

# A Little Thanks Goes a Long Way: Explaining Why Gratitude Expressions Motivate Prosocial Behavior

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Although research has established that receiving expressions of gratitude increases prosocial behavior, little is known about the psychological mechanisms that mediate this effect. We propose that gratitude expressions can enhance prosocial behavior through both agentic and communal mechanisms, such that when helpers are thanked for their efforts, they experience stronger feelings of self-efficacy and social worth, which motivate them to engage in prosocial behavior. In Experiments 1 and 2, receiving a brief written expression of gratitude motivated helpers to assist both the beneficiary who expressed gratitude and a different beneficiary. These effects of gratitude expressions were mediated by perceptions of social worth and not by self-efficacy or affect. In Experiment 3, we constructively replicated these effects in a field experiment: A manager's gratitude expression increased the number of calls made by university fundraisers, which was mediated by social worth but not self-efficacy. In Experiment 4, a different measure of social worth mediated the effects of an interpersonal gratitude expression. Our results support the communal perspective rather than the agentic perspective: Gratitude expressions increase prosocial behavior by enabling individuals to feel socially valued.

*Keywords:* gratitude, prosocial behavior, helping, agency and communion, social worth

We are better pleased to see those on whom we confer benefits than those from whom we receive them.

—La Rochefoucauld, *Maxims*

Gratitude is omnipresent in social life. People feel grateful when they benefit from gifts, assistance, kindness, help, favors, and support from others (Tesser, Gatewood, & Driver, 1968). Grateful feelings have several beneficial effects: They enable individuals to savor positive experiences, cope with stressful circumstances, and strengthen social relationships (Lyubomirsky, Sheldon, & Schkade, 2005). Psychological research highlights the benefits of gratitude as a trait, demonstrating that dispositional gratitude is associated with higher levels of subjective well-being (McCullough, Tsang, & Emmons, 2004), and as a state, demonstrating that the act of counting one's blessings can increase positive emotions, subjective well-being, and health (Emmons & McCullough, 2003; Seligman, Steen, Park, & Peterson, 2005). Behaviorally, gratitude is a prosocial trait and state: It motivates individuals to engage in prosocial behaviors to reciprocate the assistance they receive from others (Bartlett & DeSteno, 2006; Tsang, 2006).

Although research provides valuable insights into beneficiaries' experiences of gratitude, it offers less information about how

beneficiaries' expressions of gratitude affect helpers. Because gratitude is, by definition, a social emotion produced in social exchanges (McCullough, Kilpatrick, Emmons, & Larson, 2001), it is critical to examine how gratitude affects both partners in social exchanges. Toward this end, a number of studies have provided initial evidence that gratitude expressions motivate prosocial behavior (for a review, see McCullough et al., 2001). However, little research has been done to examine why gratitude expressions motivate prosocial behavior. Through what psychological processes does being thanked lead to higher levels of helping?

We address this question by drawing on the classic distinction between agency and communion. Psychologists have long argued that individuals have basic motives to feel both *agentic*, or personally competent and capable, and *communal*, or connected to and valued by others (Bakan, 1966; McAdams & de St. Aubin, 1992; Wiggins, 1979). We compare the agentic and communal mechanisms that may mediate the effects of gratitude expressions on prosocial behavior. From an agentic perspective, expressions of gratitude may enhance helpers' feelings of self-efficacy, which will motivate them to engage in prosocial behavior by reducing their feelings of uncertainty about whether they can help effectively. From a communal perspective, expressions of gratitude may enhance helpers' feelings of social worth, which will motivate them to engage in prosocial behavior by reducing their feelings of uncertainty about whether their help will be valued by beneficiaries. Across four experiments, we compare these agentic and communal mechanisms to explain why gratitude expressions increase prosocial behavior.

## Gratitude Expressions and Prosocial Behavior

Gratitude is a feeling of thankfulness directed toward others that emerges through social exchanges between helpers and beneficia-

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ries (Blau, 1964). Beneficiaries experience gratitude when they attribute their favorable circumstances to the efforts of a helper (Weiner, 1985). Beneficiaries often express gratitude by thanking helpers for their contributions. Indeed, psychologists have manipulated gratitude through “gratitude visits” in which beneficiaries express thanks to helpers (Seligman et al., 2005).

Research has shown that these gratitude visits positively affect not only the beneficiaries but also the helpers themselves. Gratitude expressions appear to serve as moral reinforcers in enhancing helpers’ prosocial behavior (McCullough et al., 2001). A number of experiments have shown that when helpers are thanked by the beneficiaries of their help, helpers are more willing to help these beneficiaries again (Carey, Clicque, Leighton, & Milton, 1976; H. B. Clark, Northrop, & Barkshire, 1988; McGovern, Ditzian, & Taylor, 1975; Rind & Bordia, 1995) and to help others (R. D. Clark, 1975; Goldman, Seever, & Seever, 1982; Moss & Page, 1972). However, we know little about the mediating psychological processes underlying these effects: Why do beneficiaries’ gratitude expressions motivate helpers’ prosocial behavior?

Because gratitude expressions are delivered by beneficiaries to helpers as part of a social exchange process, gratitude expressions are likely to influence how helpers view themselves in the social world. A rich history of theory and research in psychology suggests that individuals’ self-views in the social world vary along two dimensions: agency and communion (Bakan, 1966; Fiske, Cuddy, & Glick, 2007; Wiggins, 1979). Agency refers to feelings of personal competence or self-efficacy, and communion refers to feelings of interpersonal warmth or connectedness to others (for a review, see Judd, James-Hawkins, Yzerbyt, & Kashima, 2005). We propose that gratitude expressions can increase helpers’ prosocial behaviors by increasing their agentic feelings of self-efficacy and their communal feelings of social worth.

### Agentic Mechanism: Self-Efficacy

From an agentic perspective, gratitude expressions may increase prosocial behavior by enabling helpers to experience greater self-efficacy. Self-efficacy is the feeling of being capable and competent to act effectively to orchestrate an outcome (Bandura, 1977). Psychologists agree that this desire to feel capable and competent is a basic human motivation (White, 1959; Ryan & Deci, 2000). Extensive research has shown that when individuals feel efficacious in an activity, they are more willing to invest time and energy in it because they believe that their efforts can lead to success (Bandura, 1977; Ryan & Deci, 2000).

