An Upward Spiral Between Gratitude and Humility

Elliott Kruse[1], Joseph Chancellor[2], Peter M. Ruberton[2], and Sonja Lyubomirsky[2]

AQ1

Abstract

AQ2

In two experiments and one diary study, we examined the relationship between self- and other-oriented processes by considering how gratitude can influence humility and vice versa. Humility is characterized by low self-focus, secure sense of self, and increased valuation of others. Gratitude is marked by a sense that one has benefited from the actions of another. In the first experiment, participants who wrote a gratitude letter showed higher state humility than those who performed a neutral activity. In the second experiment, baseline state humility predicted the amount of gratitude felt after writing a gratitude letter compared to a neutral activity. Finally, in a 14-day diary study, humility and gratitude mutually predicted one another, even after controlling for the other's prior level. Our results suggest that humility and gratitude are mutually reinforcing.

Keywords

humility, gratitude, self-focus, upward spiral

That the self is embedded in a network of social relationships is one of the oldest social psychological observations (Mead, 1934). Over the past century, researchers have theorized how perceptions of others can influence self-perceptions (Cooley, 1902; Hogg & Terry, 2000; Turner, 1985), and how self-perception can drive person perception (Cronbach, 1955; Robbins & Krueger, 2000). In the present research, we seek to extend the literature on the relationship between self- and other-oriented processes by considering how gratitude can influence humility and vice versa.

Our studies examine the relationship between gratitude and humility experimentally to better understand, first, whether gratitude (an externally focused emotion; McCullough, Kilpatrick, Emmons, & Larson, 2001) increases humility (a manifestation of low self-focus; Chancellor & Lyubomirsky, 2013), and second, whether humble states foster gratitude. Accordingly, we attempt to clarify what prior findings have suggested, but not yet demonstrated: That preexisting humility facilitates (i.e., moderates) the capacity to feel grateful.

Finally, we test how both processes (i.e., gratitude increasing humility and humility facilitating gratitude) might lead to a mutually reinforcing relationship. Investigating whether gratitude and humility influence one another may advance researchers' understanding of how combinations of positive states, traits, or skills can lead to upward spirals (e.g., see the spiral described by Fredrickson and Joiner, 2002), thereby producing benefits that exceed the sum of their parts. Furthermore, a state perspective allows the observation of the complex interplay of causal processes at work between two phenomena that

may be grouped together (e.g., as facets of a larger factor) and rarely teased apart.

Humility

Humility is a hypoegoic state (Leary & Guadagno, 2011) theorized to depend on a decreased self-focus (Chancellor & Lyubomirsky, 2013) and increased other focus (Davis, Worthington, & Hook, 2010). Theorists posit that humility is indicated by an accurate self-concept, balanced awareness of strengths and weaknesses, lack of arrogance, and sense of others' worth (Chancellor & Lyubomirsky, 2013; Davis et al., 2010; Tangney, 2000, 2005). For example, humble people recognize the strengths and value of others (Davis et al., 2011). It has been described as a character strength (Peterson & Seligman, 2004), as people value it (Dahlsgaard, Peterson, & Seligman, 2005; Exline & Geyer, 2004) and researchers have related it to multiple prosocial outcomes (Chancellor & Lyubomirsky, 2013). Trait humility predicts ethical business practices (Ashton & Lee, 2008), helping (LaBouff, Rowatt, Johnson, Tsang, & Willerton, 2012), generosity (Exline & Hill, 2012), and cooperativeness (Hilbig, Zettler, & Heydasch,

[1] Princeton University, Princeton, NJ, USA
[2] University of California, Riverside, CA, USA

Corresponding Author:
Elliott Kruse, Princeton University, Princeton, NJ 08542, USA.
Email: etkruse@gmail.com

2012). Furthermore, humble employees are less antisocial than arrogant employees (Marcus, Lee, & Ashton, 2007) and humble leaders model positive workplace behaviors (Owens & Hekman, 2012) and empower followers (Ou, 2012). Yet, despite its broad regard and potential utility, researchers have produced relatively little empirical insight into its causes, structure, and function.

In particular, humility is distinct from several similar constructs, such as modesty, self-esteem, and narcissism. Although humility and modesty are theoretically related (Sedikides, Gregg, & Hart, 2007; Tangney, 2000), they are not synonymous because humble people at times may be immodest (e.g., speaking honestly about personal strengths) and modest people may not always be humble (e.g., self-effacing for tactical purposes; Cai et al., 2011). Furthermore, the construct of humility is closer to an affirmed and secure identity than a self-disparaging one (Kruse, Chancellor, & Lyubomirsky, 2014a; Tangney, 2000, 2005). Similarly, humility is not merely the lack of narcissism, as some individuals—for example, those with low self-esteem—may be low in narcissism but not high in humility. We propose that the opposite of humility is not a positive or negative self-view, but rather high self-focus (Kruse et al., 2014a).

Although prior work on humility views it as a trait (e.g., Ashton & Lee, 2008), our studies conceptualize humility as a state (Chancellor & Lyubomirsky, 2013; Kruse, Chancellor, & Lyubomirsky, 2014b). By considering how humility can be enhanced (or diminished), researchers may gain insight into how frequent experiences of the state may develop into a trait, and thus what practices may help build it.

Gratitude

Gratitude is a discrete emotion that occurs when individuals recognize they have benefited from another's actions (Emmons & McCullough, 2003; McCullough et al., 2001) and, as such, involves an awareness of others' strengths and value (Algoe & Haidt, 2009). Gratitude may also include a general appreciation for life (Wood, Froh, & Geraghty, 2010). In both cases, gratitude redirects focus from the self to something other than the self; regardless of the ultimate object, this redirection of focus may shift humility. Notably, gratitude is distinct from indebtedness: Although both occur during reciprocal exchanges, indebtedness involves the recipient's sense that the giver expects a return (Watkins, Scheer, Ovnicek, & Kolts, 2006). Indebtedness may relate to shame (Naito, Wangwan, & Tani, 2005), a self-focused emotion (Tangney & Dearing, 2002; Tracy & Robins, 2006), and therefore may have a complicated and sometime negative relationship with humility.

Gratitude predicts multiple positive emotional and social outcomes (Wood et al., 2010). For example, in experiments, expressing state gratitude increases emotional well-being and life satisfaction (e.g., Emmons & McCullough, 2003; Lyubomirsky, Dickerhoof, Boehm, & Sheldon, 2011), and in correlational studies, trait gratitude predicts life satisfaction and well-being

above other personality factors (McCullough, Emmons, & Tsang, 2002). Furthermore, gratitude is associated with better relationship satisfaction (Algoe, Gable, & Maisel, 2010), as well as with less negative affect following major life changes (Wood, Maltby, Gillett, Linley, & Joseph, 2008). Gratitude also increases prosocial behavior (Bartlett & deSteno, 2006).

