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The effects of celebrity gossip on trust are moderated by prosociality of the gossipers.

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Abstract

Previous research suggests that gossip serves several functions in regulating group dynamics (e.g. bonding, entertainment) and is preferentially used by prosocial individuals to protect the group from exploitation. However, it is still unclear what mechanisms underlie these functions and compel prosocial people to gossip. Because gossip provides information about the attitudes and moral views of an interaction partner we hypothesized that for prosocial individuals it functions as a cue that enables trust to be established, even among strangers. We conducted an experiment with 122 female participants who did not know each other prior to the study. They were asked to gossip about celebrities (the most likely form of gossip between strangers) or perform a creativity task for 20 minutes in pairs before playing a trust game. Participants were categorized as prosocial or proself based on their social value orientation (SVO). To additionally test if the effect of gossip on trust differs in real-life interactions and online, participants interacted either face-to-face and online. The results show that, irrespective of the environment, prosocial women trusted their interaction partners more after gossiping, whereas proself women trusted their partners less.

Keywords: *gossip, trust, social value orientation, prosociality*

Word count: 4995

1. Introduction

Gossip (i.e. exchange of evaluative information about absent people; Foster, 2004) is a multi-purpose behavior that facilitates the flow of socially relevant information (Feinberg et al., 2012a). By doing that, gossip serves numerous functions in regulating social group dynamics. For instance, within established groups it facilitates cooperation (Piazza & Bering, 2008; Sommerfeld et al., 2007), between strangers it promotes bonding (Bosson et al., 2006) and universally it provides social enjoyment (Beersma & Van Kleef, 2012). Ultimately, gossip was hypothesized to protect social groups from exploitation by spreading information about the *free-riders* and ostracizing them (Dunbar, 2004).

Interestingly, it was observed that especially individuals with prosocial tendencies are likely to engage in gossip about unacceptable behavior of others (Feinberg et al., 2012a). In a series of experiments Feinberg et al. (2012a) showed that prosocial people playing an economic game are willing to even sacrifice personal gains just to warn others about the untrustworthy players. In this sense, gossip can be viewed as a form of punishment for violating the norms (Feinberg et al., 2012b; Wu et al., 2016) and it was shown that people highly motivated by fairness (i.e. prosocials) are more likely to punish the norm violators (Fehr & Fischbacher 2004). Consistently, Beersma & Van Kleef (2012) showed with survey data that gossip about norm-violations is predominantly driven by the motivation to protect the group and that people perceive gossip as a prosocial behavior whenever it serves group protection. However, it is unclear what specific mechanisms motivate prosocial people to gossip. How does it facilitate bonding within the social groups? Prosocial individuals are inherently more trusting (Bogaert et al., 2008) which makes them more vulnerable to exploitation. As a result, in interpersonal interactions they are more sensitive to subtle social cues to find out the likelihood that another person will cooperate (Boone et al., 2010). We propose that, because

gossip entails an exchange of moral standards and attitudes towards unacceptable behavior (Gorin & Dubied, 2011; Van Den Bulck & Claessens, 2013), it might provide information about the trustworthiness of an interaction partner. For prosocial individuals that information may constitute a cue that increases their trust in the other person.

Social Value Orientation (SVO) is a well-studied, personality trait that captures the willingness of a person to cooperate (Van Lange, 1999). It differentiates between other-oriented prosocials and self-oriented proselfs based on their revealed fairness preference: prosocials pursue equal outcomes, while proselfs maximize self-interest (Bogaert et al., 2008; Van Lange, 1999). Because of that disparity, they approach social interactions differently and they may show vastly different responses to the same cues. For example, a brief friendly meeting prior to playing an economic game causes proselfs to become more selfish while prosocials become more trusting and cooperative (Boone et al., 2010). Prosocials also avoid environments with ambiguous social information (Smeesters et al., 2003) and they feel less emotionally connected with their group when the values within the group are not clearly agreed upon (Bogaert et al., 2012). Because gossip helps in learning the attitudes and morals of the interaction partner, it might serve as a trustworthiness cue for prosocial individuals. As a result, gossip could create an environment conducive to trust, which would partially explain why prosocial people engage in gossip (Feinberg et al., 2012a), and how it furthermore promotes bonding between strangers (Bosson et al., 2006). We will investigate this issue with an experiment designed to test the influence of gossip on trust between strangers depending on their social value orientation.