Individuals often withhold help because they are uncertain about whether they will be able to help competently and effectively (Rosen, Mickler, & Collins, 1987). Because helping at the wrong time or in the wrong way can harm or embarrass beneficiaries, helpers may be reluctant to give assistance. An expression of gratitude from a beneficiary can reduce the helper’s experience of uncertainty about being capable of helping effectively. Gratitude signifies that a beneficiary is confident in a helper’s ability to offer assistance successfully (Penner, Dovidio, Piliavin, & Schroeder, 2005). Gratitude provides positive feedback to helpers that they have succeeded—and can succeed—in benefiting recipients, thereby satisfying helpers’ basic motives to feel capable and effective (McAdams & de St. Aubin, 1992; Ryan & Deci, 2000; White, 1959). When helpers feel efficacious, they become more

willing to provide help because they feel that their efforts will increase their odds of genuinely helping others (Bandura, 1977). Thus, we propose that when beneficiaries express gratitude, helpers will feel greater self-efficacy, which will motivate them to engage in prosocial behavior.

### Communal Mechanism: Social Worth

From a communal perspective, gratitude expressions may also increase prosocial behavior by enabling helpers to feel valued. Psychologists have argued that the pursuit of social worth—a sense of being valued by others—is a fundamental human motivation (McAdams & de St. Aubin, 1992; Ryan & Deci, 2000). When individuals experience social worth, they feel that their actions matter in other people’s lives (Elliott, Colangelo, & Gelles, 2005; Rosenberg & McCullough, 1981), which confers a sense of belongingness (Baumeister & Leary, 1995; Keyes, 1998). Social worth fulfills the “desire to be needed by others . . . one expression of communion” (McAdams & de St. Aubin, 1992, p. 1005). When individuals experience social worth, they feel needed, cared about, and valued by others, which signifies an interpersonal bond or positive relationship (Bakan, 1966; Kaplan & Kaplan, 2003; Wrzesniewski, Dutton, & Debebe, 2003).

Individuals often withhold help because they are uncertain about whether beneficiaries will value their help. Because giving help can lead beneficiaries to feel incompetent, helpless, and powerless, beneficiaries often reject the offers of helpers (Fisher, Nadler, & Witcher-Alagna, 1982), leaving helpers feeling spurned, angry, and reticent to offer help again (Rosen et al., 1987). An expression of gratitude can reduce the helper’s experience of uncertainty about whether the help will be appreciated. Expressions of gratitude signify that a beneficiary values, needs, appreciates, and accepts one’s assistance rather than rejecting or devaluing it. Gratitude expressions provide concrete evidence that helpers’ actions matter in the lives of beneficiaries, thus satisfying helpers’ basic motives to feel valued (Baumeister & Leary, 1995; Elliott et al., 2005; Ryan & Deci, 2000). When helpers feel valued, they become more motivated to help because they feel their actions will improve the well-being of beneficiaries (Batson, 1998). Feeling valued encourages prosocial behavior by reducing the helper’s uncertainty about whether beneficiaries will welcome assistance. Thus, we propose that when beneficiaries express gratitude, helpers will feel more socially valued, which will motivate helpers to engage in prosocial behavior.

### Overview of the Present Research

We compare these agentic and communal mechanisms as mediators of the effects of gratitude expressions on helpers’ prosocial behaviors across four experiments. In Experiment 1, we examine whether self-efficacy and social worth mediate the effects of receiving a brief expression of gratitude on the prosocial behavior of voluntarily helping a student improve a job application cover letter. In Experiment 2, we investigate self-efficacy and social worth as mediators of a spillover effect of gratitude expressions from one beneficiary on prosocial behavior toward a different beneficiary. In Experiment 3, we assess the external validity of the mediating mechanisms in a field experiment with university fundraisers. In Experiment 4, we constructively replicate our effects

with new measures of the proposed mediators and a new manipulation of gratitude expressions.

### Experiment 1

We examined the effects of gratitude expressions on the prosocial behavior of helping a student improve his or her job application cover letters (Grant et al., 2007). Participants edited a student's cover letter and then received either a neutral or grateful message from the student, who subsequently asked for help on another cover letter. We tracked the effect of the gratitude expression on whether participants engaged in prosocial behavior by helping with the second letter and assessed whether this effect was mediated by perceptions of self-efficacy and social worth. We also measured affect as an alternative explanation. It may be the case that by communicating the benefits of helping, gratitude expressions increase helpers' feelings of positive affect or reduce their feelings of negative affect. In turn, these changes in helpers' own feelings may enhance their prosocial behavior by leading helpers to perceive beneficiaries in a more favorable light and encouraging helpers to maintain their positive moods (e.g., Carlson, Charlin, & Miller, 1988; Fredrickson, 2001).

### Method

**Participants, design, and procedures.** Sixty-nine undergraduate and graduate students (25 male, 44 female,  $M_{\text{age}} = 21.79$  years,  $SD = 3.55$ ) at a university in the Southeast United States participated in this study. Their majors were predominantly social science (67.8%), natural science (27.5%), humanities (11.6%), and mathematics (2.9%). We recruited the participants through an advertisement on a university-wide website that offered \$10 in exchange for participation in an online study about writing skills and feedback. When they signed up, participants received an electronic message from the experimenter explaining that they would be providing feedback on a student's job application cover letter as part of a study run by the university's career center. Participants received a cover letter from the experimenter and were asked to send their comments by e-mail directly to the student, Eric Sorenson (ericSor2006@gmail.com), within 24 hr. The experimenter also asked participants to send her an e-mail once they had sent their feedback directly to Eric, just to let the experimenter know they had completed the task. When they sent their feedback, on the next day, the experimenter sent them a reply from the student's e-mail account, which contained our manipulation. We randomly divided participants between two conditions: gratitude ( $n = 35$ ) and control ( $n = 34$ ). In both conditions, the message from Eric Sorenson asked for help with a second cover letter; the message varied only in the amount of gratitude expressed for the help that participants had provided on the first cover letter.

In the control condition, participants received the following message from Eric Sorenson's e-mail account: "Dear [name], I just wanted to let you know that I received your feedback on my cover letter. I was wondering if you could help with a second cover letter I prepared and give me feedback on it. The cover letter is attached. Can you send me some comments in the next 3 days?"

In the gratitude condition, the message read: "Dear [name], I just wanted to let you know that I received your feedback on my cover letter. Thank you so much! I am really grateful. I was

wondering if you could help with a second cover letter I prepared and give me feedback on it. The cover letter is attached. Can you send me some comments in the next 3 days?"

Thus, the two messages were identical except for the addition of a gratitude expression in the latter. The initial instructions asked participants to e-mail the experimenter after sending their feedback to Eric Sorenson. After receiving this e-mail and sending participants one of the two messages from Eric with our gratitude manipulation, the experimenter sent participants a link to an online questionnaire that contained our measures of self-efficacy, social worth, positive and negative affect, and a manipulation check. After participants completed the final questionnaire, the experimenter sent instructions for obtaining the \$10 that participants had earned. We measured objective prosocial behavior by tracking whether participants provided help on the second cover letter in the following 3 days.

**Measures.** Unless otherwise indicated, all items had a 7-point Likert-type response scale anchored at 1 = *disagree strongly* and 7 = *agree strongly*.

