

[Benjamin A. Converse](#)

University of Virginia

[Ayelet Fishbach](#)

University of Chicago

*Instrumentality Boosts Gratitude:  
Helpers Are More Appreciated While They Are Useful*

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## **Instrumentality Boosts Gratitude: Helpers Are More Appreciated While They Are Useful**

Most of us get by with a little help from our friends—also from family members, colleagues, service providers, and even strangers. We rely on others in the pursuit of individual goals, such as maintaining a healthy lifestyle or achieving professionally, and more interdependent goals, such as fostering a successful relationship or completing a group project. One's emotional response to aid provided in these pursuits helps link one deed to the next. Gratitude perpetuates social exchange by inspiring repayment (Bartlett & DeSteno, 2006), positively reinforcing helping behavior (McCullough, Kilpatrick, Emmons, & Larson, 2001), building trust and cooperation (DeSteno, Bartlett, Bauman, Williams, & Dickens, 2010), and strengthening social relationships (Algoe, Haidt, & Gable, 2008; Fredrickson, 2004).

The current work examines emotional responses to help, and advances motivation as a potential influence. We propose that beneficiaries experience increased gratitude for helpers on whom they currently depend—that is, for helpers who are instrumental to their current goals. Consequently, they may feel more grateful while helpers are still helping than after they have finished. We thus suggest a critical refinement of theory on emotional responses to social exchange, in light of emerging research on self-regulation and relationships (Fitzsimons & Finkel, 2010; Vohs & Finkel, 2006).

In short, gratitude is the feeling of getting something from someone. It is a positive, other-directed emotion that arises in recognition of benefits from the intentionally incurred costs of others (Heider, 1958; Ortony, Clore, & Collins, 1988). Substantial empirical work supports the notion that beneficiaries feel more grateful when they accumulate valued benefits. Yet, gratitude is not determined by a strict calculation of value. For example, it is stronger when a helper intentionally rather than incidentally incurs cost, out of warmth rather than calculation, and beyond what is expected by role norms (Ames, Flynn, & Weber, 2006; Bar-Tal, Bar-Zohar, Greenberg, & Hermon, 1977; Tesser, Gatewood, & Driver, 1968; Tsang, 2006). Gratitude, then, reflects the social value of an exchange.

Drawing from theories of goal-based evaluation, we suggest that helpers' social value peaks while they are instrumental for a beneficiary's active goal. To beneficiaries, helpers are goal-relevant means. They may therefore receive temporary, privileged status relative to others in the social landscape. During goal pursuit, people value means that help them achieve the goal (Ferguson & Bargh, 2004). By increasing the relative accessibility (Kruglanski, 1996; Aarts, Dijksterhuis, & De Vries, 2001) and value of goal-relevant objects, individuals increase their likelihood of securing those objects and thus completing their goals. Indeed, relationship evaluations also depend on the activation of personal goals. People think of and judge as more important others who can help them to satisfy their own currently-active goals. Strivers draw closer to instrumental others when relevant goals take priority and drift away when progress is satisfactory (Fitzsimons & Shah, 2008; Fitzsimons & Fishbach, 2010). For example, as exams approach, students will tend to think of, feel closer to, and attribute more importance to their relationships with classmates who can help them achieve academic success.

As a reflection of the social value of an individual's assistance, gratitude should be subject to an instrumentality boost. It should peak when the helper is needed most. We therefore predict that beneficiaries will experience more gratitude to the extent that a helper is currently instrumental for important goals. The proposed instrumentality-boost prompts a number of otherwise counterintuitive predictions. It suggests that more help can sometimes lead to less gratitude. It also suggests that gratitude may get a boost before any help is provided, as long as one is motivated to complete some task and believes the helper can assist. Benefits need not apply.

### **Experiment 1: Instrumentality Boosts Gratitude**

To test whether beneficiaries experience stronger gratitude while they are receiving help than after, we staged an affordable version of "Who Wants to Be a Millionaire?" This show popularized the phrase "phone-a-friend" by allowing stumped contestants one opportunity to consult a friend for help. In our version, we predicted that contestants would feel more grateful to a "phoned friend" while that person was working out an answer—that is, while the contestant's motivation was high and the friend's input was instrumental—than after the answer had been submitted.

#### *Method*

College students and office workers from the Chicago Loop area (20 men, 22 women; ages 19-62, *Mdn.* = 23) participated in exchange for \$2 and "the possibility, based on chance and skill, of winning up to \$12" more. By random assignment, participants either indicated their gratitude toward an assistant while that person was working or after the assistant had finished.

