

It's the little things: Everyday gratitude as a booster shot for romantic relationships

SARA B. ALGOE,^a SHELLY L. GABLE,^b AND NATALYA C. MAISEL^c

^a*University of North Carolina at Chapel Hill*; ^b*University of California, Santa Barbara*;

^c*University of California, Los Angeles*

Abstract

Gratitude and indebtedness are differently valenced emotional responses to benefits provided, which have implications for interpersonal processes. Drawing on a social functional model of emotions, we tested the roles of gratitude and indebtedness in romantic relationships with a daily-experience sampling of both members of cohabiting couples. As hypothesized, the receipt of thoughtful benefits predicted both gratitude and indebtedness. Men had more mixed emotional responses to benefit receipt than women. However, for both men and women, gratitude from interactions predicted increases in relationship connection and satisfaction the following day, for both recipient and benefactor. Although indebtedness may maintain external signals of relationship engagement, gratitude had uniquely predictive power in relationship promotion, perhaps acting as a booster shot for the relationship.

A defining feature of close adult relationships is that each member performs actions that benefit the other. Events such as one partner planning a celebratory meal when the

other partner gets a promotion, taking the children to the zoo so the other partner can have some quiet time, or stopping to pick up the other partner's favorite coffee drink from Starbucks are each benefits to the recipient. Within ongoing romantic relationships, some of these benefits may become routine and others may seem trivial; any may go unnoticed. In the current research, we propose that an emotional response of gratitude for "everyday" interpersonal gestures can be a powerful mechanism for relationship growth.

Although gratitude is the normatively appropriate and often expected feeling from another's kind actions, in reality, interpersonal benefits may bring a range of reactions. Assuming that a benefit is noticed, a recipient might feel gratitude (that was so nice of her!), resentment (oh, he only did this because he wants something from me), misunderstood (why did she think I would like *that*?), or indebted (I owe him one!), among other affective and cognitive responses. Of course, these are not mutually exclusive responses to a received benefit. Responses are dictated by how the "benefit" is perceived. In this

Sara B. Algoe, Department of Psychology, University of North Carolina at Chapel Hill; Shelly L. Gable, Department of Psychology, University of California, Santa Barbara; Natalya C. Maisel, Department of Psychology, University of California, Los Angeles.

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Correspondence should be addressed to Sara B. Algoe, Department of Psychology, University of North Carolina at Chapel Hill, Davie Hall, CB 3270, Chapel Hill, NC 27599, e-mail: algoe@unc.edu.

study, we focus on the affective responses of gratitude and indebtedness because both have been empirically characterized as emotional responses to costly, intentionally provided benefits from another individual (e.g., Algoe, Haidt, & Gable, 2008; Bartlett & DeSteno, 2006; Tsang, 2006a; Watkins, Scheer, Ovnicek, & Kolts, 2006). In addition, both gratitude and indebtedness are theoretically and empirically linked with repayment behavior (or motivation), which is the normatively expected response to a benefit received (Gouldner, 1960; Greenberg & Shapiro, 1971). Although we propose that gratitude functions to promote or improve relationships, indebtedness may simply work in the service of maintaining (or not *losing*) relationships. Indebtedness appears to be tightly linked to perceived reciprocity norms (i.e., expectations about repayment), whereas gratitude is linked to perceived care from a benefactor.

By putting the spotlight on the emotional response to benefit receipt, we hope to illustrate the central role of emotions in complex interpersonal dynamics. The same objective event may produce different emotional responses, and the emotional response influences the interpersonal consequences. Emotions are momentary responses to real or imagined events, and can serve as coordinating systems for our biology, cognitions, and ultimately our behaviors (Keltner & Gross, 1999), in part by updating motivations and goals (Baumeister, Vohs, DeWall, & Zhang, 2007; Schwarz & Clore, 2007). Social functional analyses of emotions (e.g., Keltner & Haidt, 1999) suggest that, on average, emotions are particularly useful in guiding individuals through the social interactions and relationships encountered everyday (e.g., Keltner & Buswell, 1997). In line with this perspective, what follows is a review of the literature on gratitude and indebtedness,¹

which have been studied largely outside of ongoing interpersonal relationships; we then place them in the context of close relationships, where questions about “repayment” become more complicated.

Emotional responses to benefits: gratitude and indebtedness

Ample evidence suggests that gratitude comes from *intentionally provided costly benefits*—that is, people feel more gratitude when there is a real or perceived cost to the benefactor for his or her intentional actions toward the recipient, and they feel more gratitude when they like or value the action more (i.e., it is a “benefit”; e.g., Algoe et al., 2008; Tesser, Gatewood, & Driver, 1968; Tsang, 2007). In addition, new findings, using reports about actual benefits provided, suggest that gratitude arises when beneficial interpersonal gestures that have specific implications for the relationship with the benefactor are received (Algoe et al., 2008). In this study, new members of a sorority, who received a variety of benefits from a specific (anonymous) benefactor over the course of 4 days, reported their appraisals and emotional response to receiving each benefit. Beyond liking for and cost of the benefit, gratitude was robustly predicted by the perception that the benefactor was responsive to the needs and wishes of the recipient in the provision of the benefit. In short, ratings of the thoughtfulness of the benefactor predicted gratitude. We know that perceived responsiveness to one’s wishes and needs is central to feelings of intimacy and closeness (Reis, Clark, & Holmes, 2004). Given that emotion-relevant appraisals help to shape motives, goals, and behavior (Lerner & Tiedens, 2006; Schwarz & Clore, 2007),

benefits. In this work, we take our cue from the most recent empirical work on indebtedness (e.g., Tsang, 2007; Watkins et al., 2006) and call indebtedness an emotional response to a costly benefit. However, as noted in the Discussion, we eagerly await future work to determine its status among other negative emotional experiences with which it is correlated (e.g., Watkins et al., 2006). We believe that empirical tests such as the current study are the best way to begin to address the issue of whether it is reasonable to consider indebtedness an emotion.

1. Although empirical evidence is rapidly accumulating that gratitude meets many criteria of being an emotion (e.g., Algoe & Haidt, 2009), and there has long been agreement within classic theories of emotion that it is (Lazarus, 1991; Ortony, Clore, & Collins, 1988), we acknowledge that it is less clear, empirically if not theoretically, whether indebtedness is an emotion rather than a social motivation in response to received

Algoe and colleagues (2008) recently proposed that gratitude functions to build high-quality interpersonal connections.