**Prosocial behavior.** We assessed prosocial behavior with a dichotomous measure of whether participants voluntarily provided help on the second cover letter.

**Self-efficacy.** We assessed self-efficacy with a three-item scale adapted from Bandura (1990), which asked participants to indicate the extent to which they felt capable, competent, and able to help in this specific task ( $\alpha = .93$ ).

**Social worth.** We assessed the extent to which participants felt valued with a three-item scale adapted from measures by Keyes (1998) and Grant (2008), which asked participants to indicate the extent to which they felt valued as a person by the student, felt appreciated as an individual by the student, and felt that they had made a positive difference in the student's life ( $\alpha = .84$ ).

**Positive and negative affect.** Participants completed the 20-item state version of the Positive and Negative Affect Schedule (Watson, Clark, & Tellegen, 1988), which has 10 items each for positive affect (e.g., enthusiastic, inspired;  $\alpha = .95$ ) and negative affect (e.g., upset, distressed;  $\alpha = .96$ ).

**Manipulation check.** To ensure that our gratitude manipulation was effective, we asked participants to indicate the extent to which the student's e-mail message expressed gratitude and thanks ( $\alpha = .95$ ). From both conceptual and empirical perspectives, it is important to address how this manipulation check is distinct from social worth. Conceptually, the gratitude manipulation check assesses the helper's perception that the beneficiary's specific communication expressed thanks. The measure of social worth, on the other hand, assesses the helper's more general feeling of being valued as a person by the beneficiary. Empirically, the two variables shared only 15.8% of their variance ( $r = .40$ ,  $p < .01$ ). We conducted both exploratory and confirmatory factor analyses to assess whether they loaded on distinct factors. For the exploratory factor analysis, we used principal axis factoring and maximum likelihood estimation procedures with oblique rotation. The analysis returned the expected two-factor solution (eigenvalues = 2.95 and 1.28): The three social worth items loaded strongly on the first factor (.90, .89, .58), with very low cross-loadings on the second factor (.06, .10, -.07), and the two manipulation check items loaded strongly on the second factor (.91, .99), with very low cross-loadings on the first factor (.01, -.02). In the confirmatory factor analysis, we used EQS software Version 6.1 with maximum

likelihood estimation procedures (e.g., Bentler & Dudgeon, 1996; Kline, 1998). The two-factor model displayed excellent fit according to Hu and Bentler's (1999) criteria,  $\chi^2(5, N = 69) = 8.85$ , comparative fit index (CFI) = .98, standardized root-mean-square residual (SRMR) = .045, whereas the one-factor model displayed very poor fit,  $\chi^2(5, N = 69) = 106.43$ , CFI = .58, SRMR = .180. Taken together, these results suggest that the gratitude manipulation check was indeed conceptually and empirically distinct from the social worth measure.

## Results and Discussion

Means and standard deviations by condition appear in Table 1. In support of the validity of our manipulation, an independent-samples *t* test showed that participants in the gratitude condition perceived Eric's e-mail message as expressing more gratitude ( $M = 6.27, SD = 0.66$ ) than did participants in the control condition ( $M = 4.18, SD = 1.68$ ),  $t(67) = 6.85, p < .001, d = 1.67$ . In support of our hypothesis that gratitude expressions would increase prosocial behavior, the percentage of participants voluntarily providing help by editing the second letter was larger in the gratitude condition (23/35, 66%) than in the neutral condition (11/34, 32%),  $\chi^2(1, N = 69) = 7.68, p < .01$ . Independent-samples *t* tests showed that participants in the gratitude condition felt significantly greater self-efficacy ( $M = 6.03, SD = 0.51$ ) than did participants in the control condition ( $M = 5.65, SD = 1.00$ ),  $t(67) = 2.01, p < .05, d = 0.49$ . In addition, participants in the gratitude condition felt significantly more socially valued ( $M = 6.05, SD = 0.55$ ) than did participants in the control condition ( $M = 5.44, SD = 0.99$ ),  $t(67) = 3.15, p < .01, d = 0.77$ . However, the gratitude manipulation did not influence positive or negative affect. Participants in the gratitude condition did not differ significantly in positive affect ( $M = 4.06, SD = 1.34$ ) from those in the control condition ( $M = 3.59, SD = 1.15$ ),  $t(67) = 1.58, ns$ . Participants in the gratitude condition also did not differ significantly in negative affect ( $M = 1.45, SD = 0.80$ ) from those in the control condition ( $M = 1.55, SD = 0.76$ ),  $t(67) = 0.58, ns$ .

To examine whether self-efficacy or social worth mediated the effect of gratitude on prosocial behavior, we followed the steps recommended by Baron and Kenny (1986). The first and second criteria specify that the independent variable should significantly affect the dependent variable and the mediators. The prior analyses showed that these two criteria were met, as the gratitude manipulation had a significant effect on the dependent variable of prosocial behavior and the mediators of self-efficacy and social worth. To assess the third and fourth criteria, we conducted a hierarchical ordinary least-squares (OLS) regression analysis predicting prosocial behavior from the independent variable of gratitude condition (Step 1) and the mediators of self-efficacy and social worth (Step 2). The third criterion specifies that the mediator should significantly predict the dependent variable while controlling for the independent variable. The results met this criterion for social worth: With the gratitude manipulation controlled for, social worth significantly predicted higher prosocial behavior ( $\beta = .32$ ),  $t(65) = 2.01, p < .05$ . Including social worth increased variance explained significantly by 9% from  $r^2 = .11$  to  $r^2 = .20$ ,  $F(1, 66) = 7.23, p < .01$ . However, the results did not meet this criterion for self-efficacy, which did not predict higher prosocial

behavior ( $\beta = -.01$ ),  $t(65) = -0.04, p = .97$ . Thus, self-efficacy did not mediate the effect of gratitude on prosocial behavior.

To complete the test of mediation for social worth, the fourth criterion holds that the effect of the independent variable on the dependent variable should decrease after controlling for the mediators. After controlling for social worth, the effect of the gratitude manipulation on prosocial behavior decreased from  $\beta = .33$ ,  $t(67) = 2.90, p < .01$  to  $\beta = .22$ ,  $t(65) = 1.85, p = .07$ . To test whether the size of the indirect effect of the gratitude manipulation on prosocial behavior through social worth differed significantly from zero, we used a bootstrap procedure to construct bias-corrected confidence intervals based on 1,000 random samples with replacement from the full sample, as recommended by methodologists and statisticians (MacKinnon, Fairchild, & Fritz, 2007; Shrout & Bolger, 2002). The size of the indirect effect from the full sample was .12, and the 95% confidence interval excluded zero, 95% CI [0.04, 0.26]. Thus, social worth mediated the effect of gratitude on prosocial behavior.<sup>1</sup>

These results provide evidence that gratitude expressions increase prosocial behavior through the communal mechanism of enabling helpers to feel more socially valued, rather than through the agentic mechanism of enabling helpers to feel more efficacious or through positive or negative affect. However, in this study, we focused on prosocial behavior directed toward the same beneficiary who expressed gratitude. A more stringent test of our hypothesis requires examining whether self-efficacy and social worth mediate the effect of gratitude expressions on prosocial behavior directed toward a third party. Does an expression of gratitude from one beneficiary cause helpers to feel more efficacious or socially valued and thus motivate them to provide additional help beyond this dyadic relationship to a different beneficiary?

## Experiment 2

In our second study, we examine whether social worth mediates the spillover effects of one beneficiary's gratitude expression on helpers' prosocial behavior toward another beneficiary. To strengthen causal inferences about the primacy of self-efficacy and/or social worth driving prosocial behavior, we measure self-efficacy and social worth before providing participants with the opportunity to engage in prosocial behavior. We also measured feelings of positive and negative affect. Furthermore, to capture a more specific affective state, we also explored the possibility that gratitude expressions increase prosocial behavior by enhancing helpers' feelings of empathy toward beneficiaries (Batson, 1998).

## Method

**Participants, design, and procedures.** Fifty-seven undergraduate and graduate students (28 male, 29 female,  $M_{\text{age}} = 23.21$ ,  $SD = 3.47$ ) at local universities in the Northeast United States participated in this study. Their majors were predominantly in mathematics, engineering, information, and computer science (43.9%); social science (31.6%), natural science (14%); and the

<sup>1</sup> In Experiments 1 and 2, because our dependent variable was binary, we reran the mediation analyses with MacKinnon and Dwyer's (1993) logistic regression method and found the same pattern of results. We report the more traditional approach in the interest of parsimony.

Table 1  
Experiment 1 Means by Condition

Condition	Prosocial behavior %	Self-efficacy		Social worth		Positive affect		Negative affect		Manipulation check	
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Gratitude	66	6.03	0.51	6.05	0.55	4.06	1.34	1.45	0.80	6.27	0.66
Control	32	5.65	1.00	5.44	0.99	3.59	1.15	1.55	0.76	4.18	1.68

Note. Gratitude  $n = 35$ ; control  $n = 34$ .

humanities (8.8%). We used the same recruiting method as in the previous study, advertising the experiment as an online study of writing and feedback that would pay \$10. Upon signing up, participants received an electronic message from the experimenter asking them to read a student's job application cover letter and send the comments by e-mail directly to the student, Eric Sorenson, within 24 hr. When participants submitted their feedback, we sent them a reply from the student's e-mail account containing our manipulation. As in the previous experiment, we randomly divided participants between two conditions: gratitude ( $n = 29$ ) and control ( $n = 28$ ).

In the control condition, participants received the following message from Eric Sorenson's e-mail account: "Dear [name], I just wanted to let you know that I received your feedback on my cover letter." In the gratitude condition, the message read: "Dear [name], I just wanted to let you know that I received your feedback on my cover letter. Thank you so much! I am really grateful." The next day, the experimenter sent all participants a link to an online questionnaire, which included a measure of self-efficacy, social worth, and a manipulation check. After participants completed the final questionnaire, the experimenter sent participants instructions for obtaining the \$10 they had earned.

One day later, the experimenter sent all participants an e-mail message from the account of a different student, Steven Rogoff. The message read: "Hi [name], I understand that you participated in a Career Center study to help students improve their job application cover letters. I was wondering if you could give me feedback on a cover letter I prepared. The cover letter is attached. Would you be willing to help me by sending me some comments in the next two days?" We tracked participants' objective levels of prosocial behavior by assessing whether they helped Steven Rogoff by sending him feedback.

**Measures.** Unless otherwise indicated, all items had a 7-point scale anchored at 1 = *disagree strongly* and 7 = *agree strongly*.

**Prosocial behavior.** We assessed prosocial behavior with a binary measure, coding whether participants voluntarily provided help to Steven Rogoff on his cover letter.

**Mediating mechanisms: Self-efficacy and social worth.** We measured self-efficacy with the six-item scale from Ryan, Koestner, and Deci (1991), which includes items such as, "I think I was pretty good at this task" and "I was pretty skilled at this task" ( $\alpha = .89$ ). We measured social worth with the same scale as in the previous experiment ( $\alpha = .70$ ).

**Alternative explanations: Affective states.** As alternative explanations, we measured affect at the same time as the self-efficacy and social worth scales. We measured positive and negative affect using the PANAS (Watson et al. 1988), and both the positive affect ( $\alpha = .96$ ) and negative affect ( $\alpha = .93$ ) scales showed high internal consistency. We measured participants' feelings of empathy toward the student with Batson's (1987) six-item adjective scale ( $\alpha = .89$ ).

**Manipulation check.** Participants rated the degree to which Eric Sorenson's message expressed gratitude and thanks ( $\alpha = .96$ ). The manipulation check and the social worth measure shared 36.6% of their variance ( $r = .61, p < .001$ ). In a confirmatory factor analysis, the two-factor model achieved good fit,  $\chi^2(5, N = 57) = 10.19$ , CFI = .98, SRMR = .086, whereas the one-factor model did not,  $\chi^2(5, N = 57) = 101.20$ , CFI = .56, SRMR = .160.

## Results and Discussion

Means and standard deviations by condition are displayed in Table 2. Our gratitude manipulation was effective: Participants in the gratitude condition rated Eric's message as expressing more gratitude ( $M = 6.22, SD = 1.06$ ) than did participants in the control condition ( $M = 3.02, SD = 1.22$ ),  $t(55) = 10.61, p < .001, d = 2.86$ . Consistent with our prediction that gratitude expressions would increase prosocial behavior toward a third party, the percentage of participants who voluntarily provided help to the new student, Steven, was significantly

Table 2  
Experiment 2 Means by Condition

Condition	Prosocial behavior %	Self-efficacy		Social worth		Positive affect		Negative affect		Empathy		Manipulation check	
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Gratitude	55	5.65	0.76	5.74	0.47	3.40	1.42	1.22	0.48	3.52	1.40	6.22	1.06
Control	25	5.05	0.83	4.63	0.60	3.57	1.40	1.39	0.34	3.55	1.21	3.02	1.22

Note. Gratitude  $n = 29$ ; control  $n = 28$ .

higher in the gratitude condition (16/29, 55%) than in the neutral condition (7/28, 25%),  $\chi^2(1, N = 57) = 5.39, p < .05$ . Participants in the gratitude condition felt significantly more efficacious ( $M = 5.65, SD = 0.76$ ) than did participants in the control condition ( $M = 5.05, SD = 0.83$ ),  $t(55) = 2.84, p < .01, d = 0.77$ . Participants in the gratitude condition also felt significantly more socially valued ( $M = 5.74, SD = 0.47$ ) than did participants in the control condition ( $M = 4.63, SD = 0.60$ ),  $t(55) = 7.69, p < .001, d = 2.07$ . Once again, the gratitude manipulation did not influence positive or negative affect. Participants in the gratitude condition did not differ significantly in positive affect ( $M = 3.40, SD = 1.42$ ) from participants in the control condition ( $M = 3.57, SD = 1.40$ ),  $t(55) = -0.47, ns$ . Participants in the gratitude condition also did not differ significantly in negative affect ( $M = 1.22, SD = 0.48$ ) from participants in the control condition ( $M = 1.39, SD = 0.34$ ),  $t(55) = 1.51, ns$ . Finally, the gratitude manipulation also did not influence feelings of empathy; participants in the gratitude condition ( $M = 3.52, SD = 1.40$ ) and participants in the control condition ( $M = 3.55, SD = 1.21$ ) reported nearly identical levels of empathy,  $t(55) = -.11, ns$ .

To test whether self-efficacy and social worth mediated the effect of gratitude on prosocial behavior, we used the same procedures as in the previous experiment. A hierarchical OLS regression analysis showed that while controlling for the gratitude manipulation, self-efficacy did not predict higher prosocial behavior ( $\beta = -.14, t(55) = -0.91, p = .37$ , but social worth did ( $\beta = .34, t(55) = 3.48, p < .01$ ). Including social worth increased variance explained significantly by 10% from  $r^2 = .10$  to  $r^2 = .20$ ,  $F(1, 54) = 7.05, p = .01$ . After controlling for social worth, the effect of the gratitude manipulation on prosocial behavior decreased from  $\beta = .31, t(57) = 2.40, p < .05$  to  $\beta = -.05, t(55) = -0.25, p = .80$ . A bootstrap analysis showed that the 95% bias-corrected confidence intervals for the size of the indirect effect (.33) excluded zero, 95% CI [0.08, 0.58].

Thus, social worth—but not self-efficacy, positive affect, negative affect, or empathy—mediated the effect of an expression of gratitude from one beneficiary on prosocial behavior directed toward a different beneficiary. The fact that the opportunity for prosocial behavior occurred 24 hr after the measure of social worth strengthens causal inferences about the role of social worth in driving prosocial behavior. Having established the internal validity of our results, following the guidelines of full-cycle psychological research (Cialdini, 1980), we conducted a third experiment in the field to examine the external validity of our findings.

### Experiment 3

This study focuses on fundraisers responsible for soliciting alumni donations to a university. Because fundraising is often a

thankless job that triggers rude feedback and regular rejections (Seligman & Schulman, 1986), gratitude expressions in this realm are likely to be memorable and salient. We examine the effects of a gratitude expression from an annual giving director on fundraisers' prosocial behaviors in raising money to benefit the university, as mediated by their perceptions of self-efficacy and social worth.

### Method

**Participants, design, and procedures.** Forty-one fundraisers (10 male, 31 female,  $M_{\text{tenure}} = 4.5$  months,  $SD = 5.17$ ) at a public U.S. university participated in this study. We randomly divided fundraisers between two conditions in different shifts to prevent treatment diffusion or discussions about the intervention. In the control condition ( $n = 21$ ), fundraisers received no treatment. In the gratitude condition ( $n = 20$ ), a director of annual giving visited the organization to thank the fundraisers for their work. She explained to the fundraisers, "I am very grateful for your hard work. We sincerely appreciate your contributions to the university." Both groups of fundraisers received daily feedback on their effectiveness; the only difference between the two groups was whether they received an expression of gratitude from the director.

#### Measures.

**Prosocial behavior.** We assessed prosocial behavior with an objective, automatically recorded measure of the number of voluntary calls that each fundraiser made during the week before and the week after the intervention. This is an appropriate indicator of prosocial behavior because the fundraisers received a fixed salary and were not rewarded for effort; any voluntary calls that fundraisers made were purely to help the university.

**Mediating mechanisms: Self-efficacy and social worth.** During the week after the intervention, we measured fundraisers' perceptions of self-efficacy and social worth. We measured self-efficacy with Spreitzer's (1995) scale, asking the fundraisers to report the extent to which they felt capable, confident, and able to succeed in the task of raising money ( $\alpha = .83$ ). We measured social worth with the same scale as in the previous two studies, asking the fundraisers to report the extent to which they felt, as employees, valued and appreciated by managers ( $\alpha = .73$ ).

### Results and Discussion

Means and standard deviations by condition appear in Table 3. A repeated-measures analysis of variance indicated a significant time-condition interaction on prosocial behavior,  $F(1, 39) = 4.97, p < .05, \eta^2 = .10$ . Paired-samples  $t$  tests within each condition over time indicated that the gratitude condition increased in prosocial behavior,  $t(19) = 2.60, p < .05, d = 0.75$ , whereas the control

Table 3  
Experiment 3 Means by Condition

Condition	Pretest prosocial behavior		Posttest prosocial behavior		Posttest self-efficacy		Posttest social worth	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Gratitude	41.40	23.27	62.60	32.45	6.18	0.52	5.68	0.83
Control	39.76	25.21	41.38	22.05	5.80	0.63	5.04	1.02

Note. Gratitude  $n = 20$ ; control  $n = 21$ .

condition did not,  $t(20) = 0.44$ . In addition, compared with fundraisers in the control condition, fundraisers in the gratitude condition reported stronger perceptions of self-efficacy,  $t(39) = 2.06$ ,  $p < .05$ ,  $d = 0.66$ , and social worth,  $t(39) = 2.20$ ,  $p < .05$ ,  $d = 0.70$ .

To test whether self-efficacy and social worth mediated the effect of gratitude on changes in prosocial behavior, we followed Judd, Kenny, and McClelland's (2001) guidelines for testing mediation with OLS regression in within-subject designs. While controlling for the gratitude manipulation, self-efficacy did not significantly predict increases in prosocial behavior ( $\beta = .01$ ),  $t(37) = 0.06$ ,  $p = .95$ , but social worth did ( $\beta = .33$ ),  $t(37) = 2.03$ ,  $p < .05$ . After controlling for social worth, the effect of the gratitude manipulation decreased from  $\beta = .32$ ,  $t(39) = 2.05$ ,  $p < .05$  to  $\beta = .22$ ,  $t(37) = 1.30$ ,  $p = .20$ . Including social worth increased variance explained significantly by 10% from  $r^2 = .10$  to  $r^2 = .20$ ,  $F(1, 36) = 4.35$ ,  $p < .05$ . A bootstrap analysis indicated that the 95% bias-corrected confidence intervals for the size of the indirect effect (6.15) excluded zero, 95% CI [0.29, 20.79]. Accordingly, the gratitude expression increased the prosocial behavior of making more calls to help the university by strengthening fundraisers' feelings of social worth, not by enhancing their feelings of self-efficacy.

