

When Does Gossip Promote Generosity? Indirect Reciprocity Under the Shadow of the Future

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Abstract

Reputation through gossip is a key mechanism promoting cooperation. The present research proposes that gossip promotes cooperation when one anticipates future interdependence with the gossip recipient (Hypothesis 1), that this effect is more pronounced for proself, compared to prosocial, individuals (Hypothesis 2), and explores the mediating role of reputational concern and expected indirect benefits in the relation between gossip and cooperation. Results from three studies supported these hypotheses, showing that people are more generous in response to gossip to their future interaction partner(s), compared with gossip to other(s) they would never meet or no gossip. Moreover, proselfs, compared with prosocials, showed a larger increase in generosity when they anticipated future interactions with the gossip recipient(s). The observed gossip-based generosity was primarily mediated by reputational concern rather than expected indirect benefits from future partners, and the mediation of reputational concern was more pronounced for proselfs than for prosocials.

Keywords

gossip, generosity, future interdependence, reputational concern, gossip recipient

Recent years have seen a plethora of research on the social functions of gossip and reputation across disciplines. Reputation exchange through gossip is important in social interactions. On the individual level, it allows people to select reliable and trustworthy partners, avoid being cheated by free riders, and manage their reputation to enhance indirect benefits from third parties (Dunbar, 2004; Feinberg, Willer, Stellar, & Keltner, 2012; Foster, 2004; Nowak & Sigmund, 2005; Smith & Collins, 2009). On the collective level, it helps to deter free riding and maintain high levels of cooperation that promote the group welfare (Beersma & Van Kleef, 2011; Feinberg, Willer, & Schultz, 2014).

Evidence suggests that reputational cues in the social environment, either explicit or implicit, can promote cooperation. Indeed, people are more cooperative when others know their behavioral history (Milinski, Semmann, Bakker, & Krambeck, 2001; Milinski, Semmann, & Krambeck, 2002) or when their partners will gossip (Beersma & Van Kleef, 2011; Piazza & Bering, 2008). People also condition their cooperation on others' reputation, and gossip exerts a strong influence beyond direct observation (Sommerfeld, Krambeck, & Milinski, 2008). Likewise, implicit reputational cues of eye images can also encourage cooperation by increasing allocations in a dictator game (Haley & Fessler, 2005), raising contributions to an honest box for drinks (Bateson, Nettle, & Roberts, 2006) and reducing littering at cafeterias (Ernest-Jones, Nettle, & Bateson, 2011). Moreover, subtle reminders of reputation

increase low-cost helping and reverse the bystander effect (Van Bommel, Van Prooijen, Elffers, & Van Lange, 2012).

Still, several questions about reputation-based cooperation may be raised. Little is known about whether this phenomenon occurs in the presence of potential gossip to anyone or only to specific individuals. A notable exception is that eye cues only promote cooperation with in-group, but not out-group, members (Mifune, Hashimoto, & Yamagishi, 2010). Mifune and colleagues (2010) argued that reputation only matters within one's group, where group members will reward one's cooperation through indirect reciprocity (see also Yamagishi & Mifune, 2008). Therefore, people seem to care about reputation and indirect benefits and adjust their behavior to manage their reputation when their behavior can result in indirect benefits (e.g., sharing future interdependence with in-group members).

We know that people are initially more cooperative when they anticipate future interactions with their current partner, which affords opportunities for direct reciprocity (Van Lange, Klapwijk, & Van Munster, 2011). We argue that this "shadow

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of the future” effect may also exist in situations with indirect reciprocity, that is, when one’s future partner knows about one’s reputation with no other information (e.g., group membership). Indeed, people with a cooperative reputation are more likely to receive benefits from third parties because people base their behavior on others’ reputation (Nowak & Sigmund, 2005). Thus, when interacting with someone who can gossip to one’s potential future partners, upregulating generosity and cooperation may improve one’s reputation and result in indirect benefits. Also, some evidence suggests that people are more cooperative in response to gossip only when the gossip recipient could personally identify them (Piazza & Bering, 2008) or when others know about their previous behavior (Beersma & Van Kleef, 2011). Importantly, people are also more cooperative when their behavior is known by their future partner (Simpson & Willer, 2008).

