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Original Article

Pay-for-Performance and Interpersonal Deviance

Competitiveness as the Match That Lights the Fire

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Abstract: Many organizations use pay-for-performance (PfP) programs in order to fuel employee motivation and performance. In the present article, we argue that PfP may also increase employees' interpersonal deviance (i.e., active harming behavior toward coworkers) because it might induce social comparison and competition. In order to uncover the underlying process, we further argue that this effect should be particularly pronounced for employees who are high in individual competitiveness, that is, employees who have a strong desire for interpersonal comparison and aspire to be better than others. A cross-sectional field study (N = 250) and two experiments (N = 92; N = 192) provide support for our interaction hypothesis. We discuss the theoretical implications regarding PfP and competitiveness, and offer suggestions concerning the practical implementation of PfP.

Keywords: pay for performance, competitiveness, competition, social comparison, interpersonal deviance

"*Greed, for lack of a better word, is good.*"
(Gordon Gecko, in a speech before shareholders, in the 1987 movie *Wall Street*)

Contrary to Gordon Gecko's infamous praise, greed is considered a serious problem for organizations and the societies that house them. For instance, when overly competitive employees of financial institutions overcharge clients or lend money to insolvent borrowers (e.g., Morgenson, 2007), greed eventually becomes a threat to our world economy. While it may be easy to pin the blame on the character flaws of a few "greedy" individuals, we think it more prudent to closely scrutinize the systems that foster such behavior among employees. One such culprit is the pay-for-performance (PfP) system, which shapes employees' goals and the accompanying financial incentives. The Enron disaster, for example, was galvanized by the firm's incentive systems, which created an aggressive, short-term-oriented, "win-at-all-costs" culture (Sims & Brinkmann, 2003).

Of course, the original idea of PfP systems is to foster performance by making rewards contingent on employee performance (Jenkins, Mitra, Gupta, & Shaw, 1998; Locke, 2004). At the same time, PfP should have a selection effect on the composition of the workforce, attracting especially competitive and highly productive individuals (Gerhart, Milkovich, & Murray, 1992) while creating a competitive intra-organizational climate that breeds effort (Nalebuff & Stiglitz, 1983) via constant performance measurement and comparison. However, this same process can produce an often-overlooked collateral effect, inclining employees to feel that their position might be threatened and thus retaliate with aggressively competitive behavior (Festinger, 1954; Garcia, Tor, & Schiff, 2013). Against this background, the present paper argues that inherent comparison cues of PfP may induce harmful interpersonal behavior among coworkers, specifically for employees who are sensitive to such competitive cues (i.e., they show a strong desire to compare themselves against and outperform others).

This harmful behavior, known as interpersonal deviance (Robinson & Bennett, 1995), encompasses actions that range from transgressions of social norms (e.g., making fun of others) to severe harassment (e.g., racial or ethnic remarks). We argue that the competitive situation and mindset that derive from PfP systems may trigger interpersonal deviance. Although interpersonal deviance is usually focused on individual employees, the ultimate ramifications can clearly extend to the broader organization.

With the current research, we aim to make several contributions. First, while the existing literature on PfP systems

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(for a review, see Gerhart, Rynes, & Fulmer, 2009) has already argued for a potential link between individual PfP and reduced cooperative behavior (Burks, Carpenter, & Goette, 2009), it has refrained from arguing that PfP systems can motivate active harming behavior. With the present paper, we are the first to acknowledge and empirically underpin the graver collaterals of PfP. Second, we provide a clear theoretical argument for competition as the underlying process, specifically delineating the moderating role of individual competitiveness in the relationship between PfP and interpersonal deviance. By elucidating the darker aspects of competition as they relate to social comparison, we seek to advance theorizing in the domain of PfP. Finally, we aim to supplement the literature on deviance in organizations by showing that structural factors, such as the design of the PfP system, can encourage negative behavior.

Pay-for-Performance and Interpersonal Deviance

In today's organizations, from private companies to public services, human resources (HR) practices are used to stimulate employee performance – and one of the most popular methods is Pay-for-Performance (PfP; for a review, see Gerhart et al., 2009). Broadly speaking, theoretical and empirical research both show that PfP can increase employee motivation, effort, and task performance (Jenkins et al., 1998; Locke, 2004; Nalebuff & Stiglitz, 1983; Nyberg, Pieper, & Trevor, 2013). Recent reviews on the topic conclude that financial incentives are positively related to performance (Cerasoli, Nicklin, & Ford, 2014; Garbers & Konradt, 2014; Gerhart & Fang, 2015; Shaw & Gupta, 2015). While there are multiple forms of PfP (e.g., lump-sum bonuses or merit pay; for behavior or results; for quality or quantity; for objective or subjective measures; etc.), real-life workplace settings often combine different PfPs in order to differentially emphasize individual, team, and organizational performance (Gerhart et al., 2009).

Yet, PfP also elicits other effects on individuals' interpersonal behavior. Experimental research shows, for instance, that when given a difficult task, participants expecting a reward offer less helpful behavior to a confederate coworker than participants receiving no reward (Wright, George, Farnsworth, & McMahan, 1993). Similarly, in a field experiment, Burks et al. (2009) demonstrated that bike messengers are less cooperative – both in a social dilemma game and in survey measures – when they come from firms that endorse PfP compared to messengers in companies without PfP. Of course, it seems reasonable that helping behavior and cooperation are reduced when a PfP system strongly emphasizes individual performance, or when no cooperation is needed to reach the incentivized goal (Gerhart et al., 2009). However, with the present research, we argue that the competition inherent in most PfP systems triggers an aggressive interpersonal reaction that goes beyond the omission of helping behavior.

Indeed, intra-organizational competition is integral to the design of most PfP systems. The underlying belief among those who implement PfP is that it only produces positive effects, such as pushing employees to improve their individual (and team, etc.) performance. Ideally, the incentive scheme should make people compare and compete with others, which will eventually result in higher productivity (Lazear & Rosen, 1981; Nalebuff & Stiglitz, 1983). However, while motivating employees to strive harder to reach the goal, employees may also react with aggressive competitive behavior against others (Mudrack, Bloodgood, & Turnley, 2011). To frame this more psychologically, a PfP system places a part of an employee's salary at risk, and the resulting pressure creates a sense of threat around losing the desired reward (Dorn, Messner, & Ouertani, 2015). Thus, an induced competition and the accompanying psychological pressure provide the foundation for aggressive interpersonal behavior.

Beyond affecting employees' motivation for certain types of behavior, PfP may also influence their subjective perceptions of others' behavior, as well as their own reactions. Social comparison research shows that individuals in a comparison situation with others might react with competitive behavior that can also manifest in aggressive, harmful actions (Garcia et al., 2013). Festinger (1954) already described that people in a unidirectional push upwards will react with (overly) competitive behavior to protect their own threatened superiority or reduce others' success. Thus, the constant comparison situation of a PfP system might motivate aggressive interpersonal behavior. It is important to note here that the competitive threat of PfP does not necessarily depend on a structural competition (e.g., coworkers or teams competing with each other for a fixed pie of bonuses), but can instead arise from individuals' subjective perceptions of competitiveness (Brown, Cron, & Slocum, 1998).

Such an over-competitive and aggressive behavioral response at the workplace can be described as interpersonal deviance. Interpersonal deviance represents aggressive workplace behaviors that are directly harmful to other individuals within the organization and thereby "[threaten] the well-being of the organization or its members, or both" (Bennett & Robinson, 2000, p. 349). These behaviors include making fun of others, uttering ethnic or racial remarks, saying hurtful things, acting rudely, and publicly embarrassing others. We specifically focus on interpersonal deviance because it represents aggressive, psychologically

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harmful behavior, while at the same time being clearly distinct from physical workplace violence (Barling, Dupré, & Kelloway, 2009). As the deviant behaviors are mainly expressed verbally and in communication situations, they adequately represent workplace aggression and are therefore relevant to domains where PfP is prevalent.

Furthermore, studies show that interpersonal deviance exerts an unfavorable effect on multiple relevant variables, for example, affective commitment, turnover intentions, job satisfaction, and, most importantly for firms, performance (Hershcovis & Barling, 2010). Research in related domains has also shown that large amounts of negative interpersonal behavior and conflict in an organization will negatively affect employees' well-being (e.g., Nixon, Mazzola, Bauer, Krueger, & Spector, 2011), and reduce information-sharing and task performance (Kammeyer-Mueller, Simon, & Rich, 2012; Pelled, 1996). Interpersonal deviance can lead to reductions in work effort and quality as well as diminished time for actual tasks, which represent problematic and costly consequences for organizational performance (Porath & Pearson, 2010).

In the current paper, we focus on how interpersonal deviance could be one behavioral outcome of an overly competitive reaction evoked by PfP. Additionally, stronger competitive cues should trigger stronger responses. Thus, we expect that the (relative) size of the PfP payment at stake will spur a more intensely aggressive reaction to a PfP system. Formally:

Hypothesis 1: There is a positive relationship between PfP size and interpersonal deviance.

The Interaction of Pay-for-Performance and Individual Competitiveness

We further propose a moderating process in the relationship between PfP and interpersonal deviance (Jacoby & Sassenberg, 2011; Spencer, Zanna, & Fong, 2005), in the form of employees' sensitivity to competition-related cues. Specifically, we suggest that this sensitivity is reflected in employees' individual competitiveness, which can arise from their disposition or the situation.

Individual competitiveness is "the enjoyment of interpersonal competition and the desire to win and be better than others" (Spence & Helmreich, 1983, p. 4). People high in competitiveness constantly measure themselves against the position and performance of others, which should increase motivation and effort (for an overview and comparison of different conceptualizations of individual competitiveness, see Houston, McIntire, Kinnie, & Terry, 2002). A competitive personality generally appreciates competition with others in multiple domains, including the workplace (Brown et al., 1998). Notably, a few studies have already connected competitiveness to negative interpersonal behavior: Employees who want to perform better than others can do so by not only improving their own performance or taking responsibility for their team's performance, but also by undermining the performance of others (Mudrack et al., 2011). Likewise, Garcia et al. (2013) argue that increased comparison concerns could lead to unhealthy competitive behavior. Extending our arguments above, we expect that employees higher in individual competitiveness will more readily infer and perceive competition and comparison threats when encountering PfP, and as such, show more interpersonal deviance:

Hypothesis 2: Individual competitiveness moderates the relationship between PfP size and interpersonal deviance. Specifically, when individual competitiveness is high, PfP size will exert a stronger positive effect on interpersonal deviance.

Overview of Studies

To test our hypotheses, we conducted three studies. Study 1 was a cross-sectional field study intended to measure individuals' PfP, individual competitiveness, and interpersonal deviance. In two follow-up experiments, we specifically focused on manipulating the PfP payment and then testing its effect alongside the moderator of individual competitiveness. Because particularly competitive people may also seek out workplaces that heavily engage in PfP, we choose complementary study designs that would allow us to separate individual competitiveness from PfP practice.

In Study 2, we experimentally manipulated the PfP payment in an online game, as well as measured individual competitiveness in the same way as Study 1. In Study 3, we aimed to uncover more about competitiveness as the underlying psychological process; thus, we added a competitiveness prime to the same PfP manipulation from Study 2. Moreover, the environment used in the experimental studies allowed us to measure participants' actual interpersonally deviant communication behavior. We collected all data using samples from professional, commercial online panels, as well as from Amazon Mechanical Turk (Buhrmester, Kwang, & Gosling, 2011). We took several measures to ensure high data quality, which we will detail in the respective sample descriptions.

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Study 1

Method

Sample and Procedures

In Study 1, we tested our hypotheses in a field setting using a cross-sectional sample of employees from different organizations in Germany. To compose our sample, we invited members of Germany's commercial online panel Global Marketing Insite, Inc. (GMI) who worked full- or part-time. We asked additional questions (e.g., organizational tenure) to ensure that participants were employed in organizations. The participants voluntarily partook in the survey in return for a small reward within the panel system, which they could later use to purchase goods.

To ensure high-quality data, we used an instructional manipulation check (IMC) to identify and automatically screen out participants who did not read all questions properly (Oppenheimer, Meyvis, & Davidenko, 2009). Eighty-eight participants were screened out due to incorrect answers, while 255 participants passed the IMC and finished the survey. Of these, one participant was excluded from the analysis because she was not currently employed. In addition, pilot test runs revealed that it took at least 4 min to read and complete the survey; thus, we excluded four participants who fell below this limit (median time for all participants: 633 s). The final analysis included 250 participants. Of these participants, 13% worked in public services/administration, 8% in transport/logistics, 8% in health care, 6% in nonprofit organizations/foundations, 5% in accounting, and 60% in other industries. The average age in our sample was 43.7 years (SD = 12.95); 55.6% of the participants were female. Participants worked for an average of 33.7 hr per week (defined in their contracts).

Measures

We measured participants' *Pay-for-Performance* (PfP) using a set of self-constructed items that were embedded among other demographic variables. For our purposes in this study, the element of interest was the performance contingency of PfP that produces a competitive threat, regardless of what performance is measured. Thus, we focused on PfP taking the form of lump-sum bonus payments, asking participants if they received an annual, performance-contingent, and variable payment on top of a regular, fixed salary. In order to obtain more information on the PfP design, we also asked about the *PfP size* (as a percent of the fixed salary) and how the PfP payment was connected to individual, team, or organizational performance, and, to quality or quantity goals. In line with our theoretical reasoning, and to keep the statistical model comprehensible, we used the relative PfP size as an independent variable in our calculations. Table 1 displays the diversity of the participants' PfP designs in detail.

Table 1. Allocation of pay-for-performance criteria and performance content, Study 1

Performance reference			
Individual	Team	Organization	*N*
x			33
x	x		3
x	x	x	4
	x		7
	x	x	0
		x	15
x		x	11
Performance content			
Quality		Quantity	
x			20
		x	20
x		x	32

Notes. N_{PfP} = 75. For performance reference, two participants gave no detailed information. For performance content, three participants gave no detailed information.

To measure participants' *individual competitiveness*, we used the 5-item scale of trait competitiveness (Brown et al., 1998; Fletcher, Major, & Davis, 2008; Helmreich & Spence, 1978). Example items include "I enjoy working in - situations involving competition with others" and "It is important to me to perform better than others on a task". All responses were given on 7-point Likert scales (1 = "*completely disagree*," 7 = "*completely agree*").

Interpersonal deviance was measured with Bennett and Robinson's (2000) 7-item scale for interpersonal deviance. Example items include "How often have you within the last year acted rudely toward someone at work?" or "How often have you within the last year publicly embarrassed someone at work?" (1 = "*never*" to 7 = "*always*").

Demographical Variables

We measured *organizational tenure* in order to control for the influence of participants' length of exposure to a PfP system. Additional demographic variables included age, gender, education, and annual fixed income.

Results

Table 2 displays the means, standard deviations, Cronbach's α, and correlations between all constructs.[1]

[1] In addition, a confirmatory factor analysis demonstrated that the measured constructs were sufficiently distinct, and that a three-factor model (PfP size, individual competitiveness, and interpersonal deviance) χ^2 = 121.73 (df = 63), p < .01, AIC = 8,909.85, CFI = .96, RMSEA = .06, was a better fit to our data than a one-factor model, χ^2 = 509.45 (df = 65), p < .01, AIC = 9,293.56, CFI = .71, RMSEA = .17.

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Table 2. Means, standard deviations, Cronbach's α, and correlations of all variables, Study 1

		M	*SD*	1.	2.	3.	4.	5.	6.	7.	8.
1.	PfP payment size (*N* = 250)[1]	6.12	15.67								
2.	Trait competitiveness	4.13	1.22	.17**	(.85)						
3.	Interpersonal deviance	1.73	0.89	.20**	.36**	(.90)					
4.	Tenure	10.23	10.60	−.07	−.13*	−.02					
5.	Age	43.74	12.95	−.09	−.17**	−.20**	.47**				
6.	Gender (1 = female, 2 = male)	n/a	n/a	.19**	.15*	.13*	.04	−.02			
7.	Education	n/a	n/a	.04	.15*	.06	.11†	−.13*	.18**		
8.	Annual fixed income (Euro)[2]	36,946	68,369	.02	.10	−.02	.11†	.12†	.04	.24**	
9.	PfP payment size (*N* = 75)	20.39	23.06	n/a	.15	.30**	.00	.01	.13	−.05	.11

Notes. *N* = 250. Cronbach's α in parentheses on the main diagonal. PfP = pay-for-performance. [1]In percent of fixed salary; for "no PfP", size = 0; [2]for annual fixed income, *N* = 241. †$p < .10$; *$p < .05$; **$p < .01$.

Table 3. Overview of regression results for interpersonal deviance, PfP size, and individual competitiveness, Study 1

	Model 1			Model 2		
	b	*SE*	95% CI	*b*	*SE*	95% CI
PfP size	.008*	.003	[.002, .015]	.004	.004	[−.004, .011]
Individual Competitiveness	.243**	.044	[.158, .329]	.203**	.045	[.114, .293]
PfP size × Individual Competitiveness				.006**	.002	[.002, .011]
ΔR^2		.149			.025	
Overall R^2		.142			.164	
Overall *F*		21.59**			7.40**	

Notes. *N* = 250. PfP = pay-for-performance, CI = confidence interval. Table presents unstandardized regression coefficients. *$p < .05$; **$p < .01$ (two-sided).

The highest intercorrelation of our main variables was $r = .36$ and involved individual competitiveness and interpersonal deviance. Of the 250 participants, 30% reportedly received an annual PfP payment ($M_{\text{PfP Size}} = 20.39\%$ of fixed salary). In line with Hypothesis 1, PfP size and interpersonal deviance were positively correlated ($r = .20$, $p = .001$).

To test our hypotheses, we regressed interpersonal deviance on PfP size, individual competitiveness, and the interaction of the two. Table 3 reports the regression coefficients. The results showed a significant main effect of both PfP size, $b = .01$, $SE = .003$, $p = .015$, 95% CI [.002, .015], and individual competitiveness, $b = .24$, $SE = .04$, $p = .00$, 95% CI [.158, .329], on interpersonal deviance. Adding the interaction term to the model led to a significant increase in the model's explained variance, which supports the hypothesized interaction effect of PfP size and individual competitiveness on interpersonal deviance, $b = .006$, $SE = .002$, $p = .007$, 95% CI [.002, .011]. Figure 1 displays the interaction effect. The results of a simple slope analysis (Aiken & West, 1991) revealed that the interaction is in the hypothesized direction. For participants high in trait competitiveness (1 *SD* above the mean), there was a positive relationship between PfP size and interpersonal deviance, $b = .0113$, $SE = .0035$, $p = .0015$, 95% CI [.004, .018]; for participants low in trait competitiveness (1 *SD* below the mean), there was no significant relationship between PfP size and interpersonal deviance, $b = -.0040$, $SE = .0056$, $p = .48$, 95% CI [.015, .007]. Our results did not change when we included demographic control variables in the model.[2]

Discussion

In line with Hypothesis 1, we found a significant direct effect of PfP size on interpersonal deviance. Thus, the participants of our cross-sectional sample demonstrated more interpersonal deviance as the size of their respective PfP payment grew. Still, despite being in the expected direction, the main

[2] In separate analyses, we controlled for o*rganizational tenure* in order to control for the influence of participants' length of exposure to a competitive PfP system. Furthermore, we controlled for the *fixed income size,* as a higher fixed income could imply a weaker motivating trigger of the extra PfP payment. However, using tenure or fixed income as control variables did not change the results of our analysis. Factoring in the available annual income data of 241 participants (9 participants did not provide an answer to this question) did not affect the results ($b = .00$, $SE = .00$, $p = .52$), nor did this variable alter the shape of the interaction effect.

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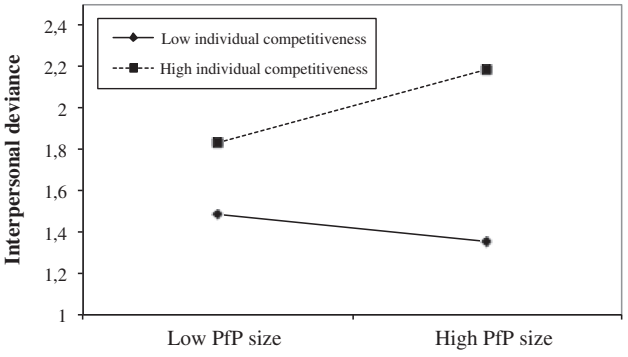


Figure 1. Interaction of pay-for-performance (PfP) size and individual competitiveness on interpersonal deviance, Study 1 (b = .006, p = .007).

effect of PfP size was rather small. However, in line with our interaction prediction of Hypothesis 2, there were more reports of interpersonal deviance among employees who received larger PfP payments and were high in individual competitiveness. For employees low in individual competitiveness, the PfP payment size had no effect on interpersonally deviant behavior.

Because of Study 1's cross-sectional nature, we cannot make any causal conclusions based on the data. Additionally, we have to consider that, in reality, highly competitive people may seek out workplaces that heavily engage in PfP (although our correlations do not necessarily suggest that, nor would it explain the found interaction). Thus, in order to more carefully separate the variables, establish causality, and obtain a behavioral proxy for interpersonal deviance, we decided to conduct two experimental studies.

Study 2

Method

Participants

We recruited our sample from the professional research panel Research Now, one of the global market leaders in digital panel solutions. Similar to Study 1, we automatically screened out 21 participants who failed to complete an IMC correctly (Oppenheimer et al., 2009). Ninety-two participants passed the IMC and finished the survey. They were between 18 and 65 years old (M = 41.17, SD = 12.5), and 62% were female.

Design and Procedure

The participants were randomly assigned to a two-level, single-factor (low PfP size, high PfP size), between-subjects design. After answering the demographic questions, participants partook in a bogus competition in which they were told to play against another human player in a dice game (see Study 6 in Piff, Stancato, Cote, Mendoza-Denton, & Keltner, 2012). In fact, all outcomes were preprogrammed and identical for all participants. Participants were told that the software would randomly simulate dice rolls, and that to win the game, they had to score more points than their (also bogus) competitors. The survey software presented participants with four separate and ostensibly random pictures of a die (in actuality, all participants saw dice showing 4, 2, 5, and 1 point(s); total of 12).

To prevent participants from going back in the survey to throw again, the instruction mentioned that all four dice pictures were selected at the survey's onset. To measure the dependent variable (interpersonal deviance), we provided participants with the opportunity to communicate with the other players during the middle of the game. To do so, participants had to select one of five different emoticons that differed in their degree of interpersonal deviance. At the end of the game, participants were directed to the second part of the survey where they answered questions regarding personal attitudes (see below). After that, participants were thanked, debriefed, and redirected to the panel provider's homepage.

Experimental Manipulation

To manipulate the PfP size, we told participants that the winner of the game had a chance to win a €10 bonus (low PfP size condition) or a €150 bonus (high PfP size condition).[3]

Measures

To measure participants' *competitiveness*, we used the same scale of individual competitiveness as in Study 1. All responses were given on 7-point Likert scales (1 = "*completely disagree*," 7 = "*completely agree*"). Participants completed these items in the second part of the survey, following the dice game and some filler questions. To rule out the possibility that the PfP manipulation influenced the competitiveness score, we performed a one-factorial analysis of variance (ANOVA) with competitiveness as the dependent variable. The results were not significant, $F(1, 91) = 0.64$, p = .43.

Interpersonal deviance was measