14) Where flowers bloom and fall [Television series episode]. In G. H. Kim (Executive Producer), *Hi Bye, Mama!*. MI Inc.

- Leary, M. R., Adams, C. E., & Tate, E. B. (2006). Hypo-Egoic Self-Regulation: Exercising Self-Control by Diminishing the Influence of the Self. *Journal of Personality*, 74(6), 1803–1832.
<https://doi.org/10.1111/j.1467-6494.2006.00429.x>
- Lewandowski, G. W., Nardone, N., & Raines, A. J. (2010). The role of self-concept clarity in relationship quality. *Self and Identity*, 9(4), 416-433.
<https://doi.org/10.1080/15298860903332191>
- Maio, G. R., Thomas, G., Fincham, F. D., & Carnelley, K. B. (2008). Unraveling the role of forgiveness in family relationships. *Journal of personality and social psychology*, 94(2), 307. <https://doi.org/10.1037/0022-3514.94.2.307>
- Markus, & Kitayama, S. (1991). Culture and the Self: Implications for Cognition, Emotion, and Motivation. *Psychological Review*, 98(2), 224–253. <https://doi.org/10.1037/0033-295X.98.2.224>
- McCullough, M. E. (2001). Forgiveness: Who does it and how do they do it?. *Current directions in psychological science*, 10(6), 194-197.
- McCullough, M. E., Bellah, C. G., Kilpatrick, S. D., & Johnson, J. L. (2001). Vengefulness: Relationships with forgiveness, rumination, well-being, and the Big Five. *Personality and social psychology bulletin*, 27(5), 601-610. <https://doi.org/10.1177/0146167201275008>
- McNulty, J. K. (2008). Forgiveness in marriage: putting the benefits into context. *Journal of Family Psychology*, 22(1), 171.
<https://doi.org/10.1037/0893-3200.22.1.171>

- Miller, R. S. (1997). Inattentive and Contented: Relationship Commitment and Attention to Alternatives. *Journal of Personality and Social Psychology*, 73(4), 758–766. <https://doi.org/10.1037/0022-3514.73.4.758>
- Nowak, M. A. (2006). Five Rules for the Evolution of Cooperation. *Science (American Association for the Advancement of Science)*, 314(5805), 1560–1563. <https://doi.org/10.1126/science.1133755>
- Piaget, J., & Inhelder, B. (1969). *The psychology of the child* (H. Weaver, Trans.) Basic Books. (Original work published 1966)
- Piff, P. K., Dietze, P., Feinberg, M., Stancato, D. M., & Keltner, D. (2015). Awe, the Small Self, and Prosocial Behavior. *Journal of Personality and Social Psychology*, 108(6), 883–899. <https://doi.org/10.1037/pspi0000018>
- Prade, C., & Saroglou, V. (2016). Awe's effects on generosity and helping. *The Journal of Positive Psychology*, 11(5), 522–530. <https://doi.org/10.1080/17439760.2015.1127992>
- Rusbult, C. E., & Van Lange, P. A. (2003). Interdependence, interaction, and relationships. *Annual review of psychology*, 54(1), 351-375. <https://doi.org/10.1146/annurev.psych.54.101601.145059>
- Rusbult, C. E., & Van Lange, P. A. M. (1996). Interdependence processes. In E. T. Higgins, & A. W. Kruglanski (Eds.), *Social psychology: Handbook of basic principles* (pp. 564-596). Guilford Press.

- Rusbult, C. E., Agnew, C. R., & Arriaga, X. B. (2012). The investment model of commitment processes. In P. A. M. Van Lange, A. W. Kruglanski, & E. T. Higgins (Eds.), *Handbook of Theories of Social Psychology* (pp. 218-231). Sage.
- Rusbult, C. E., Martz, J. M., & Agnew, C. R. (1998). The investment model scale: Measuring commitment level, satisfaction level, quality of alternatives, and investment size. *Personal relationships*, 5(4), 357-387. <https://doi.org/10.1111/j.1475-6811.1998.tb00177.x>
- Rusbult, C. E., Verette, J., Whitney, G. A., Slovik, L. F., & Lipkus, I. (1991). Accommodation Processes in Close Relationships: Theory and Preliminary Empirical Evidence. *Journal of Personality and Social Psychology*, 60(1), 53–78. <https://doi.org/10.1037/0022-3514.60.1.53>
- Saviola, Pappaianni, E., Monti, A., Grecucci, A., Jovicich, J., & De Pisapia, N. (2020). Trait and state anxiety are mapped differently in the human brain. *Scientific Reports*, 10(1), 11112–11112. <https://doi.org/10.1038/s41598-020-68008-z>
- Shiota, Campos, B., Oveis, C., Hertenstein, M. J., Simon-Thomas, E., & Keltner, D. (2017). Beyond Happiness: Building a Science of Discrete Positive Emotions. *The American Psychologist*, 72(7), 617–643. <https://doi.org/10.1037/a0040456>
- Shiota, M. N., Keltner, D., & Mossman, A. (2007). The nature of awe: Elicitors, appraisals, and effects on self-concept. *Cognition and Emotion*, 21(5), 944–963. <https://doi.org/10.1080/02699930600923668>