Previous research on gossip and cooperation used different manipulations of gossip, such as group members’ tendency to gossip (Beersma & Van Kleef, 2011), interaction partner’s opportunity to “discuss” with a third party (Piazza & Bering, 2008), or an observer’s opportunity to send a note to one’s future partner (Feinberg et al., 2012, Study 4). However, these studies did not examine whether people vary their cooperation across situations, where they anticipate or do not anticipate future interactions with the gossip recipient or there is no gossip. We extend previous research by focusing on how gossip might influence cooperation when one shares or does not share future interdependence with the gossip recipient. By doing so, we are able to test whether people are more generous toward others who can gossip to anyone or only increase their generosity when others can gossip to their future partner. Since a good reputation earned from cooperation only pays off in the longer term, people should only be sensitive to reputation when their perceived “shadow of the future” is increased (Barclay, 2010). Thus, we hypothesize that people would be more generous toward a partner who can gossip to their future partner compared with gossip to someone they will never interact with or unable to gossip (Hypothesis 1).

Given that building a good reputation through cooperation brings about long-term indirect benefits from third parties, people with different social value orientations (SVOs)—dispositional preferences in outcome distribution between self and others (Van Lange, De Bruin, Otten, & Joireman, 1997)—should respond differently toward cues of gossip. Social value orientation is usually classified into prosocial and proself orientations: *prosocials* tend to maximize collective interest and equality between self and others; *proselfs* tend to maximize their own interest (Van Lange, 1999). Prosocials are more cooperative than proselfs in both experimental games and real-life situations (Balliet, Parks, & Joireman, 2009; Van Lange, Agnew, Harinck, & Steemers, 1997). However, when one’s reputation is at stake, proselfs tend to increase their cooperation to strategically manage their reputation (Feinberg et al., 2012; Simpson & Willer, 2008). Here we will test the prediction that proselfs, compared to prosocials, would show a larger increase in

generosity in contexts that could maximize potential indirect benefits via gossip and reputation, that is, when someone can gossip to their future partner (Hypothesis 2).

We build on previous research by also examining two plausible psychological mechanisms of gossip-based generosity: reputational concern and expected indirect benefits. Reputational concern involves concern for the collective beliefs that others have about oneself, and this concern can be activated by cues that others might judge or evaluate one’s behavior (Emler, 1990; Sperber & Baumard, 2012). We propose that cues of gossip to one’s future partner may activate one’s concerns about reputation, which motivates people to adjust their cooperation to secure a good reputation. People may also use cues of gossip to estimate the costs and benefits of different actions and then behave to maximize their material outcome, if the situation affords them to do so (Scott, 2000). We will create a situation where people are able to make such estimations and see whether they explicitly form expectations of future indirect benefits and base their decisions on these expectations. In conclusion, both reputational concern and expected indirect benefits are plausible mechanisms for the effect of gossip on generosity. Importantly, as an open research question, we will test whether the relative strength of the mediation effects of reputational concern and/or expected indirect benefits is significantly different for people with different SVOs, that is, a two-stage moderated mediation model (see Figure 1).

To test our hypotheses, we conducted three studies with a newly developed paradigm. Participants first decided how much to give to a recipient in a *dictator game*. Then, they interacted with another person (i.e., the investor) as a responder in a *trust game*, where the investor sent some resource to participants first, and the amount sent was tripled. We manipulated whether the recipient would gossip about participants’ behavior to the investor in the trust game or an irrelevant person, or could not gossip. Across our studies, participants reported their expected amount sent from the investor as the measure of expected indirect benefits.

Study 1

Study 1 was designed to provide an initial test of Hypothesis 1, predicting more cooperation when one’s partner can gossip to others relevant for one’s future interaction. Study 1 will also explore if reputational concern and expected indirect benefits mediate the relation between gossip and generosity.

Method

Participants and Design

Participants ($N = 153$, 44 women; $M_{\text{age}} = 29.95$ years, $SD = 9.12$) recruited from Amazon Mechanical Turk (MTurk) completed the study for US\$0.30. Seven participants were paid a 2-dollar bonus based on their decisions. They were randomly assigned to one of the three gossip conditions (gossip-to-future-partner, gossip-to-unrelated-person, and control).