Participants ("contestants") met their assistants before moving to a separate room. The experimenter, acting as "host" throughout, first explained the rules. To win \$12, the participant had to answer four progressively difficult trivia questions correctly. The participant had access to three "lifelines"—a simple calculator, a dictionary, and a "friend" (i.e., the assistant) with internet access. To increase realism and autonomy, we gave the appearance of selecting questions at random from a larger pool. In reality, participants received the same progression of multiple choice questions, starting with two relatively easy questions that nearly everyone could answer without help (e.g., What is the home city of the Yankees baseball team?). We designed the third question to prompt use of the dictionary lifeline and the fourth question to prompt the phone-a-friend lifeline. The host did not announce the result of any question until the end of the game, ensuring that participants in both conditions had equal outcome information.

If the participant opted to phone-a-friend, the host took the question next door. At this point, the procedure diverged depending on condition. In the active task condition, the host returned to the participant's room and said, "While the helper is working on this question for you, please complete this form," and administered the gratitude survey. After approximately five minutes, the host delivered the assistant's recommendation to the participant. The participant decided on a final answer, and then, if questions remained, played to completion.

In the completed task condition, the host delivered the assistant's answer to the participant after five minutes. Once the participant decided on a final answer and all four questions were complete, the host declared "the game is now over," and indicated that the participant would soon learn if he or she had won. The experimenter administered the gratitude survey at this point. We designed this timing to provide a condition in which the motivation and helper-usefulness decreased because goal pursuit was complete, without creating a difference in outcome information between the two conditions. In both conditions, the host ended by announcing the results and paying participants accordingly.

The survey asked participants how challenging they found each question (0 = *extremely easy*, 6 = *extremely difficult*). It also asked filler questions about enjoyment and confidence. To check participants' confidence in their helpers, we asked how effective they thought the lifeline was likely to be for them (0 = *not at all*, 6 = *very much*). Then participants completed the key gratitude measure, "If you used the phone-a-friend lifeline: At this moment, how grateful are you for that person's efforts?"

To give participants a realistic experience of receiving help, lifelines were voluntary. Thus, despite a sequence of questions engineered to encourage it, not every participant used the phone-a-friend lifeline. Three participants did not appeal to the helper and one participant appealed to the helper, but opted not to use the suggested answer. One participant used the helper but indicated that he or she did not perceive the helper as effective (more than 3 SDs below the mean for the help-effectiveness item and the only response below the midpoint). We excluded these five participants. The remaining thirty-seven participants all received assistance that they perceived to be effective.

### *Results and Discussion*

Confirming that participants found the questions progressively challenging, there was a significant linear trend from the first to the last question (respectively,  $M_s = 0.51, 0.95, 2.81, 4.49$ ),  $F(1, 36) = 367.69, p < .001$ . As intended, all who used phone-a-friend used it on the final, most difficult question. The timing of the gratitude survey did not affect perceived difficulty of any question,  $ps > .14$ , nor reported enjoyment of the game, reported confidence during the game, or expected effectiveness of the help,  $ps > .18$ . Across conditions, anticipated effectiveness of the help predicted gratitude,  $r(35) = .35, p = .034$ .

Consistent with the primary prediction, participants indicated that they felt more grateful for their assistants in the active task condition ( $M = 5.72, SD = 0.67$ ) than in the completed task condition ( $M = 4.84, SD = 1.01$ ),  $t(35) = 3.10, p = .004$ . This study thus provides initial support for the instrumentality-boost hypothesis. It suggests that beneficiaries were more grateful while the helpers were working than after they had provided the help. Participants in the completed condition, compared with those in the active condition, had received objectively more benefits from their assistants, and yet they felt less grateful.

Consistent with a goal-based evaluation account of grateful responses, these results support the instrumentality-boost hypothesis. In a follow-up, we extended the investigation to

examine feelings of indebtedness. While conceptually separable from gratitude (Algoe, Gable, & Maisel, in press; Watkins, Scheer, Ovnicek, & Kolts, 2006), indebtedness is similar in ways that suggest it should be similarly affected by instrumentality if our account is correct. Although indebtedness may be associated with relatively more negative feelings in the beneficiary, it is, like gratitude, a feeling of getting something from someone. It increases relative to the value of conferred benefits, marks the recognition that repayment requirements are increasing, and serves to psychologically tie a beneficiary to his helper (Gouldner, 1960; Greenberg, 1980; Regan, 1971). Thus, if a helpers' instrumentality evokes in the beneficiary stronger feelings of "getting something," indebtedness should also be subject to an instrumentality boost.