Hypotheses

We propose that the expression of gratitude will lead individuals to experience more state humility (Hypothesis 1) because gratitude increases other valuation (Algoe & Haidt, 2009) and naturally decreases self-focus (Chancellor & Lyubomirsky, 2013; Tangney, 2000). We propose further that, because humility involves a capacity to acknowledge the good and strengths of other people (Davis et al., 2010, 2011), it will moderate an induction of gratitude (Hypothesis 2) because only those in a humble state will be apt to recognize others' worth and contributions. Finally, we propose that, if gratitude can increase humility, and humility facilitates gratitude, the two will mutually predict each other across time (Hypothesis 3). Taken together, we propose that humility and gratitude coexist in an upward spiral. Figure 1 displays the underlying conceptual model for each hypothesis, as well as our overall model.

Present Studies

Our hypotheses were tested across three studies: two experiments and one 14-day diary study. In Study 1, we tested Hypothesis 1 by first experimentally eliciting gratitude and then measuring our participants' humility by coding their written responses to an open-ended prompt. In Study 2, we tested Hypothesis 2 by first measuring state humility and then experimentally eliciting and measuring gratitude. In Study 3, we tested Hypothesis 3 by measuring both state humility and gratitude every day across a 14-day period. Taking a multipronged approach, these three studies aimed to triangulate gratitude and humility by examining them from different angles, shedding light on their complex and mutually reinforcing relationship (see Figure 1).

Study 1

Method

Participants

Fifty U.S. adults ($M_{age} = 33.87$ [$SD = 10.96$]) were recruited online through Amazon's mechanical Turk (mTurk; Buhrmester, Kwang, & Gosling, 2011). Table 1 presents participants' demographics (gender, ethnicity, and education).

Materials

Participants completed the state form of the Gratitude Questionnaire-6 (GQ-6; McCullough et al., 2002) as a manipulation check. The GQ-6 ($\alpha = .84$) consists of 6 items (e.g.,
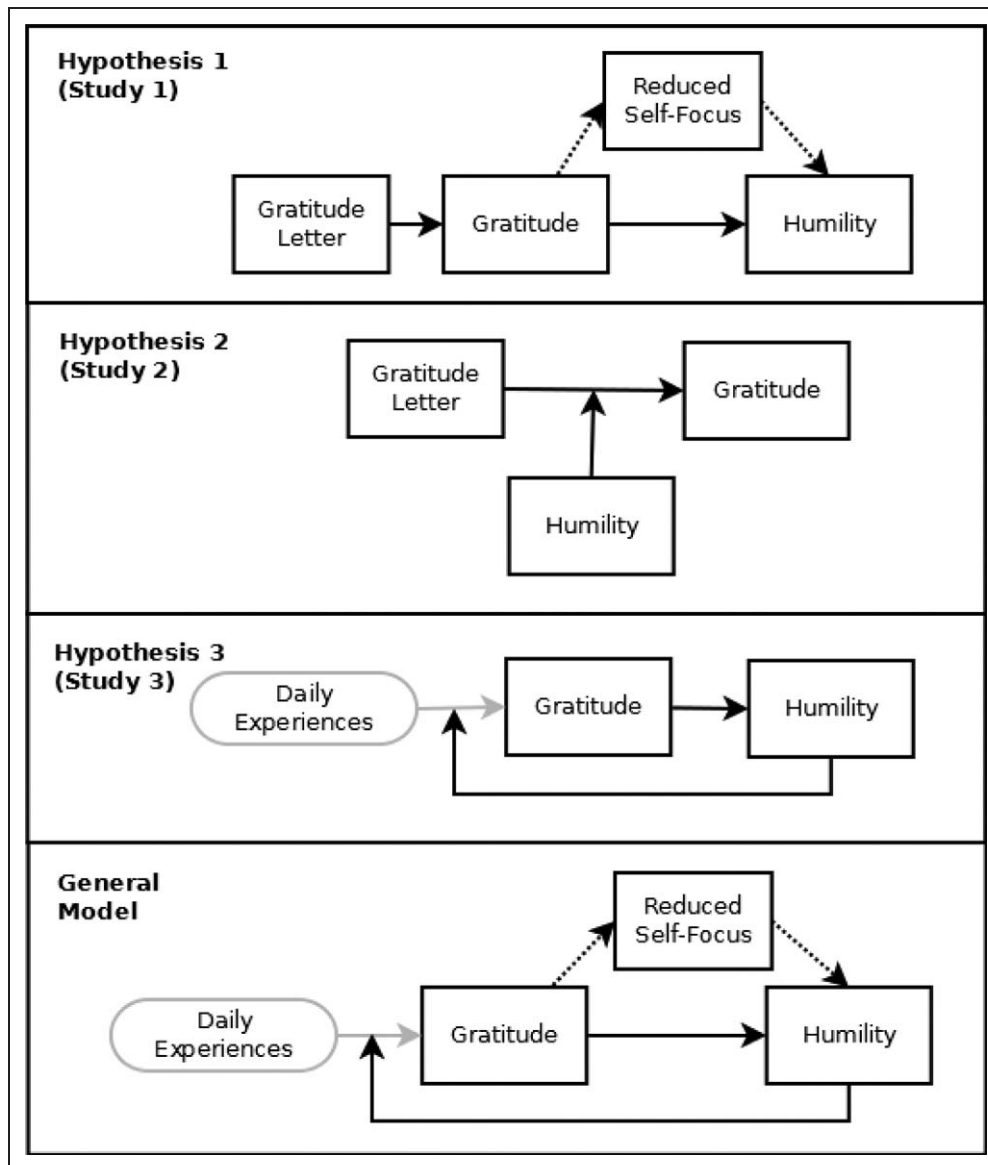
Figure 1. Theoretical models testing the relationship between gratitude and humility.

"I feel that I am grateful to a wide variety of people") rated from 1 (*strongly disagree*) to 7 (*strongly agree*). Participants also completed the Affect-Adjective Scale (Diener & Emmons, 1985), which includes 4 positive affect items ($\alpha = .92$; happy, pleased, joyful, enjoyment/fun) and 5 negative ones ($\alpha = .88$; worried/anxious, angry/hostile, frustrated, depressed/blue, unhappy) rated from 0 (*not at all*) to 6 (*extremely*).

Procedure

Participants in the gratitude condition ($n = 25$) wrote a letter of gratitude to someone who has been kind to them (Lyubomirsky et al., 2011). Participants in the control condition ($n = 25$) wrote about what they did during the 2 hr prior to the study.