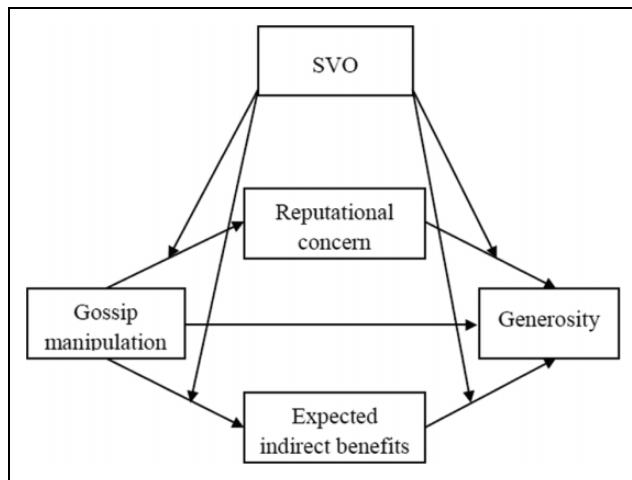


Figure 1. The two-stage moderated mediation model.

Procedure

Participants (Person A) were instructed to interact with two persons (Person B and C, actually simulated) in two decision-making tasks (i.e., a dictator game and a trust game), during which they earned lottery tickets based on their decisions. Each ticket represented a 0.05% chance for a 2-dollar bonus. They first read about the tasks and answered five questions (two for manipulation check).

Dictator game. Participants (Person A) freely distributed 100 lottery tickets between themselves and Person B in the dictator game (Forsythe, Horowitz, Savin, & Sefton, 1994). The number (0–100) of lottery tickets they gave to Person B was the measure of generosity.

Trust game. Participants (Person A) interacted with Person C (i.e., investor) as a responder in the trust game (Berg, Dickhaut, & McCabe, 1995). The investor was initially endowed with 100 lottery tickets and sent some (including 0) of the tickets to the responder. Any amount sent to the responder was tripled, but the amount kept for oneself retained the same value. Afterward, the responder sent some of the received tripled amount back to the investor. Prior to the trust game, we measured participants' expected indirect benefits in the trust game (i.e., "How many lottery tickets do you expect Person C will send you in this task?"; $M = 48.14$, $SD = 27.25$).

Participants were informed that Person B would send an evaluative message about their allocation decision to (a) Person C, whom they would interact with in the second task (*gossip-to-future-partner*), (b) Person X participating in another unrelated study (*gossip-to-unrelated-person*), or (c) only Person B would know their allocation decision and no evaluative message was sent (*control*). The two manipulation check questions were "Will Person B tell anyone else about your allocation decision in Task 1?" and "Will Person C know about your allocation decision in Task 1?"

After participants' decision in the dictator game, we measured their reputational concern with 6 items (e.g., "During the decision making task, I thought about how others would think about me"; "It's important to me that Person B has a positive evaluation about me") on a 5-point Likert-type scale ($\alpha = .83$; 1 = *totally disagree* and 5 = *totally agree*) adapted from Beersma and Van Kleef (2011). The average score was the measure of reputational concern ($M = 3.02$, $SD = 1.05$). Then they read about the trust game and self-reported expected indirect benefits from Person C. Participants learned that Person C sent them 0 tickets, so they made no decision in the trust game. Finally, they learned about the number of tickets they earned and were debriefed.

Results and Discussion

Manipulation Check

Eight participants answered both questions incorrectly and were excluded from the analyses. Of the remaining 145 participants, 83.45% answered both questions correctly. Thus, the manipulation of gossip was judged to be successful.