In the follow-up study, paired participants ( $n = 40$ ) worked on a collaborative data-entry task in the lab. We randomly assigned half of them to be "captains," whose job was to type data into the spreadsheet. We assigned the other half to be "assistants," and help the captains by reading data aloud. Captains thus benefited from the assistants' help. We asked captains to report how indebted they felt to their assistants twice during the interaction (on a 100-point scale, *I owe nothing to the assistant—I owe a lot to the assistant*). We first asked them part-way through the entry task, while their motivation was high and assistants were instrumental. We asked them again after they had completed the task and moved on to other goals. As expected, captains reported feeling like they owed their assistants more during the task ( $M = 71.95$ ,  $SD = 17.85$ ) than after ( $M = 65.40$ ,  $SD = 19.78$ ),  $paired-t(19) = 2.65$ ,  $p = .016$ . Thus, despite having received objectively more assistance in the latter condition, captains felt they owed their assistants more during the task, while they were motivated and depended on them. Although gratitude and indebtedness respond differentially to some aspects of the helping situation (Tsang, 2006), instrumentality seems to influence them similarly.

Experiment 1 and the summarized follow-up study both focused on one-shot helping interactions between strangers. In reality, helping often occurs within close relationships and larger chains of ongoing exchange. Experiment 2 tested whether the influence of instrumentality generalizes to naturally occurring, ongoing relationships. Rather than inferring that task completion operates on gratitude via instrumentality, we tested for mediation directly.

### **Experiment 2: Instrumentality Mediates Gratitude in Natural Relationships**

We examined students' gratitude for study partners ("tutors") when exams were approaching and again after they had passed. We predicted that tutored students would feel more gratitude for their tutors at the end of the academic term, when they were instrumental for current classes, than at the beginning of the next term. We could assess usefulness as a mediator because some students had plans to continue with the same tutors for new classes, whereas others did not. Thus, there was meaningful variation in how much instrumentality changed. To the extent that one's tutor maintains some instrumentality from time 1 to time 2, gratitude should not decrease as sharply over this period.

Given the inherently social nature of helping, it is also important to understand what helpers conclude when they contemplate the beneficiary's perspective at different points in the

interaction to ask, “how grateful does she feel for this?” In Experiment 2, we asked the tutors precisely this question. We sought to determine whether they would recognize the decrease in their beneficiaries’ gratitude following task completion. Given that helpers are unlikely to construe themselves as instrumental means in another’s goal pursuit, or to intuit others’ motivational patterns, we did not expect them to accurately detect how task completion would affect beneficiaries’ experienced gratitude.

### *Method*

We recruited sixty university students to complete a paper survey (Part 1, fall term: ongoing task condition). They received \$6 for their participation. Forty of those students (23 women, 17 men; ages 18—24, *Mdn.* = 19) also completed the online follow-up survey (Part 2, winter term: completed task condition), and thus constitute the final sample. Experiment 2 uses a 2 (task: ongoing vs. completed)  $\times$  2 (judgment: beneficiary’s experience vs. helper’s expectation) mixed design with repeated measures on the task condition. Attrition was spread evenly across conditions and is commensurate with various studies involving take-home tasks (e.g. Choi & Yoon, 2005; Zhang & Fishbach, 2010).

An experimenter approached students toward the end of the academic term, 1-2 weeks before exams. She only enrolled students who indicated they were currently taking a class in which they worked with another student to do better. Eligible participants identified the relevant class, partner’s first name, and what they worked on together. To avoid biased recollection of classes, partners, or tasks, we solicited this information before instituting the role manipulation. Most participants (78%) reported working on specific class assignments, such as problem sets or projects. Others reported studying together (10%), or miscellaneous tasks (12%), such as supplemental practice sessions or sharing readings.

At this point, participants received one of two versions of the materials, designed to manipulate their perceived role in this instrumental relationship. Some participants were cast as the beneficiary ( $n = 21$ ), prompted to describe how another student “helps you to do well in the class.” Others were cast as the helper ( $n = 19$ ), prompted to describe “how you help [another student] to do well in the class.” No participant had trouble elaborating how they were either the beneficiary or the helper.

