

Emotion

The Social Functions of the Emotion of Gratitude via Expression

Sara B. Algoe, Barbara L. Fredrickson, and Shelly L. Gable

Online First Publication, June 3, 2013. doi: 10.1037/a0032701

CITATION

Algoe, S. B., Fredrickson, B. L., & Gable, S. L. (2013, June 3). The Social Functions of the Emotion of Gratitude via Expression. *Emotion*. Advance online publication. doi: 10.1037/a0032701

BRIEF REPORT

The Social Functions of the Emotion of Gratitude via Expression

Sara B. Algoe and Barbara L. Fredrickson
University of North Carolina at Chapel Hill

Shelly L. Gable
University of California, Santa Barbara

Recent theory posits that the emotion of gratitude uniquely functions to build a high-quality relationship between a grateful person and the target of his or her gratitude, that is, the person who performed a kind action (Algoe et al., 2008). Therefore, gratitude is a prime candidate for testing the dyadic question of whether one person's grateful emotion has consequences for the other half of the relational unit, the person who is the target of that gratitude. The current study tests the critical hypothesis that being the target of gratitude forecasts one's relational growth with the person who expresses gratitude. The study employed a novel behavioral task in which members of romantic relationships expressed gratitude to one another in a laboratory paradigm. As predicted, the target's greater perceptions of the expresser's responsiveness after the interaction significantly predicted improvements in relationship quality over 6 months. These effects were independent from perceptions of responsiveness following two other types of relationally important and emotionally evocative social interactions in the lab, suggesting the unique weight that gratitude carries in cultivating social bonds.

Keywords: gratitude, emotion expression, social functions of emotion

Because emotions evolved within the context of the ongoing relationships of everyday life and are most frequently caused by interactions with other people, they are presumed to serve social functions (see Keltner & Haidt, 1999). Though most evidence for this thesis addresses social implications for the person who experiences the emotion, theory suggests that emotions have implica-

tions for the other half of the relational dyad as well, that is, the person who caused the emotion. Gratitude is a prime focus for investigations of dyadic functions of emotion because it is inherently relational; it is often experienced when one person has done something kind for another. Here, we highlight *expressed gratitude* as a behavioral vehicle through which the dyadic functions of gratitude act.

Specifically, a key untested hypothesis from recent theorizing on the social functions of gratitude (Algoe, Haidt, & Gable, 2008), described below, involves relational growth, that is, prospective change in relationship quality. Although previous studies have examined relationship growth in the person experiencing gratitude (the recipient of the kind act), no work has specifically targeted such changes in the relationship for the target of the gratitude (the benefactor toward whom the gratitude is felt). For the first time, we focus on naturalistic interactions involving expressed gratitude between people in ongoing relationships, using a laboratory protocol to directly test whether the momentary impact of being the target of expressed gratitude forecasts downstream relational benefits for the other half of the relational unit.

Recent theorizing (Algoe et al., 2008) posits that gratitude fuels mutual cyclical growth between the members of the dyad, due to gratitude's status as a positive emotion (Fredrickson, 1998, 2004), the approach-related motives that accompany gratitude (Gable & Reis, 2001; Watkins, Scheer, Ovnicek, & Kolts, 2006), and the role of gratitude in communal relationships (Clark & Mills, 2011). For illustration, communal relationship norms can be contrasted with exchange-based relational norms (see Clark & Mills, 2011); exchange norms facilitate functional social relationships that are necessary for everyday life, but are not typically characterized by concern for another's needs or

Sara B. Algoe and Barbara L. Fredrickson, Department of Psychology, University of North Carolina at Chapel Hill; Shelly L. Gable, Department of Psychology, University of California, Santa Barbara.