Generosity

We computed two hypothesis-relevant orthogonal contrasts of gossip: Contrast 1 (gossip-to-future-partner condition vs. the other two conditions) and Contrast 2 (gossip-to-unrelated-person condition vs. control condition). Analysis of variance (ANOVA) on generosity revealed a significant effect of gossip, $F(2, 142) = 11.27$, $p < .001$, $\eta_p^2 = .14$. Planned comparisons revealed significantly more generosity in the gossip-to-future-partner condition ($M = 48.75$, $SD = 19.67$) than the other two conditions ($M = 31.37$, $SD = 22.98$), $F(1, 142) = 19.16$, $p < .001$, $\eta_p^2 = .12$, but no significant difference in generosity between the gossip-to-unrelated-person condition ($M = 35.17$, $SD = 22.21$) and the control condition ($M = 28.47$, $SD = 23.33$), $F(1, 142) = 2.24$, $p = .14$, $\eta_p^2 = .02$.

Mediation Analyses

We tested whether gossip influences generosity through the mediation of reputational concern and expected indirect benefits using the bootstrapping method for multiple mediation (Preacher & Hayes, 2008).¹ Besides the separate indirect effects, this method also generates the difference between indirect effects (Diff). The total effect of Contrast 1 on generosity (total effect = 5.64, $p < .001$) became nonsignificant when both mediators were included in the model (direct effect = 1.01, $p = .47$). Reputational concern had a significant indirect effect, $b = 4.16$, 95% confidence interval (95% CI) [2.56, 6.27], but expected indirect benefits did not, $b = 0.47$, 95% CI [−0.02, 1.51], Diff = 3.68, 95% CI [1.61, 5.99].

Thus, gossip only yields enhanced generosity when transmitted to a future interaction partner (rather than someone one would never interact with), and reputational concern serves as the primary mediator for this effect.

Study 2

Study 2 would replicate Study 1 but also test our prediction that gossip to future interaction partner would promote generosity more strongly in proselves compared to prosocials (Hypothesis 2). Study 2 also served to examine whether the mediation of reputational concern and expected indirect benefits depends on participants' prosocial versus prosself orientation.

Method

Participants and Design

Participants ($N = 374$, 172 women; $M_{\text{age}} = 32.18$ years, $SD = 10.93$) recruited from MTurk completed the study for US\$0.30. Eleven participants were paid a 2-dollar bonus. We used a 3 (gossip: gossip-to-future-partner, gossip-to-unrelated-person, control) \times 2 (SVO: prosocial, prosself) between-participants design. Participants were randomly assigned to one of the three gossip conditions.

Procedure

The procedure was similar to Study 1, with the following exception: While waiting for others to join the study, participants completed the 6 primary items of SVO Slider Measure (Murphy, Ackermann, & Handgraaf, 2011). They chose their preferred monetary allocation between themselves and an anonymous other. Based on their choices, we computed their index of SVO (i.e., SVO°) and categorized them into prosocials ($SVO^\circ > 22.45^\circ$) and proselves ($SVO^\circ < 22.45^\circ$) based on the calculated angles (Brucks & Van Lange, 2007; Meleady, Hopthrow, & Crisp, 2013).

Results and Discussion

Manipulation Check

Ten participants answered both questions incorrectly and were excluded from the analyses. Of the remaining 364 participants, 84.89% answered both questions correctly. Thus, the manipulation of gossip was successful.

Generosity

We computed two orthogonal contrasts of gossip (Contrasts 1 and 2) as in Study 1. ANOVA on generosity revealed a significant effect of gossip, $F(2, 358) = 18.76$, $p < .001$, $\eta_p^2 = .10$. Subsequent planned comparisons revealed significantly more generosity in the gossip-to-future-partner condition ($M = 46.36$, $SD = 20.04$) than the other two conditions ($M = 35.14$, $SD = 23.07$), $F(1, 358) = 37.32$, $p < .001$, $\eta_p^2 = .09$, but no significant difference in generosity between the gossip-to-unrelated-person condition ($M = 35.67$, $SD = 23.66$) and the control condition ($M = 34.60$, $SD = 22.54$), $F(1, 358) = 0.29$, $p = .59$. Moreover, prosocials ($M = 45.80$, $SD = 19.43$) were more generous than proselves ($M = 24.31$, $SD = 22.23$), $F(1, 358) = 99.23$, $p < .001$, $\eta_p^2 = .22$.