#### Experiment 4

Consistent with the findings in Experiments 1 and 2, our third study provides further evidence that gratitude expressions increase prosocial behavior by enabling individuals to feel socially valued. One strength of Experiment 3 is that we manipulated gratitude in a face-to-face interaction, rather than in an electronic communication, as in Experiments 1 and 2. At the same time, this manipulation presents a potential confound; it may be the interpersonal interaction itself, rather than the grateful content of the interaction, which causes the observed effects. To address this issue, we conducted a fourth experiment in which we vary the grateful content of an interpersonal interaction. In addition, to further strengthen support for the mediating role of the communal mechanism, we use a different measure to assess social worth.

#### Method

**Participants, design, and procedures.** Seventy-nine undergraduates at a Midwest university (25 male, 54 female) participated in this study for course credit in their introductory psychology classes. Participants arrived individually at the laboratory, and we informed them that we were working with the university's career center to understand peer feedback processes. We asked

them to help a student, Eric Sorenson, by editing his job application cover letters. They edited an initial cover letter for Eric, and then a confederate acting as Eric arrived, purportedly to deliver forms to the experimenter. The confederate introduced himself as Eric Sorenson to each participant and struck up a conversation about the weather. In the gratitude condition, Eric said "Thank you for your feedback," and in the control condition, he did not. The experimenter then dismissed Eric and gave each participant a second cover letter to edit, informing them that they could stop whenever they were finished. After participants announced task completion, they filled out a brief survey.

**Measures.** Unless otherwise indicated, all items had a 7-point scale anchored at 1 = *disagree strongly* and 7 = *agree strongly*.

**Prosocial behavior.** The experimenter recorded the number of minutes and seconds that participants voluntarily spent editing the second cover letter to help the student.

**Mediating mechanisms: self-efficacy and social worth.** We measured self-efficacy with the six-item scale from Ryan et al. (1991;  $\alpha = .73$ ). We measured social worth with four items adapted from Keyes's (1998) social integration scale, which we modified to clearly tap into the communal element of social worth. We asked participants to report the extent to which they felt close to the student, felt that the student values them as a person, felt strong trust from the student, and felt important to the student ( $\alpha = .75$ ).

**Manipulation check.** Participants rated the degree to which the student's message expressed gratitude and thanks ( $\alpha = .91$ ). The manipulation check and the social worth measure shared 12.96% of their variance ( $r = .36$ ,  $p < .01$ ), and factor analyses once again supported the distinctiveness of the two measures.

#### Results and Discussion

Means and standard deviations by condition are displayed in Table 4. Participants in the gratitude condition rated the interaction with the student as expressing more gratitude ( $M = 4.89$ ,  $SD = 1.09$ ) than did participants in the control condition ( $M = 4.40$ ,  $SD = 1.10$ ),  $t(77) = 1.96$ ,  $p = .05$ ,  $d = 0.45$ . The gratitude manipulation increased prosocial behavior: Participants in the gratitude condition spent significantly more time helping the student on the second cover letter ( $M = 22.83$ ,  $SD = 6.02$ ) than did participants in the control condition ( $M = 19.83$ ,  $SD = 6.34$ ),  $t(77) = 2.16$ ,  $p = .03$ ,  $d = 0.49$ . There were no significant differences between conditions in self-efficacy,  $t(77) = -1.12$ , *ns*. However, participants in the gratitude condition felt significantly more socially valued ( $M = 3.84$ ,  $SD = 0.81$ ) than did participants in the control condition ( $M = 3.33$ ,  $SD = 0.89$ ),  $t(77) = 2.69$ ,  $p < .01$ ,  $d = 0.61$ .

Table 4  
Experiment 4 Means by Condition

Condition	Prosocial behavior		Self-efficacy		Social worth		Manipulation check	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Gratitude	22.83	6.02	4.79	0.82	3.84	0.81	4.89	1.09
Control	19.83	6.34	4.59	0.76	3.33	0.89	4.40	1.10

Note. Gratitude  $n = 40$ ; control  $n = 39$ .

To test whether social worth mediated the effect of gratitude on prosocial behavior, we used the same procedures as in the previous experiments. A hierarchical OLS regression analysis showed that while the gratitude manipulation was controlled for, social worth predicted higher prosocial behavior ( $\beta = .34$ ,  $t = 3.48$ ,  $p < .01$ ). Including social worth increased variance explained significantly by 6% from  $r^2 = .06$  to  $r^2 = .12$ ,  $F(1, 76) = 5.75$ ,  $p = .02$ , and controlling for social worth reduced the effect of the gratitude manipulation from  $\beta = .24$ ,  $t(77) = 2.16$ ,  $p = .03$  to  $\beta = .16$ ,  $t(75) = 1.43$ ,  $p = .16$ . In a bootstrap analysis, the 95% bias-corrected confidence intervals for the indirect effect (1.00) excluded zero, 95% CI [.16, 2.27].

### General Discussion

Across four experiments, perceptions of social worth mediated the effects of beneficiaries' gratitude expressions on helpers' prosocial behavior. The experiments showed these effects for prosocial behavior directed toward the same beneficiary (Experiments 1 and 4), a different beneficiary (Experiment 2), and a university (Experiment 3). In addition, gratitude expressions increased both the initiation and maintenance of prosocial behavior, motivating participants to provide help a second time when asked (Experiments 1 and 2) and to persist longer in their current helping activities without being asked (Experiments 3 and 4). These convergent effects on objective prosocial behaviors are important, given that the majority of gratitude research has focused on psychological effects, leading psychologists to call for more research on its behavioral effects (Tsang, 2006). The present research answers these calls by demonstrating the causal impact of gratitude on helpers' concrete, observable prosocial behaviors. The consistently strong effects of relatively small gratitude manipulations are noteworthy (Prentice & Miller, 1992). In our first two experiments, a mere expression of thanks more than doubled the likelihood that helpers would provide assistance again (from 25% to 55% and from 32% to 66%). In our third experiment, gratitude produced more than 50% increases in the number of calls that the average fundraiser made in a single week. In our fourth experiment, a single gratitude expression yielded an increase of 15% in the average amount of time spent helping.

Our results reveal that gratitude expressions increase prosocial behavior through communal mechanisms rather than agentic mechanisms. In our experiments, although gratitude expressions increased both feelings of self-efficacy and social worth, only social worth explained the effects of gratitude expressions on prosocial behavior. These findings suggest that when helpers are thanked for their efforts, the resulting sense of being socially valued, more than the feelings of competence they experience, are critical in encouraging them to provide more help in the future. Together, our experiments support a communal perspective on why gratitude expressions increase prosocial behavior. Furthermore, we did not find any evidence that these effects operate through influencing helpers' positive or negative affect.