In line with traditional accounts of gratitude as facilitating reciprocal altruism (e.g., Trivers, 1971), it has now been well documented that grateful people are more willing to repay a benefactor when given an opportunity, for example, spending more time helping a confederate benefactor with a tedious task (Bartlett & DeSteno, 2006; see also Tsang, 2006b). However, other evidence demonstrates that gratitude is also associated with the recipient focusing on the benefactor, a broad range of prorelationship behaviors that go beyond repayment and higher relationship quality for both the recipient and the benefactor. Specifically, anticipated gratitude from hypothetical vignettes was correlated with broader prosocial motivations toward the benefactor, such as adoring, approaching, and yielding to the benefactor (Watkins et al., 2006). Gratitude (compared to happiness) for recalled actual benefits produced more spontaneous generation of the positive qualities of a benefactor, spontaneous reports of feeling closer to or wanting to promote the relationship with the benefactor, desire to spend more time with the benefactor in the future, and desire to acknowledge or repay the kind actions (including thanking or hugging; Algoe & Haidt, 2009). Finally, gratitude for actual benefits during a period of anonymous gift giving within sororities was associated with a recipient's momentary feelings of closeness to the still-anonymous benefactor, recipients' and benefactors' reports of high-quality interactions at the time the identity of the benefactor was revealed, as well as recipient and benefactor reports of high-quality relationships 1 month later (Algoe et al., 2008). The positive emotion of gratitude may orient the recipient to the benefactor in such a way as to generate intrinsically motivated kind actions toward the benefactor, and such gestures can have downstream effects on the relationship. However, to date, the strongest evidence for such effects has come from female friendships, and no research has examined these relationship processes in everyday interactions.

Although there is little empirical work regarding how indebtedness influences interpersonal relationships, Fredrickson (2004) drew on her broaden and build theory of positive emotions to propose different behavioral consequences for indebtedness and gratitude: As a positive emotion, gratitude may inspire creative ways of acknowledging a benefactor, beyond tit-for-tat repayment; the negative emotion of indebtedness, on the other hand, should focus a recipient on repayment. These behaviors may have different implications for relationships. Indeed, recent empirical research differentiating feelings of gratitude from feelings of indebtedness help to fill in the picture of how different emotional responses to the same benefit to the self may lead to different interpersonal outcomes.

The difference begins with appraisals of the intentions of the benefactor. Tsang (2006a) found that (perceived) intentions of the benefactor differentiated the emotional responses of gratitude and indebtedness: When the benefactor's intentions were benevolent, participants believed they would feel more gratitude for a hypothetical benefit. However, anticipated feelings of indebtedness did not change with intentions of the benefactor, whether the benefactor's intentions were presented as benevolent, selfish, or ambiguous. If indebtedness is felt regardless of benefactor intention, then the recipient's focus may be more on the benefit itself. Focus on the benefit (consistent with Fredrickson, 2004) may lend itself to reciprocity; in reciprocity, the recipient of a benefit is expected to return the favor at a future date.

In fact, in vignette studies, Watkins and colleagues (2006) found that increases in expectations of repayment by a benefactor produced increased anticipated feelings of indebtedness, and decreased anticipated feelings of gratitude. Moreover, consistent with Fredrickson's theorizing (2004), while gratitude was associated with positive emotions and with a broader array of prosocial motivations toward the benefactor, indebtedness was associated with other negative emotions (e.g., guilt). Indebtedness was also unassociated with the number of prosocial motivations but positively associated with the

number of antisocial motivations toward the benefactor that were endorsed. The authors concluded that although indebtedness might involve an obligation to repay, gratitude is not a debt. Instead, they suggest that repayment from gratitude versus indebtedness may be *internally*—rather than *externally*—motivated (Watkins et al., 2006). Internal motivation is consistent with the notion of gratitude as a positive emotion that functions to promote high-quality interpersonal relationships (Algoe et al., 2008): Gratitude orients the individual to the positive qualities of the benefactor and his or her needs and wishes, which may translate to a variety of responsive behaviors beyond a straightforward tit-for-tat repayment. Indebtedness maintains expected ties through dutiful exchange of good deed for good deed.²

Gratitude and indebtedness in the context of close relationships

What do these findings mean in the context of close relationships? The literature reviewed suggests that a grateful or indebted emotional response to a benefit contains information about a recipient's understanding of the relationship with the benefactor; a grateful response is complementary to close relationships. Among other things, close relationships are characterized by communal norms (Mills, Clark, Ford, & Johnson, 2004) in which benefits are provided noncontingently, based on the recipient's need for the benefit. Communal relationships are often contrasted with "exchange" relationship orientations, in which benefits are provided in exchange for other benefits, and are not contingent on a recipient's need (e.g., Clark & Mills, 1979). Although these relationship orientations are independent constructs (i.e., not mutually exclusive within a relationship in everyday

life), Clark and colleagues have demonstrated experimentally that expectations about whether one is operating from an exchange versus communal relationship orientation produces different perceptions of an interaction partner after the same behavior (e.g., Clark & Mills, 1979; Clark & Waddell, 1985). For example, if one fails to adhere to the norm of reciprocity within an exchange relationship (i.e., by not offering to repay a benefit), that person is perceived as more exploitative and less attractive, whereas this same behavior does not change the perception of a person with whom one is presumed to be in a communal relationship (Clark & Waddell, 1985). Alternatively, when a communal relationship is expected but repayment behavior is conveyed, a benefit recipient finds the benefactor to be *less* attractive as an interaction partner (Clark & Mills, 1979).

Although we do not directly assess communal or exchange distinctions in this research, these findings are important to consider when making predictions about how gratitude and indebtedness will work in romantic relationships, which are normatively communal in nature. The prevailing theory on gratitude suggests that, in fact, gratitude may not be necessary or useful in romantic relationships, precisely because this type of relationship is already characterized by high levels of trust and benefit provision (e.g., McCullough, Kimeldorf, & Cohen, 2008). But the evidence reviewed above regarding appraisals of perceived responsiveness suggests that gratitude is a powerful signal of communal relationship orientation and so should serve to facilitate romantic relationships. In contrast, the previous literature shows that indebtedness is an aversive state that motivates people to resolve the debt in order to feel better (e.g., Greenberg & Shapiro, 1971). Mauss (1950/1990), in his groundbreaking study of gift exchange throughout history, summarized the implications of exchange relationships in today's culture quite simply: "The unreciprocated gift still makes the person who has accepted it inferior" (p. 65). And, because it shows that the benefactor is not being exploited, repayment is a behavior that has implications for the maintenance of *any* relationship. But the

2. Reciprocity hypotheses are not tested in this study but are assumptions based on previous findings that underlie our predictions about why we might expect gratitude, but not indebtedness, to be associated with *improvements* in the relationship outcomes measured here.

evidence regarding appraisals suggests that feelings of indebtedness may signal perceived exchange norms; exchange norms in the context of communal relationships may produce *lower* feelings of liking for the interaction partner (Clark & Mills, 1979).