This work was supported by a National Institute of Mental Health (NIMH) Postdoctoral Fellowship in Biobehavioral Issues in Physical and Mental Health (T32 MH15750) to the first author, as well as a NIMH Grant (MH59615) to the second author, and a NIMH Grant (MH65346) to the third author. Additional funding came from the support of a National Science Foundation Grant (0615478) to Dr. Keith Payne. We would also like to acknowledge the hard working research team who helped with the Carolina Couples study. In alphabetical order, they are: Jordan (Whitney) Akers, Leslie Allison, Jenny Bridgers, Katelyn Brown-Gomez, Alese Harris, Hannah Kirby, Nathan Kretzschmar, Laura Kurtz, Alysson Light, Megan McMurray, Nicholas Miller, Marion Smith, and Margaret Taylor. (Special praise goes to Jenny Bridgers for her leadership and energy: the entire team recognized her extraordinary contribution to the continuity and success of the project.) We are particularly grateful for feedback on earlier drafts of this article from Lahna Catalino, Lisa Cavanaugh, Bethany Kok, Amy Strachman, and Tanya Vacharkulksemsuk as well as, collectively, members of the first and third authors' lab groups.

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

felt closeness, as are communal norms. Notably, our hypothesis centers on change in quality and therefore required measurement of quality at multiple time points. By testing prospective change in relationship quality for the target of expressed gratitude, the current work provides an important test of the explanatory power of this social functional account of gratitude (i.e., Algoe et al., 2008), while contributing to the literature on dyadic functions of emotions (see Keltner & Haidt, 1999).

In the current study, couples attended a lab session where they each expressed gratitude to the other. Of course, in theory and practice, some expressions of gratitude will better hit the mark than others, due to factors such as felt emotion, motivation, or interpersonal skill. We expect that future research will address such factors. In the current investigation, we followed the structure of prior observational paradigms (e.g., Collins & Feeney, 2000; Driver & Gottman, 2004; Gable, Gonzaga, & Strachman, 2006; Gottman, Coan, Carrere, & Swanson, 1998): We created the context for the topic of interest—all expressers selected an event for which they already felt grateful—and we assume this single laboratory-based interaction is a representative sample of how the partner expresses gratitude to the benefactor in recurring everyday interactions. We focus on the untested question of whether the immediate psychological impact of the expression forecasts growth in the relationship.

Thus, after being the target of expressed gratitude, we measured the benefactor's perception of the expresser's responsiveness—specifically, the extent to which the expresser was thought to understand, validate, and care for the participant (Reis, Clark, & Holmes, 2004). Perceived partner responsiveness is a key component in intimacy and communal relationships, and has been found to predict relationship outcomes in a variety of contexts; it is the theorized relational currency through which gratitude primarily functions (Algoe, 2012). Specifically, perceived benefactor responsiveness contributes to the recipient's feelings of gratitude for a benefit, beyond economic considerations of benefit cost (Algoe et al., 2008). Thus, when the emotion of gratitude arises as a result of another's beneficial act toward the self, Algoe and colleagues suggested that the emotion functions to draw attention to that potentially high-quality relationship partner—finding new or reminding of current partners—and provide fuel for the binding of the two people more closely together (2008). Since then, several other studies have linked gratitude or its expression with perceived partner responsiveness or communal relationship norms (e.g., Algoe & Stanton, 2012; Algoe, Gable, & Maisel, 2010; Bartlett, Condon, Cruz, Baumann, & DeSteno, 2012; Gordon, Impett, Kogan, Oveis, & Keltner, 2012; Kubacka, Finkenauer, Rusbult, & Keijsers, 2011; Lambert, Clark, Durtschi, Fincham, & Graham, 2010; see review in Algoe, 2012). We therefore use the benefactor rating of the expresser's responsiveness from the lab interaction—as an index of the way expressions of gratitude are likely perceived in everyday interactions—to predict change in benefactor's relationship satisfaction from study entry to a 6-month follow up.

Finally, we consider an additional question: whether the proposed effects of expressions of gratitude contribute to the quality of the relationship beyond the effects of two other types of everyday social interactions that already have empirically documented links between perceived partner responsiveness after a lab interaction and relationship quality—when one partner shares in the

other's joy or pride, and when one partner provides support in response to the other's worry or concern. Specifically, perceived partner responsiveness following each of these types of interactions in the lab is independently associated with relationship quality (Gable et al., 2006). Thus, testing our hypothesized effect when statistically controlling for perceived partner responsiveness measured after each of these other types of lab interactions would provide a strong test of whether expressed gratitude independently contributes to the promotion of relationship quality for the person who hears it.