Additionally, our second and third experiments showed that gratitude expressions had spillover effects on prosocial behaviors toward other beneficiaries. This finding suggests that beneficiaries' gratitude expressions may prompt helpers to consider assisting a broader group of beneficiaries (Batson, 1998). By signaling to helpers that their efforts are valued, gratitude expressions may

be sufficiently potent to influence helpers' efforts on behalf of the larger groups to which beneficiaries belong. This evidence dovetails with research demonstrating spillover effects of grateful feelings, which encourage individuals to engage in upstream reciprocity by "paying forward" help to other beneficiaries (Bartlett & DeSteno, 2006). Our findings complement this line of research by demonstrating that expressions of gratitude, not only experiences of gratitude, have spillover effects on prosocial behavior. As such, our research suggests that gratitude expressions may have important theoretical and practical implications for encouraging prosocial behaviors that promote cooperation (see also Nowak & Roch, 2007).

These contributions must be qualified in light of several important limitations of our research. First, there were inconsistencies across studies in the effects of our gratitude manipulations on self-efficacy. In Experiment 3, the manipulation had equally strong effects on self-efficacy and social worth. However, in Experiments 1 and 2, the manipulation had stronger effects on social worth than on self-efficacy. And in Experiment 4, the manipulation affected social worth but did not influence self-efficacy. On one hand, the relatively weak effects on self-efficacy in three of our four experiments may be an artifact of the gratitude manipulations that prevented us from detecting a mediating role of self-efficacy. On the other hand, it is possible that gratitude expressions are simply less likely to influence self-efficacy than social worth. Future research is necessary to resolve these competing interpretations. Furthermore, beyond self-efficacy, social worth, and affect, there may be additional mechanisms through which gratitude expressions motivate prosocial behavior. For example, it will be worthwhile to examine whether gratitude expressions promote prosocial behavior by increasing helpers' feelings of self-esteem and their perceptions of reciprocity, strengthening their confidence that their efforts will be repaid (McCullough et al., 2001). In fact, in light of the perspective from sociometer theory that self-esteem can serve as an indicator of one's social worth (Leary & Baumeister, 2000), it may be the case that gratitude expressions strengthen feelings of social worth by building self-esteem. In the future, researchers could investigate this possibility that self-esteem is a micromediator of the effects of gratitude expressions on social worth.

Second, we did not investigate moderators of the effects of gratitude expressions on prosocial behavior. For instance, research has shown that gratitude expressions are more likely to motivate helping among individuals with a high need for approval than among those with a low need for approval (Deutsch & Lambert, 1986). Third, our manipulations created broad differences in the level of gratitude expressions without attending to important variations in their emotional and linguistic content. We recommend that researchers study how emotions communicated in facial and other nonverbal cues influence helpers' reactions to gratitude expressions, as well as subtle linguistic variations in the wording of gratitude expressions, such as in whether the content of the message directly involves grateful emotions or whether it simply conveys that one has been helped.

Finally, our research focused on the benefits of gratitude with little attention to its costs. Researchers could explore whether and when gratitude expressions violate humility norms, causing helpers to feel uncomfortable, or burdened and pressured (Graziano, Habashi, Sheese, & Tobin, 2007), to assist to beneficiaries beyond a level that they find reasonable or useful. For now, our research

takes a meaningful step toward explaining why a little thanks can go a long way: Small expressions of gratitude can motivate prosocial behaviors by leading helpers to feel socially valued.

## References

- Bakan, D. (1966). *The duality of human existence: Isolation and communion in Western man*. Boston, MA: Beacon Press.
- Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, *84*, 191–215.
- Bandura, A. (1990). *Multidimensional scales of perceived self-efficacy*. Stanford, CA: Stanford University.
- Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, *51*, 1173–1182.
- Bartlett, M. Y., & DeSteno, D. (2006). Gratitude and prosocial behavior: Helping when it costs you. *Psychological Science*, *17*, 319–325.
- Batson, C. D. (1998). Altruism and prosocial behavior. In D. T. Gilbert, S. T. Fiske, & G. Lindzey (Eds.), *The handbook of social psychology* (Vol. 2, 4th ed., pp. 282–316). New York, NY: McGraw-Hill.
- Baumeister, R. F., & Leary, M. R. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin*, *117*, 497–529.
- Bentler, P. M., & Dudgeon, P. (1996). Covariance structure analysis: Statistical practice, theory, and directions. *Annual Review of Psychology*, *47*, 563–592.
- Blau, P. (1964). *Exchange and power in social life*. New York, NY: Wiley.
- Carey, J. R., Clicque, S. H., Leighton, B. A., & Milton, F. (1976). A test of positive reinforcement of customers. *Journal of Marketing*, *40*, 98–100.
- Carlson, M., Charlin, V., & Miller, N. (1988). Positive mood and helping behavior: A test of six hypotheses. *Journal of Personality and Social Psychology*, *55*, 211–229.
- Cialdini, R. B. (1980). Full-cycle social psychology. *Applied Social Psychology Annual*, *1*, 21–47.
- Clark, H. B., Northrop, J. T., & Barkshire, C. T. (1988). The effects of contingent thank-you notes on case managers' visiting residential clients. *Education and Treatment of Children*, *11*, 45–51.
- Clark, R. D. (1975). The effects of reinforcement, punishment, and dependency on helping behavior. *Bulletin of Personality and Social Psychology*, *1*, 596–599.
- Deutsch, F. M., & Lambert, D. M. (1986). Does social approval increase helping? *Personality and Social Psychology Bulletin*, *12*, 149–157.
- Elliott, G. C., Colangelo, M. F., & Gelles, R. J. (2005). Mattering and suicide ideation: Establishing and elaborating a relationship. *Social Psychology Quarterly*, *68*, 223–238.
- 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.
- Fisher, J. D., Nadler, A., & Whitcher-Alagna, S. (1982). Recipient reactions to aid. *Psychological Bulletin*, *91*, 27–54.
- Fiske, S. T., Cuddy, A. J. C., & Glick, P. (2007). Universal dimensions of social cognition: Warmth and competence. *Trends in Cognitive Sciences*, *11*, 77–83.
- Fredrickson, B. L. (2001). The role of positive emotions in positive psychology: The broaden-and-build theory of positive emotions. *American Psychologist*, *56*, 218–226.
- Goldman, M., Seever, M., & Seever, M. (1982). Social labeling and the foot-in-the-door effect. *Journal of Social Psychology*, *117*, 19–23.
- Grant, A. M. (2008). The significance of task significance: Job performance effects, relational mechanisms, and boundary conditions. *Journal of Applied Psychology*, *93*, 108–124.
- Grant, A. M., Campbell, E. M., Chen, G., Cottone, K., Lapedis, D., & Lee, K. (2007). Impact and the art of motivation maintenance: The effects of contact with beneficiaries on persistence behavior. *Organizational Behavior and Human Decision Processes*, *103*, 53–67.
- Graziano, W. G., Habashi, M. M., Sheese, B. E., & Tobin, R. M. (2007). Agreeableness, empathy, and helping: A person  $\times$  situation perspective. *Journal of Personality and Social Psychology*, *93*, 583–599.
- Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*, *6*, 1–55.
- Judd, C. M., James-Hawkins, L., Yzerbyt, V., & Kashima, Y. (2005). Fundamental dimensions of social judgment: Understanding the relations between judgments of competence and warmth. *Journal of Personality and Social Psychology*, *89*, 899–913.
- Judd, C. M., Kenny, D. A., & McClelland, G. H. (2001). Estimating and testing mediation and moderation in within-subject designs. *Psychological Methods*, *6*, 115–134.
- Kaplan, S., & Kaplan, R. (2003). Health, supportive environments, and the reasonable person model. *American Journal of Public Health*, *93*, 1484–1489.
- Keyes, C. L. M. (1998). Social well being. *Social Psychology Quarterly*, *61*, 121–140.
- Kline, R. B. (1998). *Principles and practice of structural equation modeling*. New York, NY: Guilford Press.
- Leary, M. R., & Baumeister, R. F. (2000). The nature and function of self-esteem: Sociometer theory. In M. P. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 32, pp. 1–62). San Diego, CA: Academic Press.
- Lyubomirsky, S., Sheldon, K. M., & Schkade, D. (2005). Pursuing happiness: The architecture of sustainable change. *Review of General Psychology*, *9*, 111–131.
- MacKinnon, D. P., & Dwyer, J. H. (1993). Estimating mediated effects in prevention studies. *Evaluation Review*, *17*, 144–158.
- MacKinnon, D. P., Fairchild, A. J., & Fritz, M. S. (2007). Mediation analysis. *Annual Review of Psychology*, *58*, 593–614.
- McAdams, D. P., & de St. Aubin, E. (1992). A theory of generativity and its assessment through self-report, behavioral acts, and narrative themes in autobiography. *Journal of Personality and Social Psychology*, *62*, 1003–1015.
- 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., Tsang, J.-A., & Emmons, R. A. (2004). Gratitude in intermediate affective terrain: Links of grateful moods to individual differences and daily emotional experience. *Journal of Personality and Social Psychology*, *86*, 295–309.
- McGovern, L. P., Ditzian, J. L., & Taylor, S. P. (1975). The effect of positive reinforcement on helping with cost. *Psychonomic Society Bulletin*, *5*, 421–423.
- Moss, M. K., & Page, R. A. (1972). Reinforcement and helping behavior. *Journal of Applied Social Psychology*, *2*, 360–371.
- Nowak, M. A., & Roch, S. (2007). Upstream reciprocity and the evolution of gratitude. *Proceedings of the Royal Society B: Biological Sciences*, *274*, 605–609.
- Penner, L. A., Dovidio, J. F., Piliavin, J. A., & Schroeder, D. A. (2005). Prosocial behavior: Multilevel perspectives. *Annual Review of Psychology*, *56*, 365–392.
- Prentice, D. A., & Miller, D. T. (1992). When small effects are impressive. *Psychological Bulletin*, *112*, 160–164.
- Rind, B., & Bordia, P. (1995). Effect of server's "thank you" and personalization on restaurant tipping. *Journal of Applied Social Psychology*, *25*, 745–751.
- Rosen, S., Mickler, S. E., & Collins, J. E. (1987). Reactions of would-be

- helpers whose offer of help is spurned. *Journal of Personality and Social Psychology*, 53, 288–297.
- Rosenberg, M., & McCullough, B. C. (1981). Mattering: Inferred significance and mental health among adolescents. *Research in Community and Mental Health*, 2, 163–182.
- Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55, 68–78.
- Ryan, R. M., Koestner, R., & Deci, E. L. (1991). Varied forms of persistence: When free-choice behavior is not intrinsically motivated. *Motivation and Emotion*, 15, 185–205.
- Seligman, M. E. P., & Schulman, P. (1986). Explanatory style as a predictor of productivity and quitting among life insurance sales agents. *Journal of Personality and Social Psychology*, 50, 832–838.
- Seligman, M. E. P., Steen, T. A., Park, N., & Peterson, C. (2005). Positive psychology progress: Empirical validation of interventions. *American Psychologist*, 60, 410–421.
- Shrout, P. E., & Bolger, N. (2002). Mediation in experimental and non-experimental studies: New procedures and recommendations. *Psychological Methods*, 7, 422–445.
- Spreitzer, G. M. (1995). Psychological empowerment in the workplace: Dimensions, measurement, and validation. *Academy of Management Journal*, 38, 1442–1465.
- Tesser, A., Gatewood, R., & Driver, M. (1968). Some determinants of gratitude. *Journal of Personality and Social Psychology*, 9, 233–236.
- Tsang, J.-A. (2006). Gratitude and prosocial behaviour: An experimental test of gratitude. *Cognition & Emotion*, 20, 138–148.
- Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology*, 54, 1063–1070.
- Weiner, B. (1985). An attributional theory of achievement motivation and emotion. *Psychological Review*, 92, 548–573.
- White, R. W. (1959). Motivation reconsidered: The concept of competence. *Psychological Review*, 66, 297–333.
- Wiggins, J. S. (1979). A psychological taxonomy of trait-descriptive terms: The interpersonal domain. *Journal of Personality and Social Psychology*, 37, 395–412.
- Wrzesniewski, A., Dutton, J. E., & Debebe, G. (2003). Interpersonal sensemaking and the meaning of work. In B. M. Staw & R. Kramer (Eds.), *Research in Organizational Behavior* (Vol. 25, pp. 93–135). New York, NY: Elsevier Science.

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### Correction to Ford and Collins (2010)

The article “Self-Esteem Moderates Neuroendocrine and Psychological Responses to Interpersonal Rejection,” by Máire B. Ford and Nancy L. Collins (*Journal of Personality and Social Psychology*, 2010, Vol. 98, No. 3, pp. 405–419), contained a misspelling in the last name of the first author in the below reference. The complete correct reference is below. The online version of the article has been corrected.

Stinson, D. A., Logel, C., Zanna, M. P., Holmes, J. G., Cameron, J. J., Wood, J. V., & Spencer, S. J. (2008). The cost of lower self-esteem: Testing a self- and social-bonds model of health. *Journal of Personality and Social Psychology*, 94, 412–428.

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