Of course, communal or exchange relationship orientations may be signaled without the experience of emotion. What can emotion add? When emotion is present, it helps to coordinate one's interaction with the world in ways that are in line with current motives and goals, ultimately serving an adaptive function for the individual, dyad, and even a group (e.g., Keltner & Haidt, 1999). Here, gratitude and indebtedness are proposed as parts of a complex interpersonal process that is situated within the particular relationship context. Romantic relationships are a particularly interesting dyad in which to examine each emotion because these relationships often are already characterized by strong communal norms, high levels of trust and intimacy, and "helpful" behaviors. We suggest that, even within this context, moments of gratitude can act like "booster shots" for the ongoing relationship: Gratitude helps to remind an individual of his or her feelings toward the partner and inspire mutual responsiveness, which serves to increase the bond between the couple. Alternatively, in the context of close relationships, indebtedness should not *increase* a recipient's previously positive feelings about the relationships (even if it incidentally helps to ensure that the partner does not feel exploited). To date, there is no evidence to document links between these emotions and change in feelings about the relationship, for recipient or benefactor, no matter what the relationship type. Daily reports from each member of a dyad will help to capture the process as it unfolds.

Gender differences

The empirical research has not provided evidence for gender differences in grateful or indebted responses to benefits (i.e., empirical publications have not reported tests for gender differences, so there is no information). However, considering a functional interpersonal process suggests at least one point at

which individual differences may play a role: appraisal of the situation. Women tend to be higher in empathy than men (Cross & Madson, 1997), and are more accurate than men in judging the meaning of nonverbal cues (Hall & Mast, 2008; also see meta-analysis by McClure, 2000). Therefore, women may be particularly attuned to the care (or lack thereof) that went into the provision of the benefit, which has implications for the reliability of the link between women's perception of a benefactor's responsiveness and their own reported feelings of gratitude. In addition, a long tradition of anthropological research has documented the role of benefit provision as a display of status, with the provider of the benefit being perceived as having higher status (e.g., Mauss, 1950). Men have been shown to have higher expectations than women that social interactions will be structured hierarchically, and this expectation is associated with a higher likelihood of perceiving hierarchy cues within a given interaction (Mast, 2005). This research suggests that men may be more attuned to status implications of a provided benefit than women and thus may be more likely than women to feel indebted for a given benefit.

Given these links, we will explore the role of gender in these emotional processes. Other than the above predictions about benefit appraisal, we do not make specific predictions for gender in the analyses presented below, given that gender is not central to our theory regarding these basic emotional processes, and because we consider this to be an initial exploration.

The current research

In this study, romantic partners completed nightly diaries for 2 weeks to record their own and their partner's thoughtful actions, their emotional response to interactions with their partner, and their relationship well-being from that day. We examined emotional responses to the partner's reported and participant's perceived responsive behaviors.³ The

3. Emotional responses can come from the real or imagined behavior of others. Evidence from related

literature suggests that thoughtful behaviors should predict gratitude (Algoe et al., 2008; Ames, Flynn, & Weber, 2004) and indebtedness (Tsang, 2006a). Additionally, we tested the prediction that gratitude would produce increases in relationship well-being, for the grateful recipient and for the benefactor. We did not expect indebtedness to predict relationship quality.

Method

Participants

Sixty-seven heterosexual cohabiting couples (134 individuals), who had been in a romantic relationship for at least 3 months, participated in the study.⁴ Potential participants were recruited from a large urban campus community on the west coast of the United States through advertisements in the campus newspaper and posted flyers. The sample was composed of students and campus staff, and the mean age was 25.16 years (range = 19–56; $SD = 6.33$). Of these, 57.0% had completed college; 56.0% were White, 27.6% were Asian American, 8.2% were Latino or Latina, and 7.5% indicated Other. Couples had been together an average of 3.26 years ($SD = 2.52$) and were living together for 1.80 years ($SD = 2.46$); 23.9% were married and 11.9% were engaged.

Procedure and measures

After completing a preliminary questionnaire at the laboratory, participants independently completed a brief questionnaire every night before going to bed for 14 nights. Participants placed the completed form in an envelope, sealed the envelope, and used an electronic time stamper that we provided to stamp the date and time across the seal of the envelope. The electronic stamper was protected by

a security code and could not be altered by the participants (Fuligni & Hardway, 2006), providing a tamper-resistant measure of when the form was completed. At the end of the 14-day period, participants returned their forms, completed a brief exit questionnaire, were debriefed, and received \$30. Participants completed an average of 13.2 days on time (reports completed after noon the following day were not considered on time). The total number of reports completed was 1,768 (from a possible 1,876). The current study was part of a larger project and additional details about the study procedure can be found in Maisel and Gable (2009). The relevant measures from each night are described below.

Daily behavior

Each participant responded to two questions to measure the participant's own responsive behavior that day ("I did something thoughtful for my partner") and the perception of the partner's responsive behavior that day ("My partner did something thoughtful for me"). Participants indicated whether each behavior did or did not happen that day, by making a binary choice (i.e., yes–no). Reports from both individuals allowed us to test partner-reported benefits (partner's self-reported behavior) and perceived benefits (participant's report of partner's behavior) on emotional response to interactions with the partner.

Daily emotional response to interactions with partner

Participants were asked to report on their emotional responses that resulted from their partner's actions that day. Specifically, their instructions were

"People feel many different things as a result of others' actions on any given day or at any given time. Using the 0 (not at all) to 6 (very much) scale below, please indicate how each item describes how you feel as a result of your partner's actions toward you throughout the day."

Gratitude was assessed with three items, *thankfulness*, *appreciation*, and *gratitude*,

research highlights the importance of attending to each dyad member's report of the situation (e.g., Gable, Reis, & Downey, 2003).

4. Three additional same-gender couples (one lesbian couple, two gay couples) participated. Their data are not included here due to limits of the data analytic procedure that used gender of participant as the distinguishable variable within couples.

which were combined to a composite gratitude score ($\alpha = .91$) and the mean was 3.75 ($SD = 1.70$). Indebtedness was measured with a single item, *indebted*; the mean was 1.29 ($SD = 1.76$).

Daily relationship satisfaction

Daily relationship satisfaction was assessed by the statement, “Today, our relationship was . . .” Participants responded on a 1–9 scale with 1 = *terrible*, 5 = *O.K.*, 9 = *terrific*. The mean response was 7.13 ($SD = 1.55$, range = 1–9).

Daily relationship connection

Daily feelings of connectedness to the relationship partner were measured with four items assessing relationship connection and satisfaction: “I felt happy with our relationship,” “I felt out of touch and disconnected from my partner” (reversed), “I felt accepted by my partner and connected to him/her,” and “I felt that my partner responded to my needs/wishes.” Participants used a 5-point scale ($\alpha = .89$), and the mean was 4.24 ($SD = 0.87$).

Results

Descriptive statistics

Out of the 1,768 days of reports, participants indicated that their partner did something thoughtful for them 698 times (39.5%; males 36%, females 43%) and that they did something thoughtful for their partner 601 times (34.1%; males 33%, females 35%). Table 1 describes the correspondence between partners on these reports. Participants agreed with the partner 61% of the time (yes–yes; no–no), and disagreed 39% of the time (yes–no; no–yes). Of the days when the partner reported doing something thoughtful, the participant agreed 51.2% of the time; 48.8% of the partner-reported thoughtful behaviors went undetected by the participant.