Next, participants responded to an open-ended prompt that asked them to "Imagine that someone is angry with you. Why

are they angry with you? What led up to them being angry with you? How do you feel about the situation?" We designed the prompt as a "stress test" for humility (Chancellor & Lyubomirsky, 2013; Davis et al., 2010) that specifically asked about participants' feelings and attributions about the conflict. Finally, participants completed the GQ-6 and Affect-Adjective Scale. Figure 2 illustrates the order of materials in all studies.

Coding

We completed two kinds of codings for this study: First, to explore mediation, we coded participants' responses to the experimental prompts (i.e., the gratitude and neutral essays) for self-focus and other focus, and, second, to create the study's outcome variable, we coded responses to the anger prompts (stress test) for state humility. For both sets of codings, judges

Table 1. Study Demographics.

	Study 1	Study 2	Study 3
Total *n*	50	229	48
Female *n*	34	137	35
Ethnicity			
American Indian/Native Alaskan	0	3	—
Asian/Asian American	4	16	—
Black/African American	2	18	—
Caucasian	39	176	—
Hispanic/Latino	2	11	—
Pacific Islander/Native Hawaiian	0	0	—
More than one	2	5	—
Other	1	0	—
Education			
Some high school	0	2	—
High school diploma	7	39	—
Some college	19	78	48
BA	19	75	—
Some graduate	2	23	—
PhD	0	4	—
Professional degree	3	7	—
No information	0	1	—

Note. Ethnicity not collected for the undergraduate sample in Study 3. However, undergraduates at this university are 17% Caucasian, 39.9% Asian, 28.9% Hispanic/Latino, 7.9% Black/African American, .4% Native American, and 6% Other.

were recruited online through mTurk and presented with responses collected from participants in random order; they were unaware of our hypotheses and participants' condition.

Self-focus and other focus (mediator). Five adults (3 females, 2 males; $M_{age} = 29.8$, $SD = 2.95$) rated the experimental prompts for self-focus ("This person talked about him or herself"), $\alpha = 78$, intraclass correlation, ICC (2, 1) = .41; and other focus ("This person talked about other people"), $\alpha = 94$, ICC (2, 1) = .76. All ratings were made from 1 (*strongly disagree*) to 5 (*strongly agree*).

State humility (outcome). The second group of coders comprised three adults (1 female, 2 male; $M_{age} = 24.3$, $SD = 3.51$) from the United States recruited online to code the participants' open-ended responses to the anger prompt. Using the same scale, coders rated overall humility ("This person is humble") and arrogance ("This person is arrogant"). Arrogance scores were reverse-coded and aggregated with humility, $\alpha = .76$; ICC(2, 1) = .35, to form a composite score.

Results

Hypothesis testing

We used linear regression to test the effect of condition (dummy-coded) on gratitude. As expected, participants who wrote a letter of gratitude reported feeling more grateful ($M = 6.16$, $SD = .68$) than those who wrote about their last

2 hr ($M = 5.59$, $SD = .91$), $\beta = .34$, $SE = .14$, $t(48) = 2.53$, $p = .015$, Cohen's $d = .71$.

More important, our first hypothesis was supported: Using condition to predict humility, coders rated participants who wrote a letter of gratitude as more humble than those in the neutral control group, $\beta = .36$, $SE = .13$, $t(48) = 2.67$, $p = .010$, Cohen's $d = .77$ (see Figure 3).

Alternative explanations

We also considered an alternative interpretation of these results—that the gratitude manipulation influenced the participants' emotional state, which caused the observed differences. Challenging this interpretation, however, the gratitude and control groups did not differ on positive affect, $\beta = .11$, $SE = .14$, $t(48) = .74$, $p = .464$, and differed only marginally on negative affect, $\beta = -.24$, $SE = .14$, $t(48) = -1.74$, $p = .088$, with the item "frustrated" the only discrete emotion to demonstrate a difference, $\beta = -.25$, $SE = .14$, $t(48) = -1.79$, $p = .081$. Notably, given that our prompt focused specifically on anger responses, the discrete emotion "angry/hostile" did not differ by group, $\beta = -.20$, $SE = .14$, $t(48) = -1.38$, $p = .175$, and coded humility did not correlate with anger/hostility, $r(48) = -.03$. Neither positive emotions nor negative emotions predicted humility (all $ps > .50$), and no individual emotion predicted differences in humility (all $ps > .21$). Thus, those who wrote a gratitude letter reported marginally fewer negative emotions, (specifically, less frustration) than those writing about their previous 2 hr, but emotions did not explain differences in humility between our experimental and control groups.

Mediation

We tested whether decreased self-focus mediated gratitude's effect on state humility. Not surprisingly, participants in the gratitude letter condition wrote in a way that was less self-focused, $\beta = -.83$, $SE = .08$, $t(48) = -10.34$, $p < .001$, Cohen's $d = 2.93$, and more other-focused, $\beta = .88$, $SE = .07$, $t(48) = 12.79$, $p < .001$, Cohen's $d = 3.62$, than participants in the control condition. We used self-focus, other focus, and condition to predict subsequent state humility. Only self-focus, $\beta = -.77$, $SE = .31$, $t = -2.46$, $p = .018$, significantly predicted state humility, whereas other focus, $\beta = -.42$, $SE = .37$, $t = -1.14$, $p = .26$, and condition, $\beta = .09$, $SE = .27$, $t = .32$, $p = .74$, did not. Controlling for negative affect did not change the mediation of self-focus between the activity and humility—that is, self-focus continued to significantly predict humility after controlling for condition, other focus, and negative affect. Thus, we found reduced self-focus to be the key mediator of the effect of gratitude on state humility.