Method

Participants

Members of 77 heterosexual couples ($N = 154$) who had been romantically involved for at least 6 months were recruited from around Chapel Hill, North Carolina.¹ Participants were, on average, 28 years old ($Mdn = 25$; range = 18 to 57), and in relationships for about 4 years (range = 6 months to 35 years; $M = 50.07$ months; $Mdn = 30.5$). At study entry 55.8% were dating, 39% were married, 3.9% were engaged to be or living as married. The majority of participants self-identified as White/Caucasian (73.4%), and the remaining participants were Black/African American (13%), East or South Asian (4.5%), and multiracial or of unidentified racial category (9.1%); 3.9% identified as Hispanic.

Procedure

Couples attended two lab sessions, 2 weeks apart, during which they participated in a series of videotaped interactions. At least 6 months after the initial lab visits, participants were invited to report on their relationship through a brief online questionnaire. Four couples did not attend both lab sessions so are not included in the present analyses.

Visits to the Lab

Upon arrival to the first lab session, participants completed the 7-item *Relationship Satisfaction Scale* (Hendrick, 1988; e.g., "In general, how satisfied are you with your relationship?"; $\alpha = .81$) independently and in private. For videotaped interactions, participants were seated in two chairs, approximately 3 feet apart, facing each other at 45 degree angles. Video cameras linked to a monitor in a separate room allowed experimenters to monitor participant progress. Interactions were spread across the two sessions to avoid participant fatigue; the targeted interactions of expressed gratitude occurred in the second session. Control interactions of positive and negative event disclosures were in the first session, in counterbalanced order across couples. Relative to the 6-month follow-up, we consider all interactions to be concurrent measures of behavior toward the partner.

Instructions and Measures for Videotaped Interactions

All interactions were structured similarly, following Gable et al. (2006). First, participants received a description of the conversa-

¹ Three same-sex couples participated but are not included here due to limitations of the data analytic technique.

tion topic (see below), then privately and independently completed a questionnaire in which they briefly identified the event about which they would speak. Next, participants were told they would each have up to 5 minutes to talk about their chosen event, and that the “listener” was free to add to or talk about the event as much or as little as they would under normal circumstances. After the interaction, participants privately answered a brief questionnaire before switching roles, with the listener in the previous task sharing his or her event, and both independently responding to a questionnaire after the task.

Expressed gratitude task. All couple members were asked to choose something nice the other had done for them recently, for which they felt grateful, and were told they would have a chance to thank the other during the interaction. Specifically, participants were told the following:

We are interested in how couples talk about the kind things they do for one another. We are interested in hearing about specific things. We'd like you to think about a specific positive thing your partner did for you recently for which you felt grateful. Your partner's positive gesture may be something that happened before but continues to make you grateful, or something going on now. Some examples would be helping to solve a problem, surprising you with a gift, taking time to listen to a concern, spending time doing something he or she would not typically do, or similar things. We'd like you to pick something good that has been on your mind recently, no matter how big or small. We will ask you to thank your partner for his or her kind gesture in your interaction.

Control interactions: Disclosure of positive and negative events. Following procedure and participant instructions from Gable and colleagues (2006), each couple-member was asked to think of something good and bad that had happened to him or her recently for disclosure of the positive and negative event, respectively. For each example, they were asked to think of something that did not involve the other person.

Measure of perceived partner responsiveness. After each interaction, participants rated the extent to which they felt that their partners had been responsive during the interaction, using a 10-item measure (Gable et al., 2006, adapted from Reis, 2006; e.g., “My partner saw the ‘real’ me,” “My partner understood me,” “My partner expressed liking and encouragement of me”). The scale was reliable across all interactions ($M \alpha = .94$). Key data for our hypothesis comes from each participant's report of how responsive the partner was after expressing gratitude. Additional analyses controlled for perceived partner responsiveness after the partner had the opportunity to respond to the participant's disclosure of a positive event and a negative event.

Six-Month Follow-Up

Six to 9 months after their first lab visit, the 142 participants who had consented to be recontacted (92.2% of sample) were e-mailed an invitation to complete a brief online questionnaire. In total, 47 women and 41 men (62% response rate) from 55 couples (representing 75% of couples) completed the Relationship Satisfaction Questionnaire (Hendrick, 1988; $\alpha = .86$). There were no significant differences between people who completed the first portion of the study and those who completed all portions of the study on the key predictor of interest; perceived partner responsiveness after receiving his or her expressed gratitude ($p = .26$).

