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BRIEF REPORT

Experiencing versus contemplating: Language use during descriptions of awe and wonder

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Awe and wonder are theorised to be distinct from other positive emotions, such as happiness. Yet little empirical or theoretical work has focused on these emotions. This investigation explored differences in language used to describe experiences of awe and wonder. Such analyses can provide insight into how people conceptualise these emotional experiences, and whether they conceptualise these emotions to be distinct from other positive emotions, and each other. Participants wrote narratives about experiences of awe, wonder and happiness. There were differences in the language used to describe these positive emotional states, consistent with the theorised functions of each emotion. Awe was related to observing the world, reflected in greater use of perception words. Wonder was related to trying to understand the world, reflected in greater use of cognitive complexity and tentative words. Language use for both emotions reflected an environmental focus, whereas language use for happiness reflected a social/relationship focus.

Keywords: Positive emotions; Awe; Wonder; Happiness; Language.

Positive emotions have traditionally been considered less differentiated than negative emotions. However, recent research suggests that positive emotions, such as joy and pride, are conceptualised in unique ways (Campos, Shiota, Keltner, Gonzaga, & Goetz, 2013; Fredrickson, 1998). This investigation focused on two discrete positive emotions, awe and wonder, which are thought to result from situations involving self-expansion, to challenge existing views and ways of thinking and to increase informational resources and sense of being part of something larger (Campos et al.,

2013; Haidt & Keltner, *in press*; Keltner & Haidt, 2003; Shiota, Keltner, & Mossman, 2007). Research suggests that these emotions are distinct from other positive emotions in their focus on information (rather than social or material resources) and things outside of the self (Shiota et al., 2007). However, relatively little empirical or theoretical work has attempted to examine the unique aspects of each of these emotions. Thus, the purpose of this investigation was to explore how people conceptualise experiences of awe and wonder.

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LANGUAGE ANALYSIS

The language people use to describe past emotional experiences can reflect how they conceptualise different emotions, with implications for how they make sense of them (Pennebaker & Seagal, 1999; Tausczik & Pennebaker, 2010). Indeed, descriptions of past emotional experiences provide information on two levels: the semantic meaning of an event (what types of situations elicit emotions; Pennebaker, Mehl, & Niederhoffer, 2003), and the words used to describe an experience, which reflects attention to social, cognitive or perceptual influences. A focus on the words used to describe an experience addresses not *what* emotional event people are describing (e.g., feeling part of something greater), but rather *how* they are describing it (e.g., using words indicating certainty). This reveals aspects of psychological experiences that cannot be gleaned from analysis of semantic meaning alone (Kahn, Tobin, Massey, & Anderson, 2007). For example, the semantic meaning of the two phrases “Would it be possible for you to pass me the salt?” and “Pass the salt.” is the same. Yet the words used to express the request reveal the personality of the speaker (e.g., agreeableness) and their relationship with the listener (Pennebaker et al., 2003, p. 548). Thus, the language people use to describe awe and wonder can be used to identify the core features of experience that people consider when conveying these emotions.

To explore language use in descriptions of awe and wonder, we used a linguistic programme that compares narratives to a standardised dictionary of around 4500 words (Pennebaker, Chung, Ireland, Gonzalez, & Booth, 2007). In this investigation, eight categories were selected, which subsumed 27 specific subdictionaries (for a complete list of subdictionaries, see Pennebaker et al., 2007). Selection was based on the relevance of underlying processes associated with each category to theory and research on discrete emotions (Lench, Flores, & Bench, 2011; Roseman, Antoniou, & Jose, 1996). The categories were: (1) *Emotion*: labels emotional states, (2) *Attention focus*: reveals the salience of the self or social relationships, including

how people are attending to and processing a situation in relation to themselves or others (Tausczik & Pennebaker, 2010), (3) *Time focus*: reflects focus on past, present or the future, which can reveal information about how an event is processed, as well as psychological distance and resolution of events (Pasupathi, 2007; Tausczik & Pennebaker, 2010), (4) *Cognitive complexity*: reveals depth of processing and desire to understand cause and effect (Pennebaker & King, 1999), (5) *Certainty*: reflects degree of certainty about a situation and the extent to which an event has been processed (Tausczik & Pennebaker, 2010), (6) *Goal focus*: reveals a focus on goal obstructions and motivations, (7) *Inclusion*: reveals differentiation vs. integration of ideas (Pennebaker & King, 1999) and (8) *Perception*: reveals a focus on physical aspects of experience, and reflects attention to environmental stimuli (Tausczik & Pennebaker, 2010). Each category represents aspects of emotional experiences theorised to differentiate emotions, and, taken together, can provide insight into the underlying processes people associate with awe and wonder.

THE LANGUAGE OF POSITIVE EMOTIONS

The present investigation explored the language people use during narratives of salient autobiographical events that elicited awe and wonder, as well as happiness—a positive emotion commonly included in lists of discrete emotions. According to Keltner and Haidt (2003), awe involves feelings of vastness and need for accommodation of novel stimuli. Awe promotes openness to incredibly positive experiences (e.g., panoramic views), as well as incredibly negative, fearful, experiences (e.g., exploding volcanoes; McDougall, 1921; Shiota et al., 2007). Such experiences are generally associated with passive receptivity and a sense of smallness (Campos et al., 2013; Keltner & Haidt, 2003; Shiota et al., 2007). Although research is limited, early theories proposed that wonder is associated with curiosity, and involves an impulse

to approach and contemplate (McDougall, 1921). This would suggest that the experience of wonder is more cognitive in nature than the experience of awe and reflects a need to understand something in the environment. According to a functional perspective, happiness arises from the success of attaining a goal and signals that all is well with the world and it is safe to explore (Fredrickson, 1998; Isen, 2000), resulting in increased focus on the social world (Fredrickson, 1998; Shiota et al., 2007; Tan & Forgas, 2010). In contrast to the emotions of awe and wonder, which are theorised to promote exploration of the environment, happiness is thought to promote social interaction (to build relationships rather than to actively pursue a particular non-social goal).

We developed predictions regarding language use for five of the eight categories based on these theoretical perspectives and research on awe, wonder and happiness. We also included the three categories that have been shown to be relevant to emotions other than those under investigation, but did not have specific hypotheses for these categories (Lench, Bench, Darbor, & Moore, 2015; Lench, Darbor, & Berg, 2013; Lench et al., 2011).

Awe vs. happiness

Based on the theorised functions of awe, we made the following predictions about awe in relation to happiness: (1) *Emotion*: The negative nature of some awe-eliciting experiences should be reflected in fewer positive emotion words (e.g., love), and more negative emotion words (e.g., hurt), including anxiety words (e.g., worried) than happiness. (2) *Attention focus*: Because awe is elicited by information-rich, environmental stimuli, it should be less focused on social interactions than positive emotions such as happiness. Accordingly, descriptions of awe should include fewer first person pronouns (e.g., I), family (e.g., daughter) and friend (e.g., buddy) words, and more impersonal pronouns (e.g., it) compared to happiness. (3) *Perception*: Focus on the environment should mean people are using their senses to gather information, resulting in the use of more perception words

(e.g., observing) compared to happiness (Shiota et al., 2007).

Wonder vs. happiness

In line with the theorised functions of wonder, we made the following predictions about wonder compared to happiness: (1) *Attention focus*: Because wonder, like awe, is associated with environmental stimuli, it should also be less focused on social interactions and more focused on the environment. This should be reflected in the use of fewer first person pronouns (e.g., I), fewer family (e.g., daughter) and friend (e.g., buddy) words and more impersonal pronouns (e.g., it) compared to happiness. (2) *Cognitive complexity and perception*: The more cognitive nature and need for understanding associated with wonder, should increase focus on understanding the causes of an event, resulting in the use of more insight words (e.g., think), more causation words (e.g., because) and more perception words (e.g., observing) compared to happiness. (3) *Certainty*: The need for understanding associated with wonder should also involve less certainty as people attempt to determine the cause of challenges to their existing views, resulting in the use of more tentative words (e.g., perhaps) compared to happiness.

Awe vs. wonder

From the theorised functions of awe and wonder, we made the following predictions: (1) *Emotion*: The positive and negative nature of awe-eliciting experiences should be reflected in more positive emotion words, and more negative emotion words (e.g., hurt), including anxiety words (e.g., worried) than wonder. (2) *Attention focus*: Because awe and wonder are both elicited by information-rich, environmental stimuli, there should be no differences in first person pronouns (e.g., I), family (e.g., daughter) and friend (e.g., buddy) words or impersonal pronouns (e.g., it). (3) *Cognitive complexity*: The more cognitive nature and need for understanding associated with wonder should increase focus on understanding the causes of an

event, such that awe will result in the use of fewer insight words (e.g., think) and causation words (e.g., because) compared to wonder. (4) *Certainty*: The need for understanding associated with wonder should also involve less certainty as people attempt to determine the cause of challenges to their existing views, such that awe will result in the use of fewer tentative words (e.g., perhaps) compared to wonder. (5) *Perception*: Focus on the environment when experiencing awe should mean people are using their senses to gather information, resulting in the use of more perception words (e.g., observing) compared to wonder (Shiota et al., 2007).

The present investigation

The purpose of the present investigation was to explore the language used in descriptions of three positive emotional experiences (awe, wonder, happiness). This can reveal (1) how awe and wonder differ from happiness and (2) how awe and wonder differ from each other. We predicted that awe and wonder would both involve a need for accommodation and focus on the environment rather than social interactions. However, we also predicted that awe would be focused specifically on observing the environment, whereas wonder would be focused on understanding the environment.

METHOD

Undergraduates at a large Southern public university ($n = 122$; $M = 19.67$, $SD = 1.53$; 59% female,

78% white, 5% black, 6% Asian, 1% American Indian, 1% more than one race, 9% Other; 89% native English speakers; 43 were removed from the original sample of 165 for narratives that were too brief for analysis; see Cohen, Minor, Najolia, & Hong, 2009) were instructed to describe in detail a salient time when they experienced awe, wonder or happiness. A sample size of approximately 40 participants per cell was determined before data collection based on the recommendations in the psychological literature (e.g., Van Voorhis & Morgan, 2007) and the authors' experience conducting similar studies. Data collection was terminated as soon as possible after this goal was met. These narratives were part of a larger investigation, with all other measures completed after the narratives that are the focus of this investigation (see Hicks & Davis, 2015). As a check of whether participants understood the instructions and believed they were providing the correct information, participants rated the extent to which they felt various emotions during their past experience of awe, wonder or happiness on scales ranging from 1 (*not at all*) to 7 (*extremely*). Preliminary analyses revealed that experiences involving the emotions were successfully targeted (Table 1).

The narratives were analysed using the Linguistic Inquiry and Word Count (LIWC) programme (Pennebaker et al., 2007). LIWC calculates the percentages of unique words in a narrative that fall into different subdictionaries of language, and is a valid measure of word usage and emotional expression (Kahn et al., 2007), making it particularly appropriate for the

Table 1. *Self-reported positive emotions across awe, wonder, and happiness narratives*

Emotion ratings	Autobiographical experience			F	p	η^2
	Awe	Wonder	Happiness			
	M (SD)	M (SD)	M (SD)			
Awe	6.33 ^a (1.03)	4.92 ^b (2.23)	5.55 ^b (1.36)	7.86	.001	.118
Wonder	5.74 ^a (1.65)	5.92 ^a (1.35)	4.72 ^b (2.10)	5.55	.005	.086
Happiness	5.29 ^b (1.95)	3.92 ^c (2.40)	6.52 ^a (0.78)	19.76	.000	.251

Note: Different superscripts (a, b, c) indicate means differ at $p < .05$. MANOVA with Tukey's correction used for all contrasts.

Table 2. Mean proportion of narrative words from each category used in expanding emotion narratives

Language categories	<i>Awe</i>	<i>Wonder</i>	<i>Happiness</i>	<i>F</i>	<i>p</i>	η^2
	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>			
<i>Emotion</i>						
Positive (e.g., love)	3.99 ^a (2.03)	2.50 ^b (1.36)	6.52 ^c (2.92)	3.34	.000	.366
Negative (e.g., hurt)	1.39 (1.44)	1.08 (1.18)	0.86 (0.75)	2.16	.120	.035
Anxiety (e.g., worried)	0.53 ^a (0.64)	0.24 ^b (0.34)	0.30 ^{a,b} (0.52)	3.69	.028	.058
Anger (e.g., hate)	0.25 ^a (0.50)	0.35 ^{at} (0.69)	0.10 ^{at} (0.24)	2.34	.101	.038
Sadness (e.g., grief)	0.39 (0.83)	0.22 (0.35)	0.17 (0.31)	1.76	.177	.029
<i>Attentional focus</i>						
FPS (e.g., I)	6.94 ^a (3.25)	8.02 ^a (3.58)	10.91 ^b (3.04)	15.79	.000	.210
FPP (e.g., we)	1.75 ^a (2.13)	0.86 ^b (1.43)	0.89 ^b (1.13)	4.03	.020	.063
SP (e.g., you)	0.22 (0.68)	0.34 (0.94)	0.16 (0.49)	0.64	.528	.011
TPS (e.g., he/she)	0.88 (1.79)	1.27 (2.45)	1.30 (1.84)	0.55	.579	.009
TPP (e.g., they)	0.59 (1.15)	0.36 (0.57)	0.37 (0.52)	1.10	.338	.018
IP (e.g., it)	5.09 ^a (2.21)	6.50 ^{bt} (2.58)	5.42 ^{a,bt} (2.06)	4.21	.017	.066
<i>Social</i>						
Family (e.g., daughter)	0.33 ^a (0.59)	0.52 ^a (0.97)	1.29 ^b (1.59)	8.38	.000	.123
Friend (e.g., buddy)	0.17 ^a (0.29)	0.17 ^a (0.35)	0.45 ^b (0.61)	5.51	.005	.085
Human (e.g., baby)	0.60 (0.73)	0.46 (0.65)	0.31 (0.45)	2.14	.122	.035
<i>Time focus</i>						
Past tense (e.g., went)	8.48 ^a (2.66)	6.65 ^b (3.79)	9.28 ^a (3.45)	6.59	.002	.100
Present tense (e.g., is)	3.46 ^a (2.60)	6.78 ^b (4.10)	4.64 ^a (3.82)	9.15	.000	.133
Future tense (e.g., will)	0.31 ^a (0.39)	0.62 ^b (0.80)	0.45 ^{a,b} (0.54)	2.92	.058	.047
<i>Complexity</i>						
Six letters	14.77 ^{a,b} (3.89)	16.03 ^a (3.42)	13.83 ^b (3.31)	3.86	.024	.061
Insight (e.g., think)	2.20 ^a (1.30)	4.88 ^b (2.92)	2.57 ^a (1.59)	20.35	.000	.255
Causation (e.g., because)	1.50 ^a (1.34)	2.28 ^b (1.68)	1.41 ^a (1.03)	4.93	.009	.076
<i>Goals</i>						
Inhibition (e.g., block)	0.38 (0.58)	0.29 (0.42)	0.38 (0.52)	0.46	.634	.008
Discrepancy (e.g., should)	0.82 ^a (0.76)	1.64 ^b (1.21)	1.17 ^{a,b} (1.05)	6.59	.002	.100
<i>Certainty</i>						
Certainty (e.g., always)	2.13 (1.30)	1.90 (1.31)	2.00 (1.27)	0.34	.716	.006
Tentative (e.g., perhaps)	1.55 ^a (1.07)	4.04 ^b (2.54)	1.60 ^a (1.08)	27.95	.000	.320
<i>Inclusion</i>						
Inclusion (e.g., with)	6.60 (2.72)	5.70 (2.05)	6.16 (2.77)	1.29	.279	.021
Exclusion (e.g., but)	1.88 ^a (1.33)	2.86 ^b (1.85)	1.82 ^a (1.31)	6.03	.003	.092
<i>Perception</i>						
Perception (e.g., heard, saw)	4.55 ^a (2.34)	2.65 ^b (1.92)	2.81 ^b (1.49)	12.00	.000	.168