We also examined the correlations between gratitude and indebtedness. As expected, the two emotions tended to co-occur: Overall

Table 1. Correspondence between participant report of partner’s thoughtful action and partner’s report of having done something thoughtful

Partner (benefactor)	Participant (recipient)	
	Yes, he or she did	No, he or she did not
Yes, I did	17.5	16.7
No, I did not	22.2	43.5

in the sample there was a moderate correlation of .31 ($p < .001$, $N = 1,752$). However, separating the sample by gender, the correlation between gratitude and indebtedness was stronger for men ($r = .39$, $p < .001$, $N = 875$) than it was for women ($r = .26$, $p < .001$, $N = 877$), $z = 3.05$, $p = .001$. Thus, for men, gratitude and indebtedness tended to co-occur more often and to a greater degree than for women.

Data analysis plan

The data consist of three levels of information: daily reports (Level 1) for each individual (Level 2) within a couple (Level 3). Multilevel models were used to account for this nested structure (using hierarchical linear modeling [HLM]; Raudenbush, Byrk, Cheong, & Congdon, 1996) and to test the hypotheses. For all models the random component of the intercepts were free to vary at both Level 2 and Level 3, but the random components on the slopes were fixed. Gender was included as a predictor of the intercept and slopes at Level 2. For the present analyses, males were the reference group (i.e., coded as 0), however, in the event that there were significant gender differences, the models were repeated with females as the reference group (i.e., coded as 0) to determine whether the female coefficient significantly differed from zero.

Do thoughtful behaviors predict emotions?

To test this question, we constructed three models: one to test whether *partner-reported* thoughtful behaviors (i.e., partners’ reports of

their own behaviors) predicted participants' gratitude, one to test whether *perceived* thoughtful behaviors (i.e., participants' reports on partners' behaviors) predicted participants' gratitude, and one that included both partner-reported and perceived thoughtful behaviors as simultaneous predictors of gratitude to determine whether the different reports have independent explanatory power. We then constructed three parallel models to test the same questions regarding indebtedness. Each analysis controlled for the emotion of interest from the previous day (uncentered), so results can be interpreted as the extent to which thoughtful behavior on a given day accounts for *change* in gratitude or indebtedness from the previous day. All dichotomous predictors were entered uncentered, and continuous variables (except previous day's outcomes) were centered around each person's own mean. Results are presented in Table 2.

Predicting gratitude from thoughtful behaviors

As expected, thoughtful behaviors predicted gratitude as a result of interactions from the day. The top left panel of Table 2 shows that gratitude was predicted by partner-reported thoughtful behaviors, and this effect was not moderated by gender. In addition, gratitude was predicted by perceptions of the partners' thoughtful behaviors (see middle left panel of Table 2). This effect was moderated by gender, such that perceived thoughtful behaviors predicted even more gratitude for women than for men, although both male and female coefficients were significantly different from zero. Finally, partner-reported and perceived thoughtful gestures independently predicted gratitude when included in the model simultaneously (see lower left panel of Table 2). Again, gender moderated the effect

Table 2. Associations between partner's reported and perceived thoughtful behaviors and specific emotional responses to interactions

Model term	Gratitude coefficient male (female)	Gender differences (<i>p</i>)	Indebtedness coefficient male (female)	Gender differences (<i>p</i>)
Partner-reported benefit				
Intercept	2.28 (2.44)	NS	1.15 (0.85)	NS
Partner's reported action	0.47*** (0.46***)	NS	0.45*** (0.10)	**
Yesterday's emotion ^a	0.31***	—	0.10**	—
Perceived benefit				
Intercept	2.30 (2.30)	NS	1.12 (0.72)	NS
Perceived partner action	0.68*** (0.97***)	*	0.51*** (0.41**)	NS
Yesterday's emotion ^a	0.28***	—	0.11**	—
Partner-reported and perceived benefits				
Intercept	2.16 (2.17)	NS	1.01 (0.70)	NS
Partner's reported action	0.39*** (0.32**)	NS	0.38*** (0.04)	*
Perceived partner action	0.62*** (0.93***)	*	0.46** (0.39**)	NS
Yesterday's emotion ^a	0.29***	—	0.11**	—

Note. Results of six analyses predicting emotion from behavior, with men as the intercept: three using gratitude and three using indebtedness as the outcome. For comparison, female coefficients and level of significance are presented in parentheses next to the male coefficients when gender was included in the model as a potential moderator of that effect. NS = nonsignificant.

^a“Yesterday's emotion” was yesterday's gratitude when today's gratitude was the outcome and yesterday's indebtedness when today's indebtedness was the outcome.

p* < .05. *p* < .01. ****p* < .001.

of perceived thoughtfulness on gratitude, with women demonstrating a stronger link than men; as in the previous finding, men and women did not differ in the effect of partner-reported thoughtful behavior on gratitude. Previous day's gratitude was also a significant predictor of today's gratitude for both men and women in all the analyses. It is worth noting that because we controlled for yesterday's gratitude, the effects described above represent changes (increases) in gratitude from the previous day.

To determine whether partner-reported or perceived thoughtful gestures were a better predictor of gratitude, a chi-square analysis tested the difference between the slope of partner-reported behavior and the slope of perceived behavior. These were done separately for men and women. For men, there was a marginally significant effect such that men's perceptions were a better predictor of their own gratitude than women's reported thoughtful behavior, $\chi^2 = 3.55$, $p = .06$. For women, perceived partner thoughtfulness was a significantly better predictor of their own gratitude than was men's report of having been thoughtful, $\chi^2 = 9.65$, $p = .002$.

Predicting indebtedness from thoughtful behaviors

As expected, thoughtful behaviors also predicted indebtedness as a result of interactions from the day. However, there were some qualifications to these findings. The top right panel of Table 2 shows that indebtedness was significantly predicted from the report of thoughtful behavior by the partner for men, but not for women. On the other hand, *perceived* thoughtfulness of the partner predicted feelings of indebtedness for both men and women. Including both behavior reports in the model simultaneously indicated that for men, both partner-reported and perceived thoughtful behaviors predicted indebtedness and for women only perceived behavior predicted indebtedness. Again, to determine whether partner-reported or perceived thoughtful gestures were a better

predictor of indebtedness for men,⁵ a chi-square analysis was used to test the difference between partner-reported behavior slope and perceived behavior slope. The results showed that there was no difference between the degree to which partner-reported and perceived behaviors predicted men's indebtedness, $\chi^2 = 0.24$, $p > .500$.

Do emotions predict the participant's future relationship quality?

Within an ongoing close relationship, gratitude is thought to signal attention to the quality of the relationship with the benefactor (i.e., to remind) and to make the recipient feel close and connected to the benefactor (i.e., to bind). On the other hand, feelings of indebtedness toward a romantic partner are not predicted to improve feelings about the relationship with the partner and may even be detrimental to the relationship (e.g., Clark & Mills, 1979). We tested whether participants' relationship connection and relationship satisfaction were predicted by their gratitude (or indebtedness) from interactions on the previous day. These analyses of relationship quality were done controlling for ratings of relationship quality on the previous day as well; results therefore represent the extent to which gratitude (or indebtedness) explains *changes* in the recipient's feelings about the relationship from the previous day.