Beneficiaries responded to a series of questions about their gratitude for the partner’s help ( $\alpha = .80$ ), including closeness, appreciation, indebtedness, and desire to thank, all on 7-point scales. As a measure of current usefulness, beneficiaries also reported how helpful their partner was. Helpers responded to a similarly-structured set of items ( $\alpha = .40$ ), but trying to infer their partners’ gratitude and evaluations. We address the low reliability of the inferred-gratitude scale below.

We emailed participants during the first week of the following academic term. The email reminded participants of the partner, the class, and the nature of help they previously indicated, and linked to an online survey. To reinforce their memory, participants first restated the class,

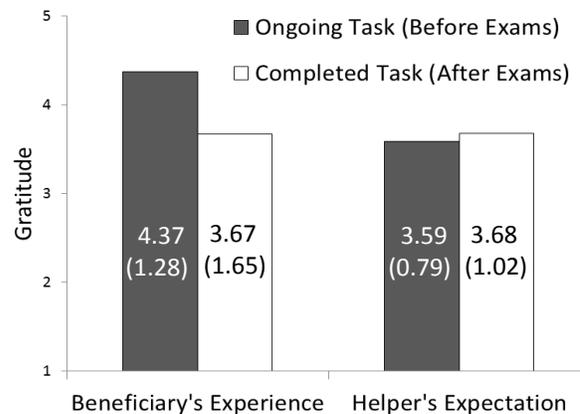
partner, and specific helping tasks. Participants then completed the same gratitude questions ( $\alpha_{\text{experience}} = .93$ ,  $\alpha_{\text{expectation}} = .67$ ), and current usefulness measure.

### Results and Discussion

Consistent with predictions, beneficiaries felt more gratitude for tutors before final exams than after, *paired-t* (20) = 3.15,  $p = .005$  (see figure, below). Gratitude correlated with usefulness at time 1,  $r(21) = .53$ ,  $p = .021$ , and time 2,  $r(21) = .68$ ,  $p = .001$ . To test if the effect of time on experienced gratitude is mediated by changes in usefulness, we followed standard guidelines (Judd, Kenny, & McClelland, 2001). First, experienced gratitude decreased from fall to winter. Second, perceived usefulness decreased from fall to winter,  $\beta = -.72$ ,  $p = .004$ . Third, decreases in usefulness from fall to winter predicted decreases in experienced gratitude,  $\beta = .63$ ,  $p = .002$ . Finally, time was no longer a predictor of gratitude when including usefulness in the equation,  $\beta = -.24$ ,  $p = .29$ . A Sobel test indicated that the reduction in the effect of time on gratitude after the inclusion of changes-in-usefulness was statistically significant,  $z' = 2.4$ ,  $p = .018$ . Thus, beneficiaries' perceptions of how much their helpers' usefulness decreased from the end of fall term to the beginning of winter term mediated their decreased gratitude for those helpers.

We next examined whether task completion affected helpers' guesses differently than beneficiaries' experiences. An ANOVA of gratitude ratings yielded the expected task  $\times$  judgment interaction,  $F(1, 38) = 7.95$ ,  $p = .008$ , suggesting that helpers' expectations did not change in the same way as beneficiaries' experiences over time<sup>1</sup>. Helpers expected beneficiaries to experience the same level of gratitude before and after the help was provided, *paired-t* < 1, whereas beneficiaries' actual gratitude declined during that time.

**Gratitude ratings as a function of task status and judgment type (Expt. 2)**



Top number represents mean, number in parentheses represents SD.

<sup>1</sup> Given that the gratitude scale was not reliable for expectations in the ongoing condition ( $\alpha = .40$ ), we ran separate ANOVAs on each individual component of the scale. Each revealed a significant or marginally significant task  $\times$  judgment interaction, and followed the same general pattern ( $ps < .09$ ), suggesting that support for the mismatch hypothesis using the composite measure is not spurious.

Experiment 2 finds additional evidence of the instrumentality boost for gratitude, in real relationships. Students felt more grateful for tutors while they relied on them than after they had moved to a new term, with new classes, and new instrumental classmates. Mediation analyses demonstrated that the decrease in experienced gratitude was mediated by changes in usefulness. Tutors, however, were largely unaware of this decrease in gratitude, expecting no change when looking ahead to upcoming exams or back on completed exams.

### **General Discussion**

We described two experiments (and summarized a third) that provided consistent evidence of the proposed instrumentality boost. Beneficiaries felt more grateful when helpers were useful for some task that they were motivated to complete. As a consequence, they were more grateful before tasks were completed, while helpers were still helping. This pattern of gratitude manifested even though helpers had provided objectively more benefits (and incurred objectively more cost) upon task completion. Helpers did not intuit these effects of task completion.