In particular we focus on the most common type of gossip that happens between strangers: celebrity gossip. In today's world gossip about celebrities is common in both offline and online environments. When discussing the lives, including potential wrongdoings of

celebrities, norms and values are evaluated and re-evaluated (Gorin & Dubied, 2011; Van den Bulck & Claessens, 2013; Van den Bulck et al., 2014). In this respect celebrity gossip functions similarly to interpersonal gossip, which is used to transfer information about cultural norms (Baumeister et al., 2004). Recently, Peng et al. (2017) demonstrated psychophysiological evidence that people are especially sensitive to judging the behavior of celebrities – more so than to judging the behavior of their friends or even their own. This is especially true when celebrity gossip involves reputational information (Yao et al., 2014). In other respects, motives attributed to celebrity gossip also overlap with what drives interpersonal gossip behavior: to inform, bond and entertain (De Backer et al., 2007). Because of this resemblance, celebrity gossip may have some of the same effects as those reported for interpersonal gossip (De Backer et al., 2007).

2. Method

2.1. Experimental design

A 2x2 between factor experimental design was used. Participants were randomly assigned to one of the four conditions: 1 – gossip task with face-to-face interaction (n = 30), 2 – gossip task with online interaction (n = 32), 3 – creativity task with face-to-face interaction (n = 30) or 4 – creativity task with online interaction (n = 30). In addition, participants were classified as either prosocial or proself based on their SVO questionnaire results (Van Lange, 1999).

The decision to use a creativity task as a control condition for gossip was based on the fact that it has a low probability of eliciting discussion about other people. Even though other studies (De Backer et al., 2016) have used self-disclosure in the control conditions, some (e.g. Dunbar, 2004) consider this form of conversations very similar or even equal to gossip. As

soon as people talk about themselves or topics related to culture, the chance that they will start to gossip is fairly realistic, and we wanted to avoid that at all times.

Next, because expressions of trust are known to differ in face-to-face versus computer-mediated contexts (Bicchieri & Lev-On, 2007; Bos et al., 2002), and because modern gossip often operates in online environments, we added conditions where participants performed their task online with audio communication only.

2.2. Participants

Female students ($N = 122$; $M_{\text{age}} = 21.96$, $SD = 2.57$) from XXX and XXX were recruited via emails and online advertisements. The age of participants was not significantly different between the conditions $F(3, 110) = 1.33$, $p = .27$.

The decision to limit the study sample to females was based on the evidence that shows sex differences in the use of gossip. Men typically use gossip for its informational aspect, improving their access to resources (Watson, 2012), whereas women use gossip to establish bonds and boost ingroup cohesion (Hess & Hagen, 2006). Additionally, other research revealed that women gossip more when situation encompasses cooperation or conflict (McAndrew, 2014).

2.3. Procedure and measures

All participants registered using the university website, provided demographic information, and filled out the 9-item triple dominance decomposed SVO questionnaire (Van Lange, 1999). It consists of choosing between a distribution of points that is prosocial (equal outcome for Self and Other), individualistic (self-maximizing), or competitive (maximizing relative differences). Participants are assigned an SVO when they make six consistent choices. The individualistic and competitive orientations were combined to form the prosocial category.

Participants were scheduled to arrive at a set time in separate meeting spots and then escorted to their separate rooms where they signed an informed consent form and filled out questionnaires. After 10 minutes the two participants in the face-to-face conditions were both escorted to a common room to complete the joint task. In the online conditions participants remained in separate rooms and performed the joint task sitting at computers connected via online communicator (Skype), with video disabled and only audio enabled. In the gossip condition participants received twenty pictures of widely known celebrities and were instructed to discuss their controversial or admirable behavior. In the control condition participants received twenty pictures of common household objects and were instructed to come up with creative uses for them. Both tasks lasted for 20 minutes. Afterwards participants who had been sitting together were escorted back to separate rooms to fill out the post-experimental questionnaires.

Before and after the task participants filled out the 20-item *Positive and Negative Affect Schedule* (PANAS) (Watson et al., 1988). They indicated how they felt (i.e., excited, calm...) on a 5-point Likert scale. The general mood value is derived by subtracting the sum of negative affect items from the sum of the positive items. Pre-experimental $\alpha = 0.73$, post-experimental $\alpha = 0.79$. To control for the quality of the interaction, we use the total score of the 18-item *Rapport Questionnaire*, rated on an 8-point scale ($\alpha = 0.89$) (Bernieri, 2005). A sample item: „*The interaction was well-coordinated.*” To assess the valence of gossip participants also answered the question: „*Did you discuss more positive or negative things in the task?*” (10 point-scale going from negative to positive).

After filling out the post-experimental forms participants played a trust game to measure their expression of trust in their interaction partner (Berg et al., 1995). Two players (A and B) play the game. Both players receive a 10 euro endowment. Then, player A can

invest any desired amount from that endowment by giving that amount to the player B. The invested amount is then multiplied by 3, so that if player A invested 5 euro, player B receives 15 euro and has 25 in total. In the next step player B is allowed to give any amount back to the player A – without applying any multiplication factor. Since player B is not required to give anything back, any investment on the player A's part requires trust that the player B will reciprocate and give something back. Furthermore, because both players receive the same endowment in the beginning of the game, there is no inequality between them that could motivate prosocial individuals to restore fairness by investing. As such, this version of the trust game is widely used to measure trusting behavior, where one individual makes himself/herself vulnerable to the decisions of another in order to increase joint earnings (Fehr, 2009). In the experiment participants filled out forms taking the role of both player A and player B. The amount invested as player A constitutes *trust* (expressed in euro) as a variable in our study, while the mean amount returned as player B constitutes *reciprocity* (expressed as the proportion of the investment returned to player A).

After finishing the trust game every participant received 10 euro show-up fee plus their pay-off from the trust game. Average remuneration was 25 euro.

The protocol of this study was approved by the Ethics Committee of the University of XXX (XXX). All procedures performed in this study were in accordance with the ethical standards of the institutional research committee and with the 1964 Helsinki declaration and its later amendments.

3. Results

Descriptive statistics and correlations of the study variables were computed at individual level and reported in tables 1 and 2.

Table 1. Descriptive statistics.

	Mean $\pm$ SD			
	Gossip		Control	
	F-T-F	Online	F-T-F	Online
1. Trust	6.14 $\pm$ 2.63	6.3 $\pm$ 2.64	5.43 $\pm$ 2.66	6.18 $\pm$ 3.23
2. Reciprocity	.52 $\pm$.03	.50 $\pm$.03	.49 $\pm$.03	.47 $\pm$.04
3. Change in mood	6.64 $\pm$ 7.58	5.48 $\pm$ 6.00	3.3 $\pm$ 6.59	4.96 $\pm$ 4.36
4. Rapport	106.52 $\pm$ 16.02	109.73 $\pm$ 13.72	99.04 $\pm$ 13.71	109.58 $\pm$ 16.84
5. Valence	5.07 $\pm$ 1.51	5.13 $\pm$ 1.36	-	-

F-T-F – face-to-face

Table 2. Correlation coefficients between the study variables¹

	1	2	3	4	5
1. Trust (N=114)	-				
2. Reciprocity (N=114)	.38**	-			
3. Change in mood (N=109)	.07	.13	-		
4. Rapport (N=114)	.06	.21*	.40**	-	
5. Valence of gossip (N=58)	-.09	-.22	.09	-.04	-

1 – All of the presented coefficients are Spearman ρ , except for the correlation between trust and reciprocity reported as Pearson r . * $p < .05$, ** $p < .01$

Approximately 61% ($n=69$) of participants were classified as prosocials, 19% ($n=22$) as proselfs, while 17% ($n=19$) of subjects did not make consistent choices and could therefore not be classified. Four subjects failed to complete the SVO altogether. These subjects were excluded from the analyses involving SVO. Less proself individuals were identified in this study as compared to previous ones (Van Lange, 1999). However, prosocials and proselfs were equally distributed among all experimental conditions, $\chi^2(3, N=91) = .67$, $p = .88$. Four

participants failed to fill out either pre- or post-experimental PANAS questionnaire, leaving a total of 87 participants in models that include all independent and control variables.

Similar numbers of participants reported that they gossiped more negatively (approx. 40%) compared to those who gossiped more positively (approx. 38%). The rest (approx. 22%) picked the middle option. The valence of gossip was found to be unrelated to any of the outcome variables, and did not differ between the face-to-face and online conditions $t(56) = .16, p = .87$.

To test if celebrity gossip, anonymity and SVO had an effect on trust, three regression models were estimated (Table 3). Because participants interacted in pairs, the data was analyzed as panel data clustered on dyads. Additionally, since participants within a dyad influenced the experimental conditions for each other, their responses cannot be treated as independent, therefore robust standard errors of the coefficients are reported, using the

Table 3. Linear regression of the impact of celebrity gossip, anonymity and SVO on trust.

	Model 1	Model 2	Model 3
Gossip	.41 (.62)	-3.21* (1.47)	-3.47 (1.93)
Anonymity	-.56 (.66)	-1.36 (1.70)	-1.63 (2.17)
SVO	1.57* (.74)	-1.17 (1.21)	-1.36 (1.50)
Change in mood	.05 (.06)	.04 (.05)	.04 (.05)
Rapport	-.01 (.02)	-.02 (.02)	-.02 (.02)
Gossip×Anonymity		.43 (1.32)	.90 (2.38)
SVO×Gossip		4.31** (1.24)	4.64* (1.92)
SVO×Anonymity		.58 (1.26)	.92 (1.87)
SVO×Gossip×Anonymity			-.61 (2.44)
R-square	.07	.16	.16
Wald chi-square	7.06	22.72**	22.3**
N	87	87	87

* $p < .05$, ** $p < .01$, robust standard errors in parentheses.

sandwich estimators. The GLS random-effects models were performed with Stata 13 software.

Model 1 investigated the main effects of gossip, anonymity and SVO as well as control variables (change in mood and rapport). It revealed that there is a main effect of SVO on trust, but no main effect of gossip or anonymity. Change in mood and rapport were not significant predictors of trust.

Model 2 tested the interaction effects between SVO and experimental conditions. It revealed an interaction between SVO and gossip, with a significant and positive product term indicating that gossip spurs trust among prosocials, and distrust among proselfs (i.e. prosocials who gossiped trusted more than proselfs) (see Figure 1). To confirm that the effect of celebrity gossip on trust is moderated by SVO for both prosocials and proselfs an additional simple moderation analysis was performed (Hayes, 2013). The results reported in table 4 show that the conditional effect of celebrity gossip on trust is significant for both prosocials and proselfs. However, no interaction between gossip and anonymity was found, showing that the effects of gossip did not depend on whether the interaction took place online or face-to-face. Model 3 revealed that trust does not differ as a function of the three independent variables at once (SVO, gossip and anonymity), while the interaction of gossip and SVO remains a significant predictor of trust.

Table 4. Conditional effects of celebrity gossip on trust.

SVO	β	se	p	95% CI
Prosocials	1.29	.65	< .05	.00, 2.58
Proselfs	-2.58	1.15	< .05	-4.87, -.30

The same 3-model regression analysis was performed for reciprocity (Table 5). No main effects of gossip, anonymity were found for reciprocity. A main effect of SVO was present, such that prosocial people express more reciprocity. No significant interaction effects involving gossip were found. However, SVO showed a significant interaction with anonymity in model 3. This interaction is plotted in Figure 2, and shows that prosocials reciprocated more in the face-to-face condition than in the online condition. In contrast, anonymity had no effect on prosocials.

Table 5. Linear regression of the impact of gossiping, anonymity and SVO on reciprocity.

	Reciprocity		
	Model 1	Model 2	Model 3
Gossip	-2.10 (5.67)	9.98 (11.78)	25.51 (15.80)
Anonymity	5.20 (5.89)	33.27** (11.39)	49.44** (10.76)
SVO	37.92** (7.94)	53.58** (12.77)	65.86** (14.57)
Change in mood	.72 (.43)	.76 (.41)	.71 (.40)
Rapport	.21 (.19)	.25 (.19)	.21 (.21)
Gossip×Anonymity		-16.46 (11.64)	-44.26 (22.96)
SVO×Gossip		-3.91 (13.52)	-23.16 (20.70)
SVO×Anonymity		-24.91 (13.90)	-44.96** (16.88)
SVO×Gossip×Anonymity			35.75 (28.00)
R-square	.34	.37	.39
Wald chi-square	45.53**	128.73**	256.81**
N	87	87	87

* $p < .05$, ** $p < .01$, robust standard errors in parentheses.

4. Discussion

Gossip is thought to have evolved as one of the ways to solve the problems of human cooperation (Dunbar, 2004). It was already shown that prosocial individuals use gossip as a

tool to protect their social group from internal exploitation (Feinberg et al., 2012a) and that gossip enhances social cohesion, even among strangers (Bosson et al., 2006). Because gossip provides crucial social information about the attitudes of the gossipers (Gorin & Dubied, 2011; Van Den Bulck & Claessens, 2013), we hypothesized that the inclination of prosocial individuals to use gossip and its bonding effects can be partially explained if gossip constitutes a trustworthiness cue.

The results of our experiment support that hypothesis by showing that prosocials trusted their interaction partner more after gossiping, whereas proselves trusted their partner less. It appears that gossiping about celebrities can not only serve as a trustworthiness cue for prosocials, but equally important, in proselves it can elicit distrust. In fact, the effect size of gossip on trust was larger for proselves than for prosocials. This result is in line with the idea that prosocials seek social information to build trust with their interaction partners before they decide to cooperate with them (Boone et al., 2010), whereas proselves seek opportunities to free-ride in an ambiguous environment (Bogaert et al., 2012). Similarly, proselves feel more commitment towards the group when social norms are not agreed upon and when there is no consensus on what is acceptable (Bogaert et al., 2012). Since celebrity gossip is often based on evaluating general moral standards by discussing the actions of famous people (Gorin & Dubied, 2011; Van Den Bulck & Claessens, 2013) it might have provided participants with more information about the attitudes and general trustworthiness of their interaction partners. While this makes prosocials feel safer and express more trust, proselves may feel uncomfortable in such an environment. This is consistent with previous findings. For example, Derks et al. (2015) showed that the better the proselves are at reading social signals (mentalizing) the less they trust, since they attribute their own self-oriented values to others which makes them fear exploitation. In our experiment, instead of measuring the innate

ability to read social signals, we have provided the participants with a rich source of them in the form of gossip. As Derks et al. (2015) explain, these social signals for the proselves may constitute reasons to distrust the other person.

Finally, the effect of gossip on trust was not influenced by how well participants liked their interactions (i.e. rapport), or how their mood changed. This suggests that celebrity gossip itself is responsible for the change in participants' behavior, rather than some mediating factors.

We note that celebrity gossip had no effect on reciprocity. If gossip serves as a tool of norm enforcement that pushes individuals into higher norm compliance (Beersma & Van Kleef, 2012; Piazza & Bering, 2008; Zinko et al., 2017), we would expect proselves to reciprocate more after gossiping than after performing a joint creativity task. As expected, proselves reciprocated significantly less than prosocials, ($M = 29,5\%$), $t(89) = -6.9$, $p < .01$, but contrary to expectations, did not change their behavior as a result of celebrity gossip. Recent works further confirmed a link between interpersonal gossip, reputation building and norm reinforcement (Zinko et al., 2017). If celebrity gossip triggers less reputational concern, it may explain why it was ineffective at fostering reciprocity. This may have been exacerbated by the fact that the interaction was between strangers, as De Backer et al. (2016) showed that gossip for strangers does not increase cooperation, and may even compromise it.

Even though celebrity gossip did not alter reciprocity, online communication did. Proself individuals were significantly less benevolent and gave away a significantly smaller portion of the proceeds from the trust game when they interacted online. This is consistent with the other studies showing that merely seeing the interaction partner results in increased cooperation in social dilemmas (Bicchieri & Lev-On, 2007), as well as with the fact that proself individuals reciprocate more when their acts are made public and their reputation is at stake

(Simpson & Willer, 2008). Our results suggest that modern online communication may be associated with lower norm compliance, which could be used to explain mechanisms of online fraud. Also in most social dilemma studies, the games are performed without participants ever seeing each other (Gächter & Herrmann, 2009), and as we demonstrated, such conditions alter the behavior of prosocial individuals.

There are important limitations to this study. First, these results may only pertain to women. Men and women are likely to differ in the use of gossip (Watson, 2012). Therefore, the same effect that was true for women in this study, does not have to hold true for men. Second, the effects of celebrity gossip might be different for different configurations of interacting personality types. Even though prosocials trusted more after gossiping, the statistical power of this study is too low to accurately assess if this is different when prosocial interact with other prosocials as compared to when prosocials interact with proselves. Third, in this study we have used celebrity gossip only. There are differences between interpersonal gossip and celebrity gossip, however, there are also several similarities (De Backer & Fisher 2012). While both involve talking about norms and values, they may differ substantially depending on whether one is talking to a stranger or a friend. Therefore we cannot be sure that the results of our experiment are generalizable to all types of gossip.

In today's world people can be overwhelmed with gossip, not only about family, friends and acquaintances, but about celebrities as well. We live in mass mediated environments, that have been proposed to trigger mechanisms that were originally adaptive in interpersonal contexts (De Backer, 2012). The results of this study show that celebrity gossip as a modern subset of gossip (De Backer et al., 2007) can also serve functions of cooperation in interactions between strangers. Overall, two main conclusions can be derived from this study:

- Celebrity gossip (compared to a conversation devoid of gossip) constitutes a trustworthiness cue for prosocial individuals during both online and face-to-face interactions.
- Irrespective of the content of the conversation, online interactions cause proself individuals to exhibit less reciprocity.

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Figure 1. The impact of celebrity gossip on trust for prosocials and proselfs. Y axis shows the amount invested in the trust game. Error bars denote $\pm$ SE.

Figure 2. The impact of anonymity on reciprocity for prosocials and proselfs. Y axis shows the percentage of amount returned as player B in all ten situations in the trust game. Error bars denote $\pm$ SE.