The Gossip \times SVO interaction was significant, $F(2, 358) = 5.33$, $p = .005$, $\eta_p^2 = .03$. Planned comparisons revealed a significant Contrast 1 \times SVO interaction, $F(1, 358) = 10.62$, $p = .001$, $\eta_p^2 = .03$. Simple effect analysis revealed that the effect of gossip-to-future-partner condition versus the gossip-to-unrelated-person condition and the control condition was more pronounced for proselves ($M = 38.67$ vs. $M_s = 17.51$ and 16.53), $F(1, 358) = 32.27$, $p < .001$, $\eta_p^2 = .08$, than for prosocials ($M = 50.29$ vs. $M_s = 44.64$ and 42.77), $F(1, 358) = 5.23$, $p = .02$, $\eta_p^2 = .01$. The Contrast 2 \times SVO interaction was not significant, $F(1, 358) = 0.03$, $p = .87$, and so prosocials and proselves displayed similar amounts of generosity between the gossip-to-unrelated-person condition and the control condition (see Figure 2).

Mediation Analyses

As in Study 1, we first tested whether gossip influences generosity through the mediation of reputational concern and expected indirect benefits. The total effect of Contrast 1 on generosity (total effect = 3.74, $p < .001$) became nonsignificant when both mediators were included (direct effect = 0.52, $p = .53$). There were significant indirect effects of both reputational concern, $b = 2.52$, 95% CI [1.64, 3.48], and expected indirect benefits, $b = 0.71$, 95% CI [0.25, 1.34], and these two effects differed significantly, Diff = 1.81, 95% CI [0.74, 2.90].

We further tested the two-stage moderated mediation using the PROCESS Macro (Hayes, 2013, 2015), which also generates an index of moderated mediation (Index), indicating whether an indirect effect differs at different values of the moderator. The indirect effect of reputational concern was significant for both proselves, $b = 5.71$, 95% CI [3.97, 7.56], and prosocials, $b = 1.21$, 95% CI [0.51, 2.19], but was stronger for proselves, Index = -4.49, 95% CI [-6.45, -2.64], whereas the indirect effect of expected indirect benefits was significant for proselves, $b = 0.59$, 95% CI [0.09, 1.67], but not significant for prosocials, $b = 0.42$, [-0.04, 1.08], and did not significantly vary between proselves and prosocials, Index = -0.17, 95% CI [-1.25, 0.62].

Thus, Study 2 provides further evidence that gossip only yields enhanced generosity when it involves a future interaction partner (rather than a person one would never interact with). Moreover, in line with Hypothesis 2, these effects were more pronounced for proselves than prosocials. Finally, reputational concern served as a robust significant mediator for the observed effect, especially for proselves, whereas the mediation of expected indirect benefits was not so robust, nor did it vary among prosocials and proselves.

Study 3

In Studies 1 and 2, the recipient in the dictator game could only gossip to one other person. However, in most everyday life situations, people often can (and do) gossip about our behavior to many others whom we may or may not anticipate meeting in the future. As the number of gossip recipients increases, do

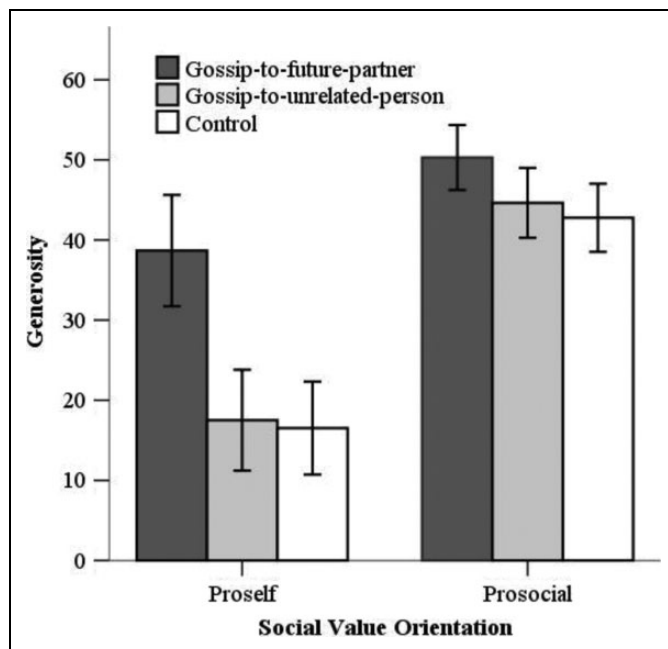


Figure 2. The Gossip \times Social Value Orientation interaction in predicting generosity in the dictator game (Study 2). Error bars represent 95% confidence intervals.