This work provides a richer understanding of emotional responses to prosocial action. Traditionally, researchers have conceptualized gratitude as an assessment of benefits transferred (e.g., Pruitt, 1968; Tesser, Gatewood, & Driver, 1968). By drawing from motivational theories of goal-based evaluation (e.g., Ferguson & Bargh, 2004; Fitzsimons & Shah, 2008), we have accumulated support for an apparent instrumentality boost that qualifies the strict payback view of gratitude. Beneficiaries' gratitude can increase, without additional benefits, as a result of instrumentality. As a consequence, people will sometimes experience more gratitude in an interaction when they have received lesser benefits.

We are not suggesting that gratitude will invariably be higher at all points during a helping interaction than after, nor that gratitude resets to zero after goal completion. The instrumentality-boost hypothesis says that, all things constant, gratitude should be higher with instrumentality than without instrumentality. This implies that there will be at least one point during a helping interaction where gratitude is greater than after goal completion, but not necessarily that gratitude will be greater at all points during the task than after. Our theory is silent about the relative magnitudes of the instrumentality boost versus gratitude accrued from benefits. It is safe to say that one is likely to appreciate a friend who goes the whole nine yards more than a friend who has gone only one; the instrumentality boost suggests that one might appreciate a friend at eight yards, going on nine, the most of all.

This work provokes questions about the conditions under which reciprocation behaviors follow emotional responses. On one hand, gratitude has been linked directly to reciprocation (Bartlett & DeSteno, 2006). On the other hand, scripts and norms about the operation of reciprocal exchange suggest that payback behaviors should occur after receipt of a benefit and not before (Blau, 1964; Gouldner, 1960). Helpers may perceive premature payback as manipulative and undesirable. Thus, despite the instrumentality boost for feelings, it may be that tips, gifts, and offers to help are nonetheless more generous after the task. This may further

depend on the currency of reciprocation. Although “monetary market” principles (vs. “social market” principles) can undermine helpers’ motivation (Gneezy & Rustichini, 2000; Heyman & Ariely, 2004; Lepper, Greene, & Nisbett, 1973), and change the nature of relationships (Clark & Mills, 1979; Fiske, 1992), social market principles may be maintained via thoughtful expressions (Algoe, Fredrickson, Gable, & Strachman, 2010) or more symbolic gifts like gold stars or high-fives. If individuals perceive symbolic forms of repayment as expressing their emotions rather than closing debts, symbolic repayments might follow the same pattern as feelings of gratitude. These competing hypotheses await further research.

Regardless of the conditions under which reciprocation follows gratitude, the instrumentality-boost hypothesis suggests important lessons for anyone aiming to influence interactions and impressions in strategic ways. Despite social norms, current gratitude should influence people’s intentions, and sometimes commitments, for the future. One’s timing in extracting these commitments appears to be critical then. If aiming to make requests while gratitude is at its peak, then strategic helpers should reference their needs while they remain useful. Strategic helpers should not be focusing their beneficiaries on, “what have you done for me lately?,” but rather on what they are doing right now.

Finally, the instrumentality boost represents an additional facet of the self-regulation—relationship link. It suggests that the process of joint goal pursuit could, via gratitude, affect relationship outcomes. Turning to others for help in goal pursuit may be beneficial not just for the outcomes and accomplishments it affords, but for the relationship-building emotions it boosts.