Indeed, change in relationship quality was predicted by the previous day's gratitude, for both women and men. As seen in the top right panel of Table 3, increased feelings of relationship satisfaction were predicted by the previous day's gratitude from interactions, for both women and men (the effect for women alone is marginally significant at $B = 0.08$, $p = .06$, although men and women did not differ from each other). In addition, as seen in the top left panel of Table 3, for men, increased feelings of relationship connection were predicted by the previous day's gratitude from interactions; however,

5. Because partner-reported behaviors did not significantly predict indebtedness for women, a chi-square analysis of the difference between the partner-reported and perceived coefficients was not necessary.

Table 3. Associations between participant’s relationship well-being and emotional response to interactions with partner on the previous day

Model term	Connection male (female)	Gender differences (<i>p</i>)	Satisfaction male (female)	Gender differences (<i>p</i>)
Predicted from gratitude				
Intercept	3.10 (3.32)	*	5.67 (5.90)	NS
Yesterday’s gratitude	0.07** (0.02)	NS	0.12* (0.08 [†])	NS
Yesterday’s relationship ^a	0.20***	—	0.13**	—
Predicted from indebtedness				
Intercept	3.16 (3.24)	NS	5.69 (5.82)	NS
Yesterday’s indebtedness	0.00 (−0.02)	NS	0.02 (−0.03)	NS
Yesterday’s relationship ^a	0.25***	—	0.19***	—

Note. Results of four analyses predicting relationship outcomes from emotion with men as the intercept: two using relationship connection and two using relationship satisfaction as the outcome. For comparison, female coefficients and level of significance are presented in parentheses next to the male coefficients when gender was included in the model as a potential moderator of that effect. NS = nonsignificant.

^a“Yesterday’s relationship” was yesterday’s relationship connection when today’s relationship connection was the outcome, and yesterday’s relationship satisfaction when today’s relationship satisfaction was the outcome.

[†] *p* = .06. * *p* < .05. ** *p* < 0.01. *** *p* < 0.001.

for women, the effect was not significantly different from zero (although men and women did not significantly differ from each other). Both of these associations between gratitude and relationship quality are independent of the significant links between relationship quality on one day and relationship quality on the previous day.⁶

Relationship quality was not predicted by the previous day’s feelings of indebtedness, for women or for men. Previous day’s indebtedness did not predict the participant’s feelings of satisfaction with the relationship, nor did it predict relationship connection.

One strength of this methodology, given that we did not manipulate emotions, is that we were able to test hypothesized pathways in a prospective fashion. An additional strength of this methodology is that it allows a test of the opposite causal pathway as well: Does the previous day’s relationship satisfaction or connection predict increases in emotion? The answer is no. Additional models that tested whether gratitude was predicted from the previous day’s relationship satisfaction or connection, controlling for the previous day’s gratitude, showed that previous day’s relationship satisfaction and relationship connection did not predict increased feelings of gratitude. Parallel models showed the same null effects for associations between satisfaction with the relationship or relationship connection and increased indebtedness. Although this does not prove our theoretically predicted path of causality, the data pattern is more consistent with our theoretically predicted path than with the reverse path. Thus, these findings increase the strength of the evidence for the hypothesized role of gratitude in the participant’s feelings about the quality of the romantic relationship.

6. We also considered the possibility that these effects could be accounted for by the simple fact that gratitude is a positive emotion, and so we also ran these models controlling for feelings of admiration from interactions with the partner that day (measured on the same scale and with the same instructions as were gratitude and indebtedness). Admiration is theoretically related to gratitude in that it is another positive emotion caused by the person’s praiseworthy actions with the potential for certain positive relational outcomes (see Algoe & Haidt, 2009) and is therefore a relevant comparison. When admiration was included in these models, gratitude continued to predict relationship outcomes (*p* = .08 and *p* = .01 for satisfaction and connection, respectively), whereas admiration did not. The effects in Table 3 cannot be explained by the fact that gratitude is just any positive emotion.

Do participant’s emotions predict the partner’s relationship quality?

Gratitude is hypothesized to help a recipient draw a benefactor deeper into the relationship. Does a participant’s gratitude predict the partner’s feelings of connection and satisfaction with the relationship that day? At the same time, indebtedness has been conceptualized as an emotional response that helps people to fulfill relationship duties, or perceived expectations by the benefactor. Does a participant’s indebtedness also predict the partner’s feelings of connection and satisfaction with the relationship that day? In each analysis, we controlled for the partner’s relationship quality on the previous day. Thus, results can be interpreted as the extent to which a participant’s gratitude (or indebtedness) toward the partner accounts for changes in the partner’s relationship satisfaction and connection from the previous day.

A partner’s feeling of relationship quality was predicted by the participant’s gratitude from interactions that day, for both men and women. The top left panel of Table 4 shows the results for the partner’s feelings of relationship connection. Today’s gratitude significantly predicted increased ratings of relationship connection for male and female partners. This was independent of the association with the previous day’s feelings of relationship connection. The same pattern of results was observed for the partner’s feelings of relationship satisfaction (see top right panel of Table 4).

The partner’s relationship quality also was predicted by the participant’s indebtedness from interactions that day for men. The middle left panel of Table 4 shows the results for the partner’s feelings of relationship connection and the right middle panel shows the results for relationship satisfaction.

Table 4. Associations between partner’s relationship well-being and participant’s emotional response to interactions with partner

Model term	Connection male (female)		Gender differences (<i>p</i>)	Satisfaction male (female)		Gender differences (<i>p</i>)
Predicted from gratitude						
Intercept	2.62	(2.69)	NS	4.75	(4.74)	NS
Today's gratitude	0.25***	(0.20***)	NS	0.45***	(0.39***)	NS
Yesterday's relationship ^a	0.18***		—	0.12**		—
Predicted from indebtedness						
Intercept	3.16	(3.18)	NS	5.70	(5.75)	NS
Today's indebtedness	0.06***	(0.03)	NS	0.12**	(0.03)	†
Yesterday's relationship ^a	0.24***		—	0.18***		—
Predicted from gratitude and indebtedness						
Intercept	2.62	(2.68)	NS	4.75	(4.74)	NS
Today's gratitude	0.25***	(0.20***)	NS	0.46***	(0.40***)	NS
Today's indebtedness	−0.01	(−0.01)	NS	−0.01	(−0.05)	NS
Yesterday's relationship ^a	0.18***		—	0.12**		—

Note. Results of six analyses predicting partner’s relationship outcomes from participant’s emotion, with men as the intercept: three using relationship connection and three using relationship satisfaction as the outcome. For comparison, female coefficients and level of significance are presented in parentheses next to the male coefficients when gender was included in the model as a potential moderator of that effect. NS = nonsignificant.

^a“Yesterday’s relationship” was yesterday’s relationship connection when today’s relationship connection was the outcome, and yesterday’s relationship satisfaction when today’s relationship satisfaction was the outcome.

† *p* = .06. * *p* < .05. ** *p* < .01. *** *p* < .001.

Men's indebtedness today significantly predicted increased ratings of relationship connection and satisfaction for women. This was independent of the association with the previous day's feelings of relationship connection or satisfaction.

Finally, gratitude and indebtedness were included in the model simultaneously to determine whether they independently predicted partner's relationship quality. Although gratitude continued to predict the partner's increased feelings of relationship connection (lower left panel of Table 4) and relationship satisfaction (lower right panel of Table 4), for both men and women, the previous associations between indebtedness and the partner's relationship quality were no longer significant. Importantly, we also ran these models controlling for the partner's report of thoughtful gestures on the same day as the emotional response and ran them controlling for the partner's own feelings of gratitude on that day. Despite the additional significant associations of each of these variables with relationship ratings, the conclusions about gratitude were the same: Participant's gratitude significantly predicted the partner's increased feelings of relationship connection and satisfaction from the previous day.⁷

Discussion

These data document the role that the conscious experience of gratitude plays in relationship quality for individuals in romantic relationships and for the partner to whom they felt grateful. A partner's thoughtful gesture on one day predicted increased feelings of gratitude and increased feelings of indebtedness. However, only feelings of gratitude predicted increased feelings of relationship quality with the partner toward whom

the individual felt grateful on the previous day: Women's increased feelings of satisfaction with the relationship and men's increased feelings of connection to the partner and satisfaction with the relationship were predicted by gratitude felt on the previous day. Finally, gratitude toward a romantic partner predicted increases in the partner's feelings of relationship quality from the previous day: Men and women with grateful partners felt more connected to the partner and more satisfied with the romantic relationship than they had the previous day. Although men's indebtedness predicted increases in the female partner's sense of relationship quality, this effect disappeared when gratitude was accounted for. This study contributes to research on gratitude, indebtedness, and social functional accounts of emotions. In addition, it adds new information about possible gender differences in emotional responses to benefit receipt. We discuss each contribution below.

Replication and extension of previous research on the role of gratitude in social life

In previous work linking gratitude with relationship outcomes, perceived thoughtfulness for actual benefits predicted momentary gratitude, and the averaged gratitude from these momentary benefits predicted future relationship quality for recipient and benefactor (Algoe et al., 2008). The current findings replicate these effects and extend them in important ways. First, the sorority women in that study were forming new relationships—the week of gift giving was intended to welcome the new member into the sorority—and so gratitude could have been a cue to alert the recipient to a new attentive benefactor. In romantic relationships, however, strong communal norms are already in place and our participants were already quite satisfied with their relationships (e.g., the average satisfaction across days was 7.1 on a 9-point scale). Despite these factors, we found that gratitude uniquely predicted increased relationship quality for both recipient and benefactor. Gratitude may work as a momentary reminder of the partner's good qualities, and help maintain or enhance the relationship.

7. As in the models for the participant's relationship outcomes, these conclusions for partner's relationship outcomes also held when controlling for the emotion of admiration from interactions with the partner that day: Gratitude continued to predict relationship connection and satisfaction ($ps < .001$), whereas admiration did not. The effects in Table 4 cannot be explained by the fact that gratitude is just any positive emotion.

It is important to underscore that our interpretation of the available evidence leads to a different conclusion about the social functions of gratitude than the prevailing theoretical perspective (e.g., McCullough et al., 2008), which was written prior to the more recent evidence reviewed in the Introduction. The difference is subtle, but it has important implications for predictions about gratitude in relationships. Earlier theorists have proposed that gratitude functions to promote reciprocal altruism. We agree with this perspective but, as reviewed above, believe that there is much more to the story (see Algoe et al., 2008). Rather than simply causing exchanges to happen or reinforcing a benefactor's prosocial behavior, our perspective suggests that gratitude promotes high-quality relationships, including increasing the relational well-being of a benefactor. In particular, our study that involved individuals in highly satisfied long-term relationships showed that gratitude is not solely valuable for unformed relationships (see McCullough et al., 2008, p. 284), but as a basic emotional process, gratitude may be good in ongoing relationships as well.

The daily reporting methodology allowed us to capitalize on the ecological validity of reports from couples in their "everyday" environments while examining gratitude as part of an interpersonal process. The relationship outcomes in this study represented increases in relationship quality from the previous day; previous work has not been able to take initial relationship quality into account, either through statistical controls or through random assignment. This finding helps to disentangle the emotion of gratitude from other positive aspects of relationships.

Finally, it is notable that these relationship outcomes were not found as part of an "intervention" in which people (a) deliberately pause each day to consider the things for which they feel gratitude toward to their partner (e.g., "counting blessings"; Emmons & McCullough, 2003), (b) take time to write a letter of appreciation toward the partner regarding something for which he or she has not been properly thanked (e.g., "gratitude letters"; Seligman, Steen, Park, & Peterson,

2005), or even (c) are deliberately and explicitly pampered for a week (Algoe et al., 2008). Instead, gratitude from simple, everyday interactions predicted increases in relationship quality for each member of the couple. A little gratitude may go a long way.

Extension of previous research on indebtedness

Empirical interest in indebtedness came after the recent surge in empirical examination of gratitude, with the result that there is even less empirical work regarding the momentary experience of indebtedness than gratitude, and so the current findings offer much to this endeavor. To our knowledge, Tsang (2006a) is the first published study of indebtedness for actual benefits, using a recall method. The current study is the first to study indebtedness "in vivo." We replicated Tsang's essential finding, showing that provision of a benefit (in this case, a "thoughtful" benefit) predicted feelings of indebtedness. Importantly, this research also allowed us to examine the interpersonal consequences of indebtedness within ongoing relationships.

Specifically, we were able to examine indebtedness, a signal of exchange relationship orientation, in the context of romantic relationships, which are normatively communal in nature. Motivation to repay a debt (e.g., Greenberg & Shapiro, 1971) may help to send the signal that one is not "cheating" the benefactor. But in the context of close relationships, this should not promote the relationship. Indeed, whereas indebtedness may have facilitated the sending of the signal to the benefactor, as seen in increased female partner reports of relationship quality, indebtedness did not predict change in relationship quality for the person experiencing the emotion. Moreover, gratitude was a better predictor of increases in the partner's feelings about relationship quality than was indebtedness: Indebtedness no longer predicted female partner's relationship quality when gratitude was included in the model.