The bootstrap estimated indirect effect of condition on state humility through reduced self-focus (before bias correction) was .740 ($p = .018$), with a standard error of .344 (Preacher & Hayes, 2008). The 95% bias-corrected bootstrap confidence
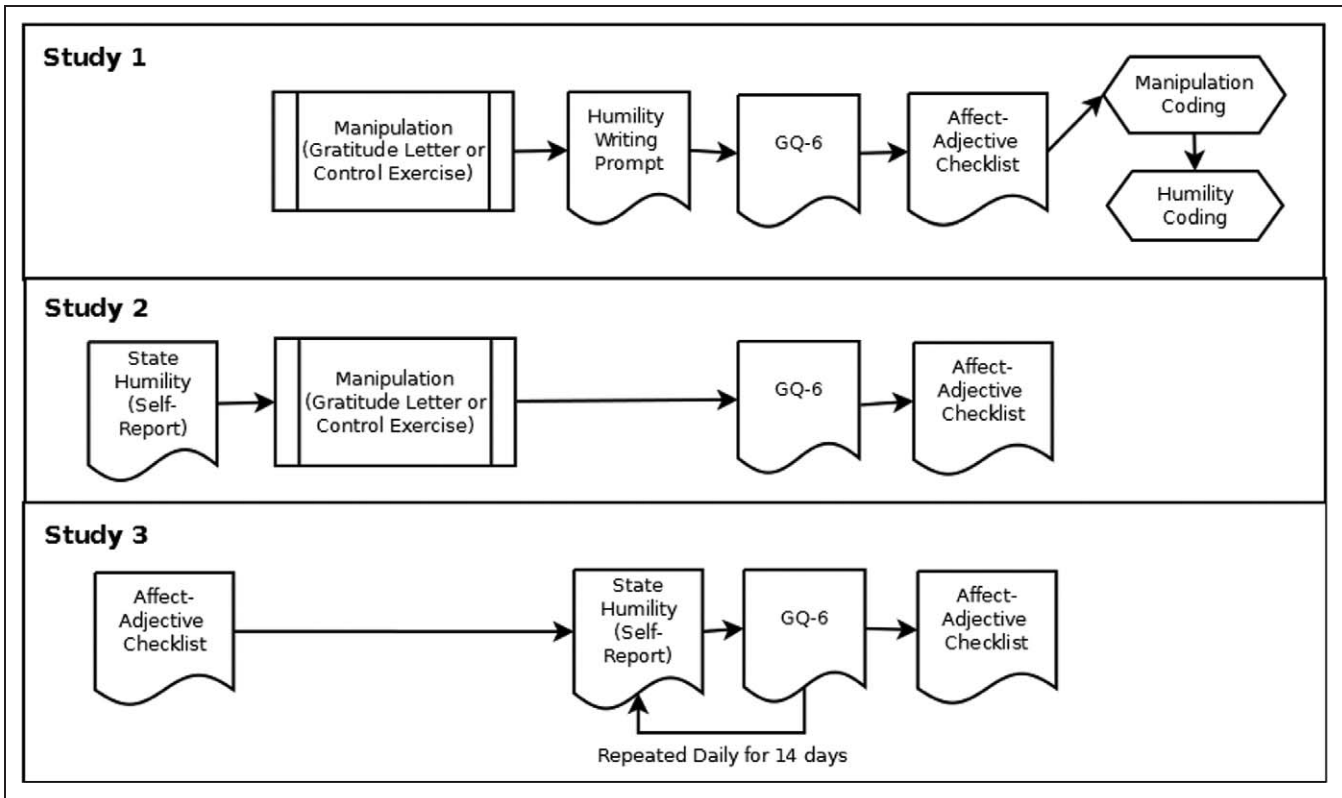
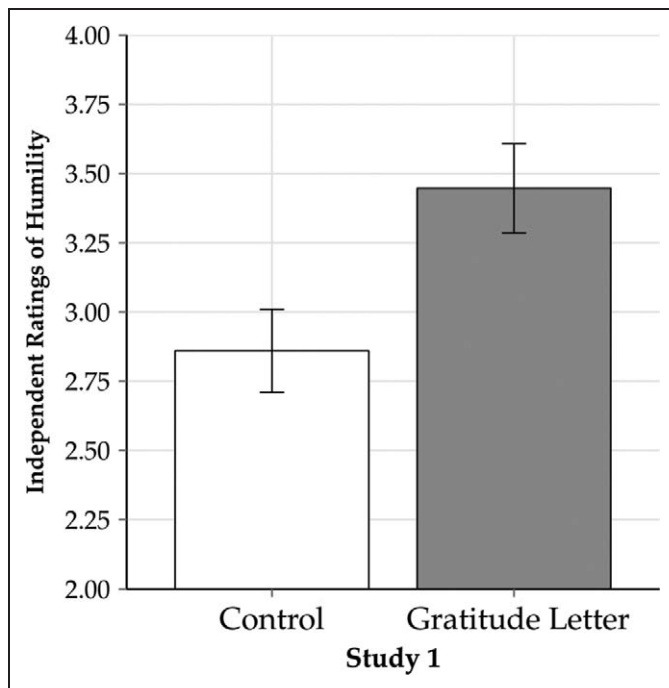**Figure 2.** Order of presentation of materials.

Figure 3. Group differences in humility as rated by independent judges (Study 1).

interval (5,000 trials) was .128 to 1.506; because the confidence interval did not include zero, we concluded that the indirect effect was different from zero.

Discussion

Overall, our findings suggest that expressing gratitude promotes humility and that reduced self-focus mediates this process, as assessed by objective coders. In other words, our results support a model (see top of Figure 1) in which writing a gratitude letter elicits the experience of gratitude, which in turn decreases self-focus and subsequently increases humility. The significant difference in humility found between the experimental and control groups support a state form of humility by showing it can shift across a short time frame. Although this study employed an other-rated measure of humility, we recently found a nearly identical effect of induced gratitude on self-reported state humility (Kruse et al., 2014b).

To extend these findings and test Hypothesis 2, our second study investigated whether a gratitude intervention would be more effective at increasing state gratitude for people already feeling humble. However, because the independent ratings of humility used in Study 1 demonstrated only fair reliability, we were concerned they might depress the effect size and be insufficient for exploring moderation. Accordingly, in Study 2, we used a new explicit scale of state humility that has demonstrated convergent validity with theoretically relevant constructs, such as narcissism, entitlement, and empathy (Kruse et al., 2014b). Although prior researchers have noted problems in self-report measures of humility (Davis et al., 2010), these problems are predicated on the scale explicitly asking about the participant's humility (i.e., self-ratings; Kruse

et al., 2014b). Instead, items on the State Humility Scale represent self- and other-perceptions of those in a humble state, and never explicitly refer to "humility/being humble"; thus, the scale does not substantively correlate with social desirability (observed rs between −.03 and .12; Kruse et al., 2014b).

Study 2

Method

Participants

U.S. adults ($N = 229$, $M_{age} = 34.28$ [$SD = 12.58$]) were recruited through mTurk to participate in this study (see Table 1 for demographics).

Measures

Participants completed the 6-item State Humility Scale (SHS; Kruse et al., 2014b; $\alpha = .58$).[1] The items are both positively coded (e.g., "I feel that, overall, I am no better or worse than the average person") and reverse-coded (e.g., "I feel that I do not have very many weaknesses"; 1 = *strongly disagree*; 7 = *strongly agree*). Participants also completed the GQ-6 ($\alpha = .83$), as in Study 1. As the outcome in Study 2 was gratitude, and not humility, the open-ended anger prompt was not employed.