## References

- Aarts, H., Dijksterhuis, A., & De Vries, P. (2001). On the psychology of drinking: Being thirsty and perceptually ready. *British Journal of Psychology*, *92*, 631-642.
- Algoe, S. B., Fredrickson, B. L., Gable, S. L., & Strachman, A. (2010). Beyond "thanks!": High-quality expressions of appreciation strengthen relationships. Unpublished manuscript, University of North Carolina at Chapel Hill.
- Algoe, S. B., Gable, S. L., & Maisel N. (in press). It's the little things: Everyday gratitude as a booster shot for romantic relationships. *Personal Relationships*.
- 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.
- Bar-Tal, D., Bar-Zohar, Y., Greenberg, M. S., & Hermon, M. (1977). Reciprocity behavior in the relationship between donor and recipient and between harm-doer and victim. *Sociometry*, *40*, 293-298.
- Bartlett, M. Y., & DeSteno, D. (2006). Gratitude and prosocial behavior: Helping when it costs you. *Psychological Science*, *17*, 319-325.
- Blau, P. (1964). *Exchange and power in social life*. New York: Wiley.
- Choi, Y., & Yoon, J. (2005) Effects of leaders' self-sacrificial behavior and competency on followers' attribution of charismatic leadership among Americans and Koreans. *Current Research in Social Psychology*, *11* (5), 51-69.
- Clark, M. S. & Mills, J. (1979). Interpersonal attraction in exchange and communal relationships. *Journal of Personality and Social Psychology*, *37*(1), 12-24.
- DeSteno, D., Bartlett, M. Y., Baumann, J., Williams, L. A., & Dickens, L. (2010). Gratitude as moral sentiment: Emotion-guided cooperation in economic exchange. *Emotion*, *10*(2), 289-293.
- Ferguson, M. J., & Bargh, J. A. (2004). Liking is for doing: The effects of goal pursuit on automatic evaluation. *Journal of Personality and Social Psychology*, *87*(5), 557-572.
- Fiske, A.P. (1992). The four elementary forms of sociality: Framework for a unified theory of social relations. *Psychological Review*, *99*, 689-723.
- Fitzsimons, G. M., & Finkel, E. J. (in press). Interpersonal influences on self-regulation. *Current Directions in Psychological Science*.
- Fitzsimons, G. M. & Fishbach, A. (2010). Shifting closeness: Interpersonal effects of personal goal progress. *Journal of Personality and Social Psychology*, *98*(4), 535-549.
- Fitzsimons, G. M. & Shah, J. (2008). How goal instrumentality shapes relationship evaluations. *Journal of Personality and Social Psychology*, *95*(2), 319-337.
- 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: Oxford University Press.
- Gneezy, U., & Rustichini, A. (2000). A fine is a price. *Journal of Legal Studies*, *XXIX*, 1-18.
- Gouldner, A. W. (1960). The norm of reciprocity: A preliminary statement. *American Sociological Review*, *25*(2), 161-178.

- Greenberg, M. S. (1980). A theory of indebtedness. In K. J. Gergen, M. S. Greenberg, & R. H. Willis (Eds.), *Social exchange: Advances in theory and research* (pp. 3-26). New York: Plenum.
- Heider, F. (1958). *The psychology of interpersonal relations*. New York: Wiley.
- Heyman, J., & Ariely, D. (2004). Effort for payment: A tale of two markets. *Psychological Science, 15* (11), 787-793.
- Judd, C. M., Kenny, D. A., & McClelland, G. H. (2001). Estimating and testing mediation and moderation in within-subjects designs. *Psychological Methods, 6*(2), 115-134.
- Kruglanski, A. W. (1996). Goals as knowledge structures. In P. M. Gollwitzer & J. A. Bargh (Eds.), *The psychology of action: Linking cognition and motivation to behavior* (pp. 599-618). New York: Guilford Press.
- Lepper, M.R., Greene, D., & Nisbett, R.E. (1973). Undermining children's intrinsic interest with extrinsic reward: A test of the "overjustification" hypothesis. *Journal of Personality and Social Psychology, 28*(1), 129-137.
- McCullough, M. E., Kilpatrick, S. D., Emmons, R. A., Larson, D. B. (2001). Is gratitude a moral affect? *Psychological Bulletin, 127*, 249-266.
- Ortony, A., Clore, G. L., & Collins, A. (1988). *The cognitive structure of emotions*. Cambridge: Cambridge University Press.
- Pruitt, D. G. (1968). Reciprocity and credit building in a laboratory dyad. *Journal of Personality and Social Psychology, 8*, 143-147.
- Regan, D. T. (1971). Effects of a favor and liking on compliance, *Journal of Experimental Social Psychology, 7*, 627-639.
- Tesser, A., Gatewood, R. & Driver, M. (1968). Some determinants of gratitude. *Journal of Personality and Social Psychology, 9*, 233-236.
- Tsang, J. (2006). The effects of helper intention on gratitude and indebtedness. *Motivation and Emotion, 30*, 199-205.
- Vohs, K. D., & Finkel, E. J. (2006). *Self and Relationships: Connecting Intrapersonal and Interpersonal Processes*. New York: Guilford.
- Watkins, P. C., Scheer, J., Ovnicek, M., & Kolts, R. (2006). The debt of gratitude: Dissociating gratitude and indebtedness. *Cognition and Emotion, (20)* 2, 217-241.
- Zhang, Y., & Fishbach, A. (2010). Counteracting obstacles with optimistic predictions. *Journal of Experimental Psychology: General, 139* (1), 16-31.