people increase their cooperation accordingly even when they do not anticipate future interactions with these gossip recipients? To answer this open research question, we extend Studies 1 and 2 by examining whether the observed effects generalize from gossip to one person to many persons, with or without cues of future interdependence with the gossip recipients. Thus, in Study 3, we manipulate if the recipient in the dictator game can gossip to five others whom participants may (or may not) interact with in the future.

Method

Participants and Design

Participants ($N = 454$, 187 women; $M_{\text{age}} = 30.74$ years, $SD = 10.57$) recruited from MTurk completed the study for US\$0.40. Fourteen participants were paid a 2-dollar bonus. We used a 3 (gossip: gossip-to-future-partners, gossip-to-unrelated-persons, control) \times 2 (SVO: prosocial, proself) between-participants design. Participants were randomly assigned to one of the three gossip conditions.

Procedure

The procedure was the same as Study 2, except for the gossip manipulation: Participants were informed either that Person B would send an evaluative message about their allocation decision to (a) five people (Person C₁ to C₅), and then participants would interact with Person C who was randomly selected from these people in the second task (gossip-to-future-partners), (b) five people (Person X₁ to X₅) participating in another unrelated study, and then participants would interact with Person C who

did not receive any message in the second task (gossip-to-unrelated-persons), or that (c) only Person B would know their allocation decision, and no evaluative message was sent (control). The two manipulation check questions were “How many people will Person B tell about your allocation decision in Task 1?” and “Will Person C know about your allocation decision in Task 1?”

Results and Discussion

Manipulation Check

Eleven participants answered both questions incorrectly and were excluded from the analyses. Of the remaining 443 participants, 91.20% answered both questions correctly. Thus, the manipulation of gossip was successful.

Generosity

Similar to Study 1, we computed two orthogonal contrasts of gossip (Contrasts 1 and 2). ANOVA on generosity revealed a significant effect of gossip, $F(2, 437) = 19.60, p < .001, \eta_p^2 = .08$. Planned comparisons revealed significantly more generosity in the gossip-to-future-partners condition ($M = 46.65, SD = 20.74$) than the other two conditions ($M = 35.04, SD = 22.83$), $F(1, 437) = 35.37, p < .001, \eta_p^2 = .07$, but no significant difference in generosity between the gossip-to-unrelated-persons condition ($M = 36.63, SD = 22.13$) and the control condition ($M = 33.47, SD = 23.47$), $F(1, 437) = 3.74, p = .054, \eta_p^2 = .01$. Moreover, prosocials ($M = 46.23, SD = 17.52$) were more generous than proselfs ($M = 22.94, SD = 24.71$), $F(1, 437) = 135.61, p < .001, \eta_p^2 = .24$.

The Gossip \times SVO interaction was significant, $F(2, 437) = 3.31, p = .04, \eta_p^2 = .02$. Planned comparisons revealed nonsignificant Contrast 1 \times SVO interaction, $F(1, 437) = 3.11, p = .08, \eta_p^2 = .007$, or Contrast 2 \times SVO interaction, $F(1, 437) = 3.47, p = .06, \eta_p^2 = .008$. To further explore the patterns of the two groups, we tested the simple effects of Contrasts 1 and 2 for prosocials and proselfs separately. This analysis revealed that prosocials were more generous in the gossip-to-future-partners condition than the other two conditions, $F(1, 437) = 13.82, p < .001, \eta_p^2 = .03$, but did not differ in generosity between the gossip-to-unrelated-persons condition and the control condition, $F(1, 437) = 0.00, p = .95$; proselfs were more generous in the gossip-to-future-partners condition than the other two conditions, $F(1, 437) = 25.92, p < .001, \eta_p^2 = .06$, and also more generous in the gossip-to-unrelated-persons condition than the control condition, $F(1, 437) = 5.71, p = .02, \eta_p^2 = .01$ (see Figure 3).