These null findings leave open a number of questions about the role of indebtedness in social life. For example, does indebtedness

help to lay the groundwork for new relationships, which can begin from an exchange orientation? Or does indebtedness always simply maintain the status quo, leaving little opportunity for relationship growth, as witnessed in the current study? Previous evidence only speaks to violations of communal norm expectations with perceived "exchange relationship" behavior (i.e., Clark & Mills, 1979; Watkins et al., 2006). But there is no evidence using interpersonal outcomes (either motivations/behaviors or relationship ratings) that addresses the role of indebtedness in exchange relationships. Beginning to address these questions empirically will provide substantial information about the status of indebtedness among other negative emotional experiences, such as guilt, shame, and embarrassment. Now that the picture is becoming clear that indebtedness can be decoupled from gratitude, we believe it is time for close empirical scrutiny of indebtedness as a negative emotion in its own right.

Gender differences in emotional response to benefit receipt?

This study appears to be the first to test for potential gender differences in these emotional processes. Although gratitude may promote relationships once it is experienced, there may be gender differences in the appraisal of a benefit in the first place. First, a women's perception of her partner's thoughtful gesture more reliably predicted her gratitude than did his perception of his partner's thoughtful gesture predict his gratitude. This strong link between perceived thoughtfulness and gratitude for women may be associated with the general tendency for women to be more sensitive to interpersonal cues than men. In addition, men may have more mixed emotional response to receipt of a benefit than women, as demonstrated by the correlation between gratitude and indebtedness ratings across days.

Finally, when considered apart from gratitude, men's feelings of indebtedness appeared to draw their female partners into the relationship on the same day. However, once gratitude was taken into account, this relationship

effect disappeared. In light of the literature on indebtedness (Greenberg & Shapiro, 1971; Watkins et al., 2006), signals of exchange within communal relationships (Clark & Mills, 1979), and men's relative sensitivity to hierarchy cues compared to women (Mast, 2005), we are not surprised that indebtedness feelings were not related to positive relationship outcomes. Importantly, however, gratitude appears to be a basic emotional process: Once in place, it predicts relationship growth for women and men, and for their romantic partners.

Gratitude from a social functional perspective

In the current study, we examined two different emotional responses to benefit receipt in the context of romantic relationships. One of them, gratitude, may help to foster relationship growth. Notably, gratitude stemmed from a variety of benefits deemed "thoughtful" and was not limited to situations in which the recipient was helped when in need, which is also consistent with our previous work (Algoe et al., 2008; Algoe & Haidt, 2009). That is, gratitude can arise from responsive benefits regardless of whether the benefit helped the recipient when she was in need or boosted the recipient when no need was present. Our data suggest that the key is whether the partner is responsive to the self. Recent work on relationships has demonstrated that being there for people in good times is as important as being there for them when things are not going well (Gable, Gonzaga, & Strachman, 2006). Relationship partners who demonstrate an attention to our needs and preferences can help us to get through difficult times and to flourish in good times. Our current findings suggest that gratitude reminds us of and binds us to such individuals who are currently in our lives.

Importantly, because we took a social functional approach to the study of gratitude, we also focused on implications for the dyad. We found that gratitude was linked to increased relationship quality for both members of the dyad. The finding for the partner highlights the potential rewards associated with altruism: Expressed gratitude may

increase the benefactor's perception that he is in caring, communal relations with others. Recent research has demonstrated the potential salubrious effects of helping (Brown, Nesse, Vinokur, & Smith, 2003). Indeed, Boehm, Lyubomirsky, and Sheldon (2008) found that the effect of a "random acts of kindness" intervention on the benefactor's future mental health outcomes is mediated by *perceived gratitude* from the recipient of the thoughtful gesture.

As a positive emotion, gratitude may help to create an "upward spiral" of relational well-being between members of a dyad. Importantly, this increased social resource may have long-term mental and physical health consequences (see Fredrickson, Cohn, Coffey, Pek, & Finkel, 2008 for experimental evidence regarding the role of positive emotions in promoting mental health through built resources). To the extent that gratitude helps to foster enriching relationships, its adaptive value is apparent.

Limitations and future directions

Despite the variety of contributions to an understanding of gratitude and indebtedness in social life, this study was limited in that it did not track emotional response to one benefit through the entire interpersonal process. Instead, it documents that one behavior can predict different emotional responses and also documents links between emotional responses to interactions with a partner in general that day to future relationship outcomes. It is unclear whether one particular behavior is enough to produce the increases in relationship satisfaction (by way of gratitude) found here or whether it was a variety of thoughtful behaviors throughout a given day that may have contributed to the emotional response (which in turn predicted relationship quality increases). However, this lack of clarity about the process that emerges in response to an individual benefit does not limit inferences about the findings related to specific aspects of the process that are presented here.

Of course, we must include the caveat that these data are correlational in nature, and we have not experimentally manipulated

emotional response to benefit receipt. However, we believe this limitation is offset by the quasi-experimental design (i.e., variation in daily experiences) and ecological validity. Moreover, the fact that we were able to control for previous day's outcome or behavior increases our confidence in the direction of associations between gratitude and (increased) relationship quality for each member of the couple. However, experimental tests of relationship effects, by bringing acquainted dyads into the laboratory together, are an important next step.

In this vein, now that a recipient's gratitude has been linked with a benefactor's feelings of relationship quality, important questions remain about the translation of one person's emotion to another's improved feelings about the relationship. Expression of appreciation may be an important skill for maintaining and cultivating high-quality relationships with attentive benefactors; in turn, a benefactor's gracious receipt of thanks from an appreciative recipient may validate the mutual feeling of care between the individuals. As suggested by an important review of gratitude as a moral emotion (McCullough, Kilpatrick, Emmons, & Larson, 2001), research on this point of emotion transmission—when the emotion leaves the head of the recipient—would go a long way toward an understanding of the mechanisms through which gratitude functions, for the individual, the dyad, and society.

Finally, although it is not central to our thesis regarding the roles of gratitude and indebtedness in the context of ongoing romantic relationships, we feel compelled to draw attention to the intriguing findings for partner-reported and perceived benefits (i.e., partner- and participant-reported benefits) independently predicting emotional responses. On the one hand, the findings regarding partner-reported benefits are validation that increases in gratitude and indebtedness were predicted from "real" benefits and that the effects were not only in the head of the participant. On the other hand, they highlight that it is important to consider each person's influence on the interaction, perhaps by using ongoing

relationships to reveal the social functions of emotion.

Conclusion

As two different emotional responses to the “same” interpersonal gesture (i.e., benefit provision), gratitude and indebtedness appear to have very different interpersonal implications within the context of close relationships. In line with its proposed social function (Algoe et al., 2008), gratitude was associated with increased relationship quality for both members of the couple; indebtedness, which may help to ensure a signal is seen by a benefactor, may have done that for men but did not predict increases in relationship quality for participant or partner after gratitude was taken into account. The little things may make a big difference within the daily lives of individuals in romantic relationships. Gratitude may help to turn “ordinary” moments into opportunities for relationship growth, even in the context of already close, communal relations.