Note: Different superscripts (a, b, c) indicate means differ at $p < .05$. The superscript t indicates a marginally significant difference between the marked means. MANOVA with Tukey's correction used for all contrasts. The following abbreviations were used for the attentional focus category- FPS (first person singular pronouns), FPP (first person plural pronouns), SP (second person pronouns), TPS (third person singular pronouns), TPP (third person plural pronouns), and IP (impersonal pronouns).

present study. To be clear, the information gleaned from this programme is the proportion of language that falls within various categories, not the summed number of times words were used.

RESULTS

To control for multiple comparisons, a singular multivariate analysis of variance (MANOVA) was conducted, which included each emotion as a between-subject factor and language categories as within-subject measures, with Tukey's post hoc tests. Given the large number of contrasts, full results are reported in [Table 2](#).

Awe vs. happiness

Emotion: awe used fewer positive emotion (e.g., love) words than happy; awe did not differ from happy in use of negative emotion words (e.g., hurt) or anxiety words (e.g., worried). *Attention focus:* awe used significantly fewer first person singular pronouns (e.g., I), family words (e.g., daughter), and friend words (e.g., buddy) than happy, and significantly more first person plural pronouns (e.g., we). *Perception:* awe used significantly more perception words (e.g., observing) than happy.

Wonder vs. happiness

Emotion: wonder used fewer positive emotion words than happy. *Attention focus:* wonder used significantly fewer first person singular pronouns, family words and friend words than happy, and marginally more impersonal pronouns than happy. *Cognitive complexity and perception:* wonder used significantly more insight (e.g., think), and causation words (e.g., because) than happy, and significantly more six letter words; wonder did not differ from happy in the use of perception words. *Certainty:* used significantly more tentative words (e.g., perhaps) than happy. *Exploratory:* used significantly fewer past tense verbs, and significantly more present tense verbs than happy; used significantly more exclusion words (e.g., but) than happy.

Awe vs. wonder

Emotion: awe used more positive emotion words (e.g., love) and anxiety words (e.g., worried) than wonder; did not differ from wonder in use of negative emotion words (e.g., hurt). *Attention focus:* awe used more first person plural pronouns (e.g., we), and significantly fewer impersonal pronouns (e.g., it) than wonder. *Cognitive Complexity:* awe used significantly fewer insight (e.g., think), and causation (e.g., because) words than wonder. *Certainty:* awe used significantly fewer tentative words (e.g., perhaps) than wonder. *Perception:* awe used significantly more perception words (e.g., observing) than wonder. *Exploratory:* awe used significantly more past tense verbs, and significantly fewer present and future tense verbs than wonder; awe used significantly fewer discrepancy words (e.g., should) and exclusion words (e.g., but) than wonder.

DISCUSSION

To explore the language people use to describe different positive emotions, we analysed narratives written by participants about past emotional experiences (Pennebaker et al., 2007). The results suggest that people describe experiences of awe, wonder and happiness in unique ways that reflect the theorised functional purposes of these emotions.

How do awe and wonder differ from happiness?