Mediation Analyses

We first tested whether gossip influences generosity through the mediation of reputational concern and expected indirect benefits. The total effect of Contrast 1 on generosity (total effect = 3.87, $p < .001$) became nonsignificant when both mediators were included (direct effect = 0.60, $p = .42$).

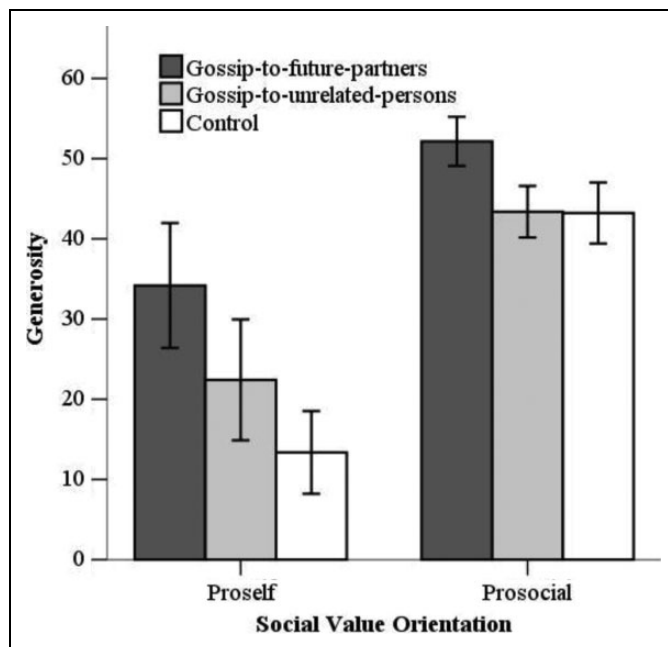


Figure 3. The Gossip \times Social Value Orientation interaction in predicting generosity in the dictator game (Study 3). Error bars represent 95% confidence intervals.

Reputational concern had a significant indirect effect, $b = 3.32$, 95% CI [2.49, 4.35], but expected indirect benefits did not, $b = -0.05$, 95% CI [-0.43, 0.33], and these two effects differed significantly, Diff = 3.37, 95% CI [2.48, 4.41].

Further analysis of the two-stage moderated mediation revealed that the indirect effect of reputational concern was significant for both proselfs, $b = 5.57$, 95% CI [3.95, 7.45], and prosocials, $b = 1.62$, 95% CI [0.97, 2.48], but was stronger for proselfs, Index = -3.95, 95% CI [-5.96, -2.20], whereas the indirect effect of expected indirect benefits was not significant for either proselfs, $b = 0.04$, 95% CI [-0.73, 0.99], or prosocials, $b = -0.06$, 95% CI [-0.38, 0.15], and did not vary among proselfs and prosocials, Index = -0.10, 95% CI [-1.10, 0.71].

Thus, Study 3 largely replicates our prior findings and generalizes the effect to a circumstance where people could gossip to numerous others: Gossip yields more enhanced generosity when it is directed toward others with whom participants anticipate future interactions. Moreover, in line with our hypothesis, the effect was somewhat more pronounced for proselfs than for prosocials. And once again, reputational concern mediated the observed effect of gossip on generosity, especially for proselfs, but expected indirect benefits did not.

Meta-Analytic Overview

Our first two studies complemented each other in the design and gossip manipulations, which make them suitable for meaningful summary using meta-analysis. We report a random-effects meta-analysis by estimating the standardized mean difference in generosity between gossip conditions.

Across the two studies ($N = 509$), participants were consistently more generous in the gossip-to-future-partner condition than the gossip-to-unrelated-person condition, $d = 0.53$, 95% CI [0.31, 0.75], or the control condition, $d = 0.71$, 95% CI [0.34, 1.08], whereas they did not differ in generosity between the gossip-to-unrelated-person condition and control condition, $d = 0.12$, 95% CI [-0.10, 0.34].