References

- Algoe, S. B., & Haidt, J. (2009). Witnessing excellence in action: The “other-praising” emotions of elevation, gratitude, and admiration. *Journal of Positive Psychology*, 4, 105–127.
- Algoe, S. B., Haidt, J., & Gable, S. L. (2008). Beyond reciprocity: Gratitude and relationships in everyday life. *Emotion*, 8, 425–429.
- Ames, D. R., Flynn, F. J., & Weber, E. U. (2004). It's the thought that counts: On perceiving how helpers decide to lend a hand. *Personality and Social Psychology Bulletin*, 30, 461–474.
- Bartlett, M. Y., & DeSteno, D. (2006). Gratitude and prosocial behavior: Helping when it costs you. *Psychological Science*, 17, 319–325.
- Baumeister, R. F., Vohs, K. D., DeWall, C. N., & Zhang, L. (2007). How emotion shapes behavior: Feedback, anticipation, and reflection, rather than direct causation. *Personality and Social Psychology Review*, 11, 167–203.
- Boehm, J. K., Lyubomirsky, S., & Sheldon, K. M. (2008). *Spicing up kindness: The role of variety in the effects of practicing kindness on improvements in mood, happiness, and self-evaluations*. Manuscript in preparation.
- Brown, S. L., Nesse, R. M., Vinokur, A. D., & Smith, D. M. (2003). Providing social support may be more beneficial than receiving it: Results from a prospective study of mortality. *Psychological Science*, 14, 320–327.
- Clark, M. S., & Mills, J. (1979). Interpersonal attraction in exchange and communal relationships. *Journal of Personality and Social Psychology*, 37, 12–24.
- Clark, M. S., & Waddell, B. (1985). Perceptions of exploitation in communal and exchange relationships. *Journal of Social and Personal Relationships*, 2, 403–418.
- Cross, S. E., & Madson, L. (1997). Models of the self: Self-construals and gender. *Psychological Bulletin*, 122, 5–37.
- 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.
- Fredrickson, B. L. (2004). Gratitude (like other positive emotions) broadens and builds. In R. A. Emmons & M. E. McCullough (Eds.), *The psychology of gratitude* (pp. 145–166). New York, NY: Oxford University Press.
- Fredrickson, B. L., Cohn, M. A., Coffey, K. A., Pek, J., & Finkel, S. M. (2008). Open hearts build lives: Positive emotions, induced through loving-kindness meditation, build consequential personal resources. *Journal of Personality and Social Psychology*, 95, 1045–1062.
- Fuligni, A. J., & Hardway, C. (2006). Daily variation in adolescents' sleep, activities, and psychological well-being. *Journal of Research on Adolescence*, 16, 353–378.
- Gable, S. L., Gonzaga, G. C., & Strachman, A. (2006). Will you be there for me when things go right? Supportive responses to positive event disclosures. *Journal of Personality and Social Psychology*, 91, 904–917.
- Gable, S. L., Reis, H. T., & Downey, G. (2003). He said, she said: A quasi-signal detection analysis of spouses' perceptions of everyday interactions. *Psychological Science*, 14, 100–105.
- Gouldner, A. W. (1960). The norm of reciprocity: A preliminary statement. *American Sociological Review*, 25, 161–178.
- Greenberg, M. S., & Shapiro, S. P. (1971). Indebtedness: An adverse aspect of giving and receiving help. *Sociometry*, 34, 290–301.
- Hall, J. A., & Mast, M. S. (2008). Are women always more interpersonally sensitive than men? Impact of goals and content domain. *Personality and Social Psychology Bulletin*, 34, 144–155.
- Keltner, D., & Buswell, B. N. (1997). Embarrassment: Its distinct form and appeasement functions. *Psychological Bulletin*, 122, 250–270.
- Keltner, D., & Gross, J. (1999). Functional accounts of emotions. *Cognition and Emotion*, 13, 467–480.
- Keltner, D., & Haidt, J. (1999). Social functions of emotions at four levels of analysis. *Cognition and Emotion*, 13, 505–521.
- Lazarus, R. S. (1991). *Emotion and adaptation*. New York, NY: Oxford University Press.
- Lerner, J. S., & Tiedens, L. Z. (2006). Portrait of the angry decision maker: How appraisal tendencies

- shape anger's influence on cognition. *Journal of Behavioral Decision Making*, 19, 115–137.
- Maisel, N. C., & Gable, S. L. (2009). The paradox of received support: The importance of responsiveness. *Psychological Science*, 20, 928–932.
- Mauss, M. (1990). *The gift: Forms and functions of exchange in archaic societies* (W. D. Halls, Trans.). London, England: Routledge. (Original work published 1925)
- Mast, M. S. (2005). Interpersonal hierarchy expectation: Introduction of a new construct. *Journal of Personality Assessment*, 84, 287–295.
- McClure, E. B. (2000). A meta-analytic review of sex differences in facial expression processing and their development in infants, children, and adolescents. *Psychological Bulletin*, 126, 424–453.
- 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, 281–284.
- Mills, J., Clark, M. S., Ford, T. E., & Johnson, M. (2004). Measurement of communal strength. *Personal Relationships*, 11, 213–230.
- Ortony, A., Clore, G. L., & Collins, A. (1988). *The cognitive structure of emotion*. New York, NY: Cambridge University Press.
- Raudenbush, S. W., Bryk, A. S., Cheong, Y. F., & Congdon, R. T. (1996). *HLM 5: Hierarchical linear and nonlinear modeling*. Chicago, IL: Scientific Software International.
- Reis, H. T., Clark, M. S., & Holmes, J. G. (2004). Perceived partner responsiveness as an organizing construct in the study of intimacy and closeness. In D. J. Mashek & A. Aron (Eds.), *Handbook of closeness and intimacy*. Mahwah, NJ: Erlbaum.
- Schwarz, N., & Clore, G. L. (2007). Feelings and phenomenal experiences. In A. Kruglanski & E. T. Higgins (Eds.), *Social psychology: Handbook of basic principles* (2nd ed., pp. 385–400). New York, NY: Guilford.
- Seligman, M. E. P., Steen, T. A., Park, N., & Peterson, C. (2005). Positive psychology progress: Empirical validation of interventions. *American Psychologist*, 60, 410–421.
- Tesser, A., Gatewood, G., & Driver, M. (1968). Some determinants of gratitude. *Journal of Personality and Social Psychology*, 9, 233–236.
- Trivers, R. L. (1971). The evolution of reciprocal altruism. *Quarterly Review of Biology*, 46, 35–57.
- Tsang, J. (2006a). The effects of helper intention on gratitude and indebtedness. *Motivation and Emotion*, 30, 199–205.
- Tsang, J. (2006b). Gratitude and prosocial behaviour: An experimental test of gratitude. *Cognition and Emotion*, 20, 138–148.
- Tsang, J. (2007). Gratitude for small and large favors: A behavioral test. *Journal of Positive Psychology*, 2, 157–167.
- Watkins, P. C., Scheer, J., Ovnicek, M., & Kolts, R. (2006). The debt of gratitude: Dissociating gratitude and indebtedness. *Cognition & Emotion*, 20, 217–241.