Procedure

This study was administered similarly to Study 1. Participants first completed the SHS and then responded to the same gratitude ($n = 110$) or neutral ($n = 119$) condition prompts as in Study 1. Participants then completed the GQ-6.

Results and Discussion

Hypothesis testing

First, condition was effect coded (control activity = −1; gratitude letter = 1) and then all variables standardized. Effect coding kept analyses and interpretation parallel between Studies 1 and 2. In stepwise regression, we entered humility and condition as covariates in Step 1 and the interaction term in Step 2 to predict subsequent gratitude. At Step 1, humility predicted gratitude, $\beta = .14$, $p = .038$; that is, in general, participants with higher baseline state humility experienced more gratitude regardless of their activity assignment. At Step 2, however, after adding the interaction, baseline humility continued to significantly predict gratitude, $\beta = .13$, $p = .047$, but it also significantly interacted with condition, $\beta = .13$, $p = .041$ (see Table 2 and Figure 4). In order to interpret this interaction, we conducted a simple slopes analysis; that is, we compared between groups those high (+1 SD) and low (−1 SD) in humility. High-humility participants in the gratitude letter condition demonstrated more gratitude than high-humility participants in the neutral group, $\beta = .20$, $SE = .09$, $p = .031$, whereas low-

Table 2. Gratitude as a Function of Baseline Humility and Condition (Study 2).

Predictor	ΔR^2	β
Step 1	.024[†]	
Humility		.14*
Condition		.07
Step 2	.018*	
Humility		.13*
Condition		.07
Humility × Condition		.13*
Total R^2	.042	
n	229	

Note. Humility was standardized and condition effect coded. Final model: $F(3,225) = 3.28$, $p = .022$.
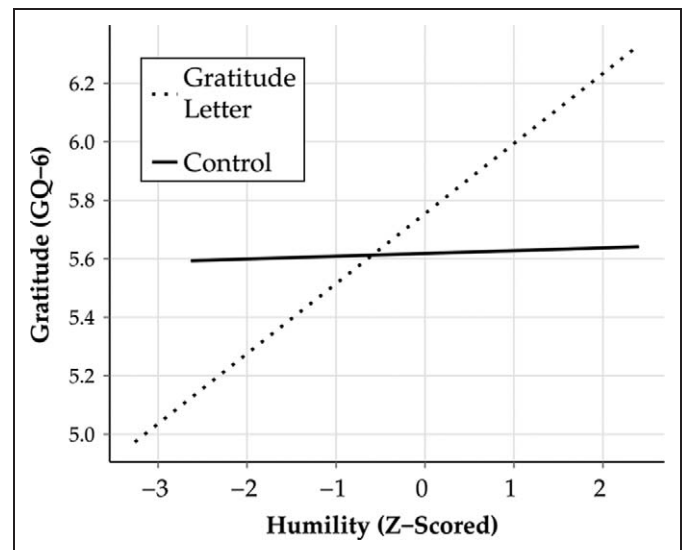[†]$p < .10$. *$p < .05$.

Figure 4. Reported gratitude in control and gratitude conditions as a function of baseline humility (study 2).

humility participants in the gratitude letter condition did not differ from low-humility controls, $\beta = −.07$, $SE = .09$, $p = .461$. In other words, individuals high in baseline humility experienced greater gratitude in response to the letter writing task, compared to a neutral task, whereas those low in baseline humility did not. Therefore, supporting Hypothesis 2, people who are already in a humble state have enhanced capacity for gratitude, possibly because they are relatively more aware of other people's strengths and contributions.

While trending in the expected direction, experimental condition by itself (i.e., excluding baseline humility) did not predict differences in gratitude, $\beta = .07$, $SE = .07$, $t = 1.05$, $p = .297$, positive emotions, $\beta = .09$, $SE = .07$, $t = 1.41$, $p = .160$, or negative emotions, $\beta = −.05$, $SE = .07$, $t = −.77$, $p = .442$. However, the significant interaction between humility and condition in predicting gratitude explains why condition alone is not significant: State humility accounts for variability in one's susceptibility to gratitude inductions.

Might humility also moderate the effect of writing a gratitude letter on positive and negative affect? In predicting positive emotions, we found no main effect of humility, $\beta = -.05$, $SE = .07$, $t = -.72$, $p = .471$, or condition, $\beta = .09$, $SE = .07$, $t = 1.43$, $p = .155$, but a marginal interaction, $\beta = .11$, $SE = -.07$, $t = 1.69$, $p = .092$. With respect to negative emotions, we found no main effect of humility, $\beta = .08$, $SE = .07$, $t = -1.26$, $p = .210$, or condition, $\beta = -.05$, $SE = .07$, $t = -.75$, $p = .455$, but a significant negative interaction, $\beta = -.18$, $SE = .07$, $t = -2.78$, $p = .005$.

Furthermore, paralleling the results for gratitude in Figure 4, simple slopes analyses revealed that high-humility participants who wrote letters of gratitude reported significantly higher positive affect, $\beta = .21$, $SE = .09$, $t = 2.21$, $p = .028$, and lower negative affect, $\beta = -.23$, $SE = .09$, $t = -2.50$, $p = .013$, than high-humility participants in the control group. Low-humility participants who wrote letters of gratitude, however, did not differ in positive or negative affect from low-humility participants in the control group. Thus, state humility also moderates the emotional consequences of writing a letter of gratitude: High-humility participants experience more positive and less negative affect from expressing their gratitude, whereas low-humility participants gain no emotional benefits.

In sum, Studies 1 and 2 demonstrated that gratitude increases humility and that humility predicts greater capacity to experience gratitude, as well as more positive and less negative affect. Furthermore, the emotion results in Study 2 suggest that emotional changes may represent the downstream consequences of interactions with humility. Our next step, in Study 3, was to test the more complex Hypothesis 3—namely, that state humility and gratitude will mutually predict each other over time.

Study 3

Methods

Participants and procedure

Undergraduates completed 14 daily online questionnaires in exchange for course credit ($N = 48$, $M_{age} = 19.6$, $SD = 1.83$; see Table 1). Students completed each survey online at the day's end and received daily e-mail reminders. The completion rate averaged 72.7% (10.2 valid participant reports per 14 days), and, altogether, participants submitted 714 daily surveys.

Measures

Each day, participants completed the SHS (αs ranged from .62 to .84 across all days[2]) and the GQ-6 (αs ranged from .80 to .95 across all days). To minimize recall, on these two daily measures, participants used a sliding scale from -10 (*strongly disagree*) to 10 (*strongly agree*).

Results and Discussion

Descriptive statistics and correlations

Mean scores were 3.62 ($SD = 2.61$) for the SHS and 3.83 ($SD = 2.82$) for the GQ-6. The test–retest stability of humility ranged from .48 to .70 ($M_r = .62$, $SD_r = .06$). The test–retest stability of gratitude ranged from .04 to .64 ($M_r = .31$, $SD_r = .15$). Across all days (i.e., correlating average scores for each participant), gratitude and humility were positively correlated, $r(48) = .36$, $t = 2.78$, $p = .008$, 95% CI: [.105, .590].

We analyzed participants' daily surveys using mixed-effects models (lme4 library in R), estimating significance values of fixed parameters with a likelihood ratio test compared with a simpler model without the term.

With a basic, unconditional means model to predict gratitude, we found that 53.4% of the variance in gratitude was between persons and 46.6% was within. Likewise, using an unconditional means model to predict humility, 74.9% of the variance in humility was between individuals and 25.1% within. Although humility contains a greater proportion of variability between individuals than gratitude, humility did indeed vary over time within individuals. These findings show, first, that gratitude exhibits relatively equal variability within and between individuals and, second, that although humility is more stable than gratitude, a quarter of its variability is within persons. Next, we examined how gratitude and humility explain changes within and between individuals over time.

Time-lagged analyses. We used humility and gratitude to predict each other while controlling for the prior day's value (for a similar approach, see Steger, Kashdan, & Oishi, 2008; Study 2). All data were z-scored (grand mean centered). Random effects were allowed to correlate and all random effects improved model fit. The final combined equations were the following:

$$\text{GRATITUDE}_{ij} = \gamma_{00} + \gamma_{01}\text{GRATITUDE\_YESTERDAY} + \gamma_{02}\text{HUMILITY}$$
$$+ (\zeta_{ij} + \zeta_{\text{GRATITUDE\_YESTERDAY}} + \zeta_{\text{HUMILITY}})$$
$$\text{HUMILITY}_{ij} = \gamma_{00} + \gamma_{01}\text{HUMILITY\_YESTERDAY} + \gamma_{02}\text{GRATITUDE}$$
$$+ (\zeta_{ij} + \zeta_{\text{GRATITUDE\_YESTERDAY}} + \zeta_{\text{GRATITUDE}})$$

Controlling for yesterday's gratitude, $\gamma_{01} = .485$, $SE = .063$, $t = 7.64$, $p < .001$, today's humility significantly predicted today's gratitude, $\gamma_{02} = .217$, $SE = .068$, $t = 3.21$, $p = .002$. In other words, taking into account yesterday's gratitude, a 1-unit increase in humility was associated with an additional .217 units of gratitude. Thus, individuals' current humility (relative to their baselines) explained changes in their gratitude from day to day.

Likewise, controlling for yesterday's humility, $\gamma_{01} = .317$, $SE = .057$, $t = 5.41$, $p < .001$, today's gratitude significantly predicted today's humility, $\gamma_{02} = .147$, $SE = .046$, $t = 3.18$, $p = .002$. Taking in account one's prior level of humility, one additional unit of gratitude was associated with an increase of .147 units of humility. Thus, the reverse is also true: Individuals' current gratitude (relative to their baseline) explained daily changes in humility.

The significant random effects in our models suggest that individuals also vary in the degree to which the previous day's gratitude or humility carries over to the next day and the degree to which gratitude and humility affect each other over time.

Increasing the lag between humility and gratitude tests whether *past* humility can predict gratitude's *future* changes (and vice versa) and is thus a stronger test of our upward spiral hypothesis. We estimated two additional models otherwise similar to those above except for using only time-lagged predictors. Yesterday's humility continued to significantly predict changes in gratitude from yesterday to today, $\gamma_{02} = .158$, $SE = .063$, $t = 2.49$, $p = .013$, and yesterday's gratitude continued to predict changes in humility from yesterday to today, $\gamma_{02} = .103$, $SE = .044$, $t = 2.32$, $p = .025$. Thus, controlling for yesterday's gratitude, a 1-unit increase in yesterday's humility predicted a .158 increase in today's gratitude. Likewise, controlling for yesterday's humility, a 1-unit increase in yesterday's gratitude predicted a .103-unit increase in today's humility.

In sum, when observed naturalistically in response to daily life events, humility and gratitude appear to be mutually reinforcing. Although they predict each other over time, they do not do so perfectly—they are partial mediators. However, supporting our final hypothesis, time-lagged analyses show that humility and gratitude explain significant amounts of each other's variation across time.

General Discussion

Across three studies, our results reveal a potentially mutually reinforcing relationship between humility and gratitude. We employed both experimental and naturalistic methods with samples that included both adults and undergraduates. Overall, our participants were broadly representative of the adult U.S. population; all samples were diverse in ethnicity and adult samples, in age and education.

These findings support three theoretical contributions. First, gratitude is a novel antecedent of humility. Previous research conceptualized humility as a trait, focusing on outcomes and correlates. To our knowledge, our study is the first to implicate gratitude as an antecedent or elicitor of humility. Although prior researchers have theorized that humility involves low self-focus (Chancellor & Lyubomirsky, 2013; Davis et al., 2010; Tangney, 2000), the present results both empirically support this proposition and extend it by demonstrating that the induction of gratitude—which both promotes external focus and inhibits internal focus—can increase humility. Furthermore, we showed that the influence of gratitude on humility is specifically mediated by decreased self-focus. These findings elucidate the structure of humility, a construct that is not yet fully understood. Contrary to some prior conceptions that define humility as a negative self-view (e.g., Weiss & Knight, 1980) theoretically akin to low self-esteem or clinical depression, our findings suggest that a distinguishing characteristic of humility is a relatively reduced focus on oneself.

Our second contribution was to identify humility as a state that facilitates greater sensitivity to gratitude. This finding provides insight into the functional benefits of humility (and its characteristic reduced self-focus)—that is, what it influences and how it operates. Although trait humility has demonstrated a robust set of correlations with prosocial outcomes (e.g., Ashton & Lee, 2008; Exline & Hill, 2012), the mechanisms at work have not been explored experimentally. Our results suggest that in addition to directly fostering more prosocial behavior, humility may serve as a simple but powerful *moderator* of prosociality. Because humility involves less self-orientation and more other-orientation, humble individuals have an enhanced capacity to notice others' needs and offer assistance. Practically, these results inform future interpersonal interventions—by first boosting humility. Future research can explore whether humility manipulations might also strengthen the effects of other types of prosocial interventions and help individuals achieve prosocial goals.