Results

All analyses used HLM (Raudenbush, Byrk, Cheong, & Congdon, 1996) to account for the dependent nature of the data across couples. This allowed us to model variability at each level simultaneously (i.e., individual responses and couple characteristics were modeled as Levels 1 and 2, respectively). For all models, the random component of the intercept was free to vary at the upper levels, but the random components of the slopes were fixed. Inclusion of gender in analyses did not change the pattern of results, thus is not included in analyses reported below. As expected, multilevel models demonstrate that relationship satisfaction at study entry and follow-up were strongly associated, $B = .67, p < .001, d = 1.87$, and that perceived responsiveness following a partner's expression of gratitude was significantly associated with benefactor's concurrent relationship satisfaction, $B = .34, p < .001, d = 1.09$, as well as at follow-up, $B = .44, p < .001, d = 1.05$.

To test our primary hypothesis, we constructed multilevel models in which we entered relationship satisfaction at study entry and perceived responsiveness following a partner's expression of gratitude as simultaneous predictors of relationship satisfaction at follow-up. As hypothesized, perceived responsiveness of an expression of gratitude was a significant positive predictor of changes in the benefactor's relationship satisfaction at 6-month follow-up ($B = .26, p = .02, d = .52$), despite the expected significant effect of relationship satisfaction at study entry ($B = .52, p < .001, d = .97$). This evidence is consistent with our hypothesis that, when benefactors perceived responsiveness in expressed gratitude in the lab, benefactor's feelings about the relationship would increase over 6 months.

We also ran a model in which we controlled for the expresser's initial rating of the importance of the event for which he or she was expressing gratitude, with no change in conclusions (event importance $B = -.02, p = .63$; perceived expresser responsiveness $B = .26, p = .02, d = .52$; benefactor's relationship satisfaction at study entry $B = .52, p < .001, d = .95$).

Additional Analyses: Controlling for Positive Event and Negative Event Disclosure Interactions

As expected, perceived partner responsiveness following each type of interaction was significantly correlated with one another, and with concurrent relationship satisfaction; each was also significantly correlated with relationship satisfaction at 6-month follow-up. See Table 1. To test whether perceived partner respon-

Table 1
Correlations Among Measured Variables

	1	2	3	4
1. Rel. satis. T1	—			
2. Rel. satis. T2	.59	—		
3. PPR after partner expressed gratitude	.50	.50	—	
4. PPR after disclosed positive event	.38	.34	.52	—
5. PPR after disclosed negative event	.52	.37	.50	.76

Note. Raw correlations across the entire sample. All were significant at $p < .01$. Rel. satis. = relationship satisfaction; PPR = perceived partner responsiveness.

siveness following a partner's expression of gratitude accounts for unique variance, we constructed a model that simultaneously included perceptions of the partner's responsiveness after each of the other emotion-rich interactions that are known to be important for relationship quality as well as satisfaction at study entry. Initial relationship satisfaction continued to significantly predict subsequent relationship satisfaction in this model ($B = .48, p = .001, d = .85$), but perceived partner responsiveness following a positive or negative event disclosure did not ($B = -.23, p = .23, d = -.27$; $B = .20, p = .08, d = .42$, respectively). However, perceived partner responsiveness following a partner's expression of gratitude continued to significantly and positively predict change in benefactor's relationship satisfaction over the course of 6 months ($B = .30, p = .04, d = .47$), despite these additional statistical controls.

Discussion

Gratitude is an inherently relational emotion, and most modern accounts place it in a position of influence over the interpersonal relationship between the grateful recipient and the target of one's gratitude, the original benefactor (e.g., Algoe et al., 2008; Bartlett & DeSteno, 2006; McCullough, Kimeldorf, & Cohen, 2008). Despite theory, however, little data exists to address how one person's gratitude may influence the other half of the relational unit. This study focused on expressed gratitude as a mechanism for gratitude's dyadic social functions. As predicted, the momentary psychological impact from hearing an expression of gratitude forecasted change in the target's relationship satisfaction over 6 months.

This is the first demonstration of positive prospective change in relationship quality for the benefactor who is the target of gratitude. As such, it provides the strongest evidence to date for the dyadic functions of gratitude while highlighting the explanatory power of a theoretical account of gratitude as a positive emotion that is central to communal relationships (see Algoe et al., 2008). Moreover, though a few studies now provide evidence about benefits of expressing gratitude for the expresser (e.g., Algoe & Stanton, 2012; Lambert et al., 2010), this is the first to document relational benefits for the target of the expression. Another recent study tested cross-sectional, cross-dyad associations between an expresser's reports of having expressed gratitude to a spouse and the spouse's feelings of relationship satisfaction, finding no significant association (Gordon, Arnette, & Smith, 2011). Among other possibilities, those null findings may have been because two of the three items asked about the respondent's own feelings about expressing (e.g., "My gratitude for my spouse impacted my marriage today"; C. Gordon, personal communication, March 15, 2011). In the current study, we identified a specific hypothesis from emotion theory, and found robust support, thereby also contributing to the relatively small literature on dyadic functions of emotion (Keltner & Haidt, 1999).

Though causal inference is limited by the correlational design, we believe this limitation is offset by the close relationship context, prospective assessment of relationship quality, and stringent control variables included in analyses. Specifically, using a novel paradigm, we sampled how couple members might naturally express gratitude to one another in their everyday lives. Fortunately, we were able to statistically control for the impact of two other

prerelationship behaviors, measured after live interactions in the lab, which have already been empirically linked to relationship well-being (Gable et al., 2006). Despite the fact that targets who perceived their partners to be responsive after expressing gratitude also perceived their partners to be responsive after these other prerelationship behaviors, the psychological impact from hearing an expression of gratitude carried independent weight in the target's positive change in relationship satisfaction over time.

Precedent from related methodologies (see Gable et al., 2006) led to the logic that perceived responsiveness from the lab interaction was a representative sample of how expressions of gratitude are perceived in the day-to-day experiences of these couples, and our theory suggests that the cumulative effects of such interactions, repeated over time, can improve the relationship (Algoe et al., 2008, 2010). However, our study design cannot rule out the possibility that this lab interaction served as an unassuming intervention, wherein the explicit expression of gratitude—particularly when it was perceived to be responsive—causally jump-started the proposed upward spiral of gratitude-fueled mutual displays of responsiveness that would contribute to improved relationship quality. This possibility would have obvious implications for the use of expressed gratitude in clinical practice. However, it can only be tested with an experimental design that carefully manipulates the expression to have genuine acute impact on the listener. This represents an important avenue for future research.

Finally, we did not design this study to experimentally test for within-couple differences in interaction type, nor do we see this as the most interesting research question—many interpersonal behaviors are important for high-quality relationships. However, our final analyses, where the expression of gratitude accounted for independent variance, draws attention to the importance of future research on the behavior that is fueled by the social emotion of gratitude. Experimental designs are also needed to carefully examine the behavior of expressed gratitude, the immediate psychological impact on the expresser, and even the daily interpersonal processes through which gratitude expressions may produce improvements in relationship quality. These will not be easy studies to conduct, but our data, as well as recent evidence that expression in some form may be required for the social consequences of gratitude to take hold (e.g., Algoe & Stanton, 2012; Lambert et al., 2010), suggest that such studies will yield important insights about how the social emotion of gratitude fuels upward spirals of mutual growth between members of the dyad.

References

- Algoe, S. B. (2012). Find, remind, and bind: The functions of gratitude in everyday relationships. *Social and Personality Psychology Compass, 6*, 455–469. doi:10.1111/j.1751-9004.2012.00439.x
- Algoe, S. B., Gable, S. L., & Maisel, N. (2010). It's the little things: Everyday gratitude as a booster shot for romantic relationships. *Personal Relationships, 17*, 217–233. doi:10.1111/j.1475-6811.2010.01273.x
- Algoe, S. B., Haidt, J., & Gable, S. L. (2008). Beyond reciprocity: Gratitude and relationships in everyday life. *Emotion, 8*, 425–429. doi: 10.1037/1528-3542.8.3.425
- Algoe, S. B., & Stanton, A. L. (2012). Gratitude when it is needed most: Social functions of gratitude in women with metastatic breast cancer. *Emotion, 12*, 163–168. doi:10.1037/a0024024