Although little is currently known about awe and wonder, it has been hypothesised that they are different from other positive emotions because they focus attention on information (rather than social or material resources), and serve the purpose of challenging existing views and ways of thinking about the world (Haidt & Keltner, *in press*; Keltner & Haidt, 2003; Shiota et al., 2007). Consistent with this description, participants focused less on social interactions (e.g., fewer personal pronouns) and more on accommodation of novel stimuli in descriptions of both awe and wonder, whereas they focused more on social interactions in descriptions of happiness. This suggests that awe and wonder

are unique in that they encourage people to disengage from their normal focus on the self and the social world, and instead take in the world around them (Shiota et al., 2007).

How do awe and wonder compare?

Although awe and wonder are similar in many ways, the present investigation suggests that they serve unique functions. When describing awe, people focused mainly on perception and observing novelty in their environment. Accordingly, they used more language related to perception than wonder. This conception of awe as a perceptual emotion may enable people to change their existing views of the world, and better adapt to new experiences. In contrast, when describing wonder, people focused on understanding the novelty in their environment. Accordingly, they used more language related to complexity, causation and certainty than awe. Although not predicted, they also used more language related to exclusion (indicating differentiation of concepts), which further suggests people are attempting to understand the causes of novel stimuli. This conception of wonder as an emotion concerned with causation may enable people to better understand reasons behind new experiences and thus optimise their interactions with the world. Together, these findings suggest that, beyond any differences that people explicitly identify among emotions, there are differences related to emotional experience in the underlying motivations and cognitive processes, revealed through the overall pattern of language used to describe those experiences.

Relation to recent findings

In the time since the above predictions were made, several papers have been published that relate to the present findings. First, Rudd, Vohs, and Aaker (2012) found that awe increases perception of time by bringing people into the present. Although our investigation found that wonder (rather than awe) increased focus on the present (more future tense verbs and fewer past tense verbs), it is consistent with the idea that self-expanding emotions can alter

time perception. Second, Valdesolo and Graham (2014) found that awe decreases tolerance for uncertainty, and consequently increases supernatural beliefs and judgements of intentional design. The present investigation found that wonder was associated with uncertainty (use of more tentative words), consistent with the idea that people experiencing awe might attempt to reduce or downplay any uncertainty. It is important to note as well that differences between the present investigation and these recent findings may reflect the lack of distinction between awe and wonder in the literature.

Limitations

Although the present investigation provides valuable insight into the language people use when describing positive emotions, there are several limitations. The present investigation demonstrates the way people conceptualise awe and wonder, but not the “true” nature of these emotions. To the extent that people conceive of these emotions as discrete experiences, different patterns of language should be used to describe each experience. In contrast, to the extent that people conceive of emotions as varying along dimensions (e.g., valence), they should use similar language when describing emotional experiences that fall at similar points along the proposed continua (e.g., no differences between positive emotions). Thus reliance on naive understandings of awe and wonder provides valuable insight into how people make sense of these emotions, and the underlying processes and motivations associated with them. Indeed, the current findings reveal that people conceive of awe and wonder as separate, discrete experiences that reflect the proposed functional value of these emotions.

This investigation relied on retrospective accounts of positive emotions. Differences in language use were taken to represent differences in how people conceptualised awe and wonder, rather than differences in the effects of the emotions themselves (Robinson & Clore, 2002). However, writing autobiographical accounts of past emotional experiences is frequently and effectively used as an emotion elicitation technique (Lench et al., 2011).

Therefore, it is possible that recalling awe and wonder also elicited these emotional states in the present, making it difficult to tease apart whether the language used reflects reconstructions of past emotional experiences or the impact of current emotional experiences on language. Although important for future research, this distinction does not affect interpretation of the current investigation because the purpose was to examine how people conceptualise awe and wonder, and the narratives were able to capture this, regardless of whether they reflected past or current experience.

CONCLUSION

The present findings demonstrate that people use different language to describe experiences of awe, wonder and happiness. The differences in language reflected differences in the theorised functions of these positive emotions, suggesting that people conceptualise awe and wonder in distinct ways, which differ from other positive emotions, such as happiness.

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