Finally, our results suggest that humility and gratitude may reinforce each other. In Study 3, we found that each positively predicts the other. These results situate humility within broader theory positing the value of positive states (Fredrickson, 2001); humility may build social resources through externally focused emotions such as gratitude. Although humble individuals may forego entitled resource acquisition (Hilbig et al., 2012), they may benefit in the long term as they develop strong relationships that are built, in part, on mutual gratitude and value.

Limitations, Conclusions, and Future Directions

The primary limitation of our studies is that we did not manipulate humility independently of gratitude (e.g., via a direct manipulation of humility in Study 2). In part, we could not do so because of a paucity of established humility manipulations (Kruse et al., 2014b). However, this issue is only problematic if one assumes that humility and gratitude are the same psychological construct or that one completely subsumes the other. The present results belie this proposition. Across studies, gratitude and humility demonstrated modest correlations. Furthermore, in Study 3, the two constructs had differential effects on one another, even when controlling for the previous days' scores (e.g., gratitude predicted humility, above and beyond yesterday's humility), implying that their effects on each other are distinct. Finally, from a theoretical perspective, humility and gratitude represent separate constructs; one is an awareness of one's limitations and the other is a recognition that others have helped. Future studies might build on these results by establishing conditions under which humility and gratitude do not co-occur.

Further research could also extend our results to specific contexts. For example, in the organizational context, humility and gratitude may create upward spirals not just within but between people. Humble leaders may behave in prosocial ways that elicit gratitude from their followers (Ou, 2012; Owens & Hekman, 2012), which may in turn increase the followers' own

humble and prosocial behaviors. Furthermore, these processes may reverberate backward, increasing reciprocal relations with the initiating leader (e.g., McCullough, Kimeldorf, & Cohen, 2008), and forward, increasing "upstream reciprocity" with other organization members (e.g., Nowak & Roch, 2007). As such, humble individuals may act as social nodes that reinforce positive social relationships in a group.

In sum, the present studies provide evidence to suggest that humility and gratitude exist within individuals in a mutually reinforcing relationship. Grateful thoughts and feelings foster humble thoughts and feelings, which, in turn, may promote even more gratitude, which further boosts humility, and so on. Whether this upward spiral is a key component of lifelong positive development, and whether individuals can reliably trigger this spiral to enrich their lives and relationships, are both exciting questions for the future.

Declaration of Conflicting Interests

Funding

Notes

1. The reliability coefficient was lower than normally observed for this scale because we used an older item order. With the new item order, reliabilities are generally above .80. However, our lower reliability renders our estimates as more conservative than otherwise (Rosenthal & Rosnow, 2007).
2. Low reliabilities in state humility (αs < .70) were only evident on Days 1 and 2. The lowest reliability for other days was .69. Excluding Days 1 and 2 yields similar coefficients with more significant *p* values. We report results using all collected days, meaning that estimates are more conservative than had we dropped Days 1 and 2 to boost reliability.

References

Algoe, S. B., Gable, S. L., & Maisel, N. C. (2010). It's the little things: Everyday gratitude as a booster shot for romantic relationships. *Personal Relationships*, *17*, 217–233.

Algoe, S. B., & Haidt, J. (2009). Witnessing excellence in action: The "other-praising" emotions of elevation, gratitude, and admiration. *The Journal of Positive Psychology*, *4*, 105–127.

Ashton, M. C., & Lee, K. (2008). The prediction of Honesty-Humility-related criteria by the HEXACO and Five-Factor models of personality. *Journal of Research in Personality*, *42*, 1216–1228.

Bartlett, M. Y., & DeSteno, D. (2006). Gratitude and prosocial behavior: Helping when it costs you. *Psychological Science*, *17*, 319–325.

Buhrmester, M., Kwang, T., & Gosling, S. D. (2011). Amazon's Mechanical Turk: A new source of inexpensive, yet high-quality, data? *Perspectives on Psychological Science*, *6*, 3–5.

Cai, H., Sedikides, C., Gaertner, L., Wang, C., Carvallo, M., Xu, Y., . . . Jackson, L. J. (2011). Tactical self-enhancement in China: Is modesty at the service of self-enhancement in East Asian culture? *Social Psychological and Personality Science*, *2*, 59–64.

Chancellor, J., & Lyubomirsky, S. (2013). Humble beginnings: Current trends, state perspectives, and humility hallmarks. *Social and Personality Psychology Compass*, *7*, 819–833.

Cooley, C. H. (1902). *Human nature and the social order* (Rev. ed.). New York, NY: Scribner's.

Cronbach, L. J. (1955). Processes affecting scores on "understanding of others" and "assumed similarity." *Psychological Bulletin*, *52*, 177–193.

Dahlsgaard, K., Peterson, C., & Seligman, M. E. (2005). Shared virtue: The convergence of valued human strengths across culture and history. *Review of General Psychology*, *9*, 203–213.

Davis, D. E., Worthington, E. L., , Jr., & Hook, J. N. (2010). Humility: Review of measurement strategies and conceptualization as personality judgment. *The Journal of Positive Psychology*, *5*, 243–252.

Davis, D. E., Hook, J. N., Worthington, E. L., , Jr., Van Tongeren, D. R., Gartner, A. L., Jennings, D. J., , , II., & Emmons, R. A. (2011). Relational humility: Conceptualizing and measuring humility as a personality judgment. *Journal of Personality Assessment*, *93*, 225–234.

Diener, E., & Emmons, R. A. (1985). The independence of positive and negative affect. *Journal of Personality and Social Psychology*, *47*, 1105–1117.

Emmons, R. A., & McCullough, M. E. (2003). Counting blessings versus burdens: An experimental investigation of gratitude and subjective well-being in daily life. *Journal of Personality and Social Psychology*, *84*, 377–389.

Exline, J. J., & Geyer, A. L. (2004). Perceptions of humility: A preliminary study. *Self and Identity*, *3*, 95–114.

Exline, J. J., & Hill, P. C. (2012). Humility: A consistent and robust predictor of generosity. *The Journal of Positive Psychology*, *7*, 208–218.

Fredrickson, B. L. (2001). The role of positive emotions in positive psychology: The broaden-and-build theory of positive emotions. *American Psychologist*, *56*, 218–226.

Fredrickson, B. L., & Joiner, T. (2002). Positive emotions trigger upward spirals toward emotional well-being. *Psychological Science*, *13*, 172–175.

Hilbig, B. E., Zettler, I., & Heydasch, T. (2012). Personality, punishment, and public goods: Strategic shifts towards cooperation as a matter of dispositional honesty-humility. *European Journal of Personality*, *26*, 245–254.

Hogg, M. A., & Terry, D. J. (2000). Social identity and self-categorization processes in organizational contexts. *Academy of Management Review*, *25*, 121–140.