- Slotter, E. B., Finkel, E. J., DeWall, C. N., Pond, R. S., Lambert, N. M., Bodenhausen, G. V., & Fincham, F. D. (2012). Putting the Brakes on Aggression Toward a Romantic Partner: The Inhibitory Influence of Relationship Commitment. *Journal of Personality and Social Psychology, 102*(2), 291–305. <https://doi.org/10.1037/a0024915>
- Stellar, J. E., Gordon, A. M., Piff, P. K., Cordaro, D., Anderson, C. L., Bai, Y., Maruskin, L. A., & Keltner, D. (2017). Self-Transcendent Emotions and Their Social Functions: Compassion, Gratitude, and Awe Bind Us to Others Through Prosociality. *Emotion Review, 9*(3), 200–207. <https://doi.org/10.1177/1754073916684557>
- Stellar, J. E., Gordon, A., Anderson, C. L., Piff, P. K., McNeil, G. D., & Keltner, D. (2018). Awe and Humility. *Journal of Personality and Social Psychology, 114*(2), 258–269. <https://doi.org/10.1037/pspi0000109>
- Talhelm, Zhang, X., Oishi, S., Shimin, C., Duan, D., Lan, X., & Kitayama, S. (2014). Large-Scale Psychological Differences Within China Explained by Rice Versus Wheat Agriculture. *Science (American Association for the Advancement of Science), 344*(6184), 603–608. <https://doi.org/10.1126/science.1246850>
- The Bhagavad Gita* (R. C. Zaehner, Trans.) (1969). Oxford University Press.
- Thibaut, J. W., & Kelley, H. H. (1959). *The social psychology of groups*. Routledge.

- Valdesolo, & Graham, J. (2014). Awe, Uncertainty, and Agency Detection. *Psychological Science*, 25(1), 170–178.
<https://doi.org/10.1177/0956797613501884>
- Van Lange, P. A., Rusbult, C. E., Drigotas, S. M., Arriaga, X. B., Witcher, B. S., & Cox, C. L. (1997). Willingness to sacrifice in close relationships. *Journal of personality and social psychology*, 72(6), 1373.
- Weber, M. (1978). *Economy and society: an outline of interpretive sociology*. University of California Press.
- Wieselquist, J., Rusbult, C. E., Foster, C. A., & Agnew, C. R. (1999). Commitment, Pro-Relationship Behavior, and Trust in Close Relationships. *Journal of Personality and Social Psychology*, 77(5), 942–966. <https://doi.org/10.1037/0022-3514.77.5.942>
- Willer, R. (2009). Groups Reward Individual Sacrifice: The Status Solution to the Collective Action Problem. *American Sociological Review*, 74(1), 23–43. <https://doi.org/10.1177/000312240907400102>
- Yaden, D. B., Haidt, J., Hood, R. W., Vago, D. R., & Newberg, A. B. (2017). The Varieties of Self-Transcendent Experience. *Review of General Psychology*, 21(2), 143–160. <https://doi.org/10.1037/gpr0000102>
- Yang, Y., Yang, Z., Bao, T., Liu, Y., & Passmore, H.-A. (2016). Elicited Awe Decreases Aggression. *Journal of Pacific Rim Psychology*, 10, e11–. <https://doi.org/10.1017/prp.2016.8>

Yovetich, N. A., & Rusbult, C. E. (1994). Accommodative Behavior in Close Relationships: Exploring Transformation of Motivation. *Journal of Experimental Social Psychology*, 30(2), 138–164.

<https://doi.org/10.1006/jesp.1994.1007>

Ysseldyk, R., & Wohl, M. J. (2012). I forgive therefore I'm committed: A longitudinal examination of commitment after a romantic relationship transgression. *Canadian Journal of Behavioural Science/Revue canadienne des sciences du comportement*, 44(4), 257.

<https://doi.org/10.1037/a0025463>

Tables

Table 1

Descriptive Statistics and Correlations of Measures

Variable	1	2	3	4	5	Mean (SD)
1. Awe	-					3.33 (1.53)
2. Happiness	.38**	-				4.14 (1.15)
3. Self-diminishment	.06	.01	-			3.82 (1.20)
4. Commitment	.03	.05	-.06	-		6.34 (1.12)
5. Forgiveness	.06	.05	.17**	.30**	-	4.20 (0.98)

Note: * $p < .05$, ** $p < .001$.