- Bartlett, M. Y., Condon, P., Cruz, J., Baumann, J., & DeSteno, D. (2012). Gratitude: Prompting behaviours that build relationships. *Cognition & Emotion*, *26*, 2–13. doi:10.1080/02699931.2011.561297
- Bartlett, M. Y., & DeSteno, D. (2006). Gratitude and prosocial behavior: Helping when it costs you. *Psychological Science*, *17*, 319–325. doi:10.1111/j.1467-9280.2006.01705.x
- Clark, M. S., & Mills, J. R. (2011). A theory of communal (and exchange) relationships. In P. A. M. Van Lange, A. W. Kruglanski, & E. T. Higgins (Eds.) *Handbook of theories of social psychology* (pp. 232–250). Los Angeles, CA: Sage.
- Collins, N. L., & Feeney, B. C. (2000). A safe haven: An attachment theory perspective on support seeking and caregiving in intimate relationships. *Journal of Personality and Social Psychology*, *78*, 1053–1073.
- Driver, J. L., & Gottman, J. M. (2004). Daily marital interactions and positive affect during marital conflict among newlywed couples. *Family Process*, *43*, 301–314. doi:10.1111/j.1545-5300.2004.00024.x
- Fredrickson, B. L. (1998). What good are positive emotions? *Review of General Psychology*, *2*, 300–319. doi:10.1037/1089-2680.2.3.300
- 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. doi:10.1093/acprof:oso/9780195150100.003.0008
- 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. doi:10.1037/0022-3514.91.5.904
- Gable, S. L., & Reis, H. T. (2001). Appetitive and aversive social interaction. In J. Harvey, & A. Wenzel (Eds.), *Close romantic relationships: Maintenance and enhancement* (pp. 169–194). Mahwah, NJ: Erlbaum.
- Gordon, A. M., Impett, E. A., Kogan, A., Oveis, C., & Keltner, D. (2012). To have and to hold: Gratitude promotes relationship maintenance in intimate bonds. *Journal of Personality and Social Psychology*, *103*, 257–274. doi:10.1037/a0028723
- Gordon, C. L., Arnette, R. A. M., & Smith, R. E. (2011). Have you thanked your spouse today?: Felt and expressed gratitude among married couples. *Personality and Individual Differences*, *50*, 339–343. doi:10.1016/j.paid.2010.10.012
- Gottman, J. M., Coan, J., Carrere, S., & Swanson, S. (1998). Predicting marital happiness and stability from marital interactions. *Journal of Marriage and the Family*, *60*, 5–22. doi:10.2307/353438
- Hendrick, S. S. (1988). A generic measure of relationship satisfaction. *Journal of Marriage and the Family*, *50*, 93–98. doi:10.2307/352430
- Keltner, D., & Haidt, J. (1999). Social functions of emotions at four levels of analysis. *Cognition & Emotion*, *13*, 505–521. doi:10.1080/026999399379168
- Kubacka, K. E., Finkenauer, C., Rusbult, C. E., & Keijsers, L. (2011). Maintaining close relationships: Gratitude as a motivator and a detector of maintenance behavior. *Personality and Social Psychology Bulletin*, *37*, 1362–1375. doi:10.1177/0146167211412196
- Lambert, N. M., Clark, M. S., Durtschi, J., Fincham, F. D., & Graham, S. M. (2010). Benefits of expressing gratitude: Expressing gratitude to a partner changes one's view of the relationship. *Psychological Science*, *21*, 574–580. doi:10.1177/0956797610364003
- 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. doi:10.1111/j.1467-8721.2008.00590.x
- 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. (2006). *The Perceived Partner Responsiveness Scale*. Unpublished manuscript, University of Rochester, Rochester, NY.
- Reis, H., 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. P. Aron (Eds.) *Handbook of closeness and intimacy* (pp. 201–225). Mahwah, NJ: Erlbaum Publishers.
- Watkins, P. C., Scheer, J., Ovnicek, M., & Kolts, R. (2006). The debt of gratitude: Dissociating gratitude and indebtedness. *Cognition & Emotion*, *20*, 217–241. doi:10.1080/02699930500172291

Received December 28, 2012

Revision received March 14, 2013

Accepted March 15, 2013 ■