Kruse, E. T., Chancellor, J., & Lyubomirsky, S. (2014a). *Self-affirmation increases humility*. Manuscript submitted for publication.

Kruse, E. T., Chancellor, J., & Lyubomirsky, S. (2014b). *State humility: Measurement, conceptual validation, and interpersonal processes*. Manuscript submitted for publication.

LaBouff, J. P., Rowatt, W. C., Johnson, M. K., Tsang, J. A., & Willerton, G. M. (2012). Humble persons are more helpful than less humble persons: Evidence from three studies. *The Journal of Positive Psychology*, 7, 16–29.

Leary, M. R., & Guadagno, J. (2011). The role of hypo-egoic self-processes in optimal functioning and subjective well-being. In K. M. Sheldon, T. B. Kashdan, & M. F. Steger (Eds.), *Designing positive psychology: Taking stock and moving forward* (pp. 135–146). New York, NY: Oxford University Press.

Lyubomirsky, S., Dickerhoof, R., Boehm, J. K., & Sheldon, K. M. (2011). Becoming happier takes both a will and a proper way: An experimental longitudinal intervention to boost well-being. *Emotion*, 11, 391–402.

Marcus, B., Lee, K., & Ashton, M. C. (2007). Personality dimensions explaining relationships between integrity tests and counterproductive behavior: Big five or one in addition? *Personnel Psychology*, 60, 1–34.

Mead, G. H. (1934). *Mind, self and society*. Chicago, IL: University of Chicago Press.

McCullough, M. E., Emmons, R. A., & Tsang, J. A. (2002). The grateful disposition: A conceptual and empirical topography. *Journal of Personality and Social Psychology*, 82, 112–127.

McCullough, M. E., Kilpatrick, S. D., Emmons, R. A., & Larson, D. B. (2001). Is gratitude a moral affect? *Psychological Bulletin*, 127, 249–266.

McCullough, M. E., Kimeldorf, M. B., & Cohen, A. D. (2008). An adaptation for altruism: The social causes, social effects, and social evolution of gratitude. *Current Directions in Psychological Science*, 17, 281–285.

Naito, T., Wangwan, J., & Tani, M. (2005). Gratitude in university students in Japan and Thailand. *Journal of Cross-Cultural Psychology*, 36, 247–263.

Nowak, M. A., & Roch, S. (2007). Upstream reciprocity and the evolution of gratitude. *Proceedings of the Royal Society B: logical Sciences*, 274, 605–610.

Ou, A. (2012, August). *Building an empowering organization: A study of humble CEOs*. Paper presented at the annual meeting of the Academy of Management, Boston, MA.

Owens, B. P., & Hekman, D. R. (2012). Modeling how to grow: An inductive examination of humble leader behaviors, contingencies, and outcomes. *Academy of Management Journal*, 55, 787–818.

Owens, B. P., Rowatt, W. C., & Wilkins, A. L. (2011). Exploring the relevance and implications of humility in organizations. *Handbook of Positive Organizational Scholarship*, 1, 260–272.

Peterson, C., & Seligman, M. E. (2004). *Character strengths and virtues: A handbook and classification*. New York, NY: Oxford University Press.

Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods*, 40, 879–891.

Robbins, J. M., & Krueger, J. I. (2005). Social projection to ingroups and outgroups: A review and meta-analysis. *Personality and Social Psychology Review*, 9, 32–47.

Rosenthal, R., & Rosnow, R. L. (2007). *Essentials of behavioral research: Methods and data analysis*. New York, NY: McGraw-Hill.

Sedikides, C., Gregg, A. P., & Hart, C. M. (2007). The importance of being modest. In C. Sedikides & S. Spencer (Eds.), *The self: Frontiers in social psychology* (pp. 163–184). New York, NY: Psychology Press.

Steger, M. F., Kashdan, T. B., & Oishi, S. (2008). Being good by doing good: Daily eudaimonic activity and well-being. *Journal of Research in Personality*, 42, 22–42.

Tangney, J. P. (2000). Humility: Theoretical perspectives, empirical findings and directions for future research. *Journal of Social and Clinical Psychology*, 19, 70–82.

Tangney, J. P. (2005). Humility. In C. R. Snyder & S. J. Lopez (Eds.), *Handbook of positive psychology* (pp. 411–419). New York, NY: Oxford University Press.

Tangney, J. P., & Dearing, R. L. (2002). *Shame and guilt*. New York, NY: Guilford.

Tracy, J. L., & Robins, R. W. (2006). Appraisal antecedents of shame and guilt: Support for a theoretical model. *Personality and Social Psychology Bulletin*, 32, 1339–1351.

Turner, J. C. (1985). Social categorization and the self-concept: A social cognitive theory of group behavior. In E. J. Lawler (Ed.), *Advances in group processes: Theory and research* (Vol. 1, pp. 77–122). Greenwich, CT: JAI Press.

Watkins, P., Scheer, J., Ovnicek, M., & Kolts, R. (2006). The debt of gratitude: Dissociating gratitude and indebtedness. *Cognition & Emotion*, 20, 217–241.

Weiss, H. M., & Knight, P. A. (1980). The utility of humility: Self-esteem, information search, and problem-solving efficiency. *Organizational Behavior and Human Performance*, 25, 216–223.

Wood, A. M., Froh, J. J., & Geraghty, A. W. (2010). Gratitude and well-being: A review and theoretical integration. *Clinical Psychology Review*, 30, 890–905.

Wood, A. M., Maltby, J., Gillett, R., Linley, P. A., & Joseph, S. (2008). The role of gratitude in the development of social support, stress, and depression: Two longitudinal studies. *Journal of Research in Personality*, 42, 854–871.

Author Biographies

Elliott Kruse (PhD UC Riverside) is a postdoctoral research associate at Princeton University. He is interested in the processes through which appraisal of the self, others, and the world lead to substantively different affect and behavior.

Joseph Chancellor (MA Pepperdine) is currently a PhD candidate at the University of California, Riverside, and will be a postdoctoral research assistant at the University of Cambridge in 2014. He is interested in "self-less" and other-oriented paths to increasing well-being.

Peter M. Ruberton (BS Truman State University) is a PhD student at the University of California, Riverside. He is interested in how other focused processes (such as humility) relate to how individuals attribute life events both in their own lives and in the lives of others.

Sonja Lyubomirsky (PhD Stanford University) is a professor of Psychology at the University of California, Riverside, and author of *The How of Happiness* and *The Myths of Happiness*. She investigates why some people are happier than others, the benefits of happiness, and how to sustainably increase happiness.

AQ5