General Discussion

Overall, our results support the idea that gossip promotes generosity when one shares future interdependence with the gossip recipient(s). Across three studies, participants were informed that the recipient either (a) could not gossip or (b) could gossip about their behavior to one or several persons they would never interact with. These two conditions provided a comparison to the final condition where the recipient could gossip to one or several persons they anticipated to interact with in the trust game. This design allowed us to rule out the possibility that people would simply be more generous in response to gossip to anyone. We did find that people do not simply increase their generosity whenever gossip opportunities exist, but only do so when others can gossip to their future interaction partner(s). This supports Hypothesis 1 that people will increase their generosity in response to gossip to their future interaction partner. That is, gossip and reputation do not increase generosity if one does not share future interdependence with the gossip recipients. This conclusion is consistent with a recent field study that found observability and reputational concerns only promote cooperation of people who own a house and share future interdependence with neighbors, but not the cooperation of transient renters (Yoeli, Hoffman, Rand, & Nowak, 2013).

Consistent with Hypothesis 2, proselfs showed a larger increase in generosity when they anticipated a future interaction with the gossip recipient(s) compared with the other two conditions. These findings are important because they provide new evidence suggesting that, like direct reciprocity (Van Lange et al., 2011), indirect reciprocity may also be affected by self-regarding motives rather than other-regarding motives. Moreover, from a societal perspective, it is important to consider ways to motivate those who do not “spontaneously” cooperate. Reputation can be such a mechanism to enhance cooperation among people who only care about their own outcomes. Complementary evidence (Study 3) also suggests that when information is disseminated to more people, proselfs may cooperate and become generous even when these people are irrelevant for their future interactions.

We also investigated two plausible psychological mechanisms: reputational concern and expected indirect benefits. Our results demonstrated that reputational concern consistently mediated the observed effect of gossip on generosity whereas expected indirect benefits showed inconsistent effect. A meta-analysis of the mediation effects revealed no significant relation between the gossip contrast (i.e., Contrast 1) and expected indirect benefits across the three studies, $r = .10$, 95% CI [-0.03, .23]. This suggests that the mere pursuit of

indirect benefits does not account for the observed gossip-based generosity. Instead, rather than calculating the potential indirect benefits one might receive from behaving generously, people seem to be concerned about their reputation in response to cues of gossip to their potential future partners, which tends to promote generous behavior.

Despite the importance of our findings, future research is needed to address some unanswered questions. First, we made the situation explicit such that participants would or would not interact with the gossip recipients in the future. However, cues of whom one's partner will gossip to and whether one will ever interact with the gossip recipients are difficult to detect in real life. People could use many other relevant cues, such as others' network connections, to decide when to cooperate. Indeed, people tend to be more generous toward well-connected members in their social networks (Curry & Dunbar, 2011). This might be because well-connected people can spread others' reputation more easily through gossip. Linking gossip, reputation, and social network connections is an important direction for future research.

Second, in our research, participants could earn 100 and 300 lottery tickets at maximum in the dictator game and trust game. Participants may have acted more generously in order to gain more benefits in the trust game. This perspective suggests that people should adjust their generosity based on their expected future indirect benefits. Yet, we did not find support for this perspective because expected indirect benefits did not mediate the effect of gossip-based generosity. Instead, our results are more in line with a perspective that people behave adaptively in response to gossip cues to earn a positive reputation and indirect benefits—even though they do not consciously estimate those possible benefits. Indeed, people are unable to consciously anticipate the many possible indirect benefits of their current generosity. Nonetheless, people may respond to cues that could reliably covary with opportunities to receive indirect benefits and condition their generosity on those cues.

To conclude, our results add to extant theorizing and research on when and how gossip and reputation promote cooperation (e.g., Beersma & Van Kleef, 2011; Feinberg et al., 2012; Piazza & Bering, 2008). Indeed, people are concerned about their reputation and behave more generously only in specific contexts, such as toward in-group versus out-group members (Mifune et al., 2010), or when perceiving their group as an entity with interconnected members (Cavazza, Pagliaro, & Guidetti, 2014), and as suggested in our research, when there is a “shadow of the future” with potential gossip recipients.

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Note

1. Unless otherwise mentioned, we used bootstrapping method based on 5,000 bootstrap samples, with Contrast 1 as the independent variable and Contrast 2 as a covariate during model testing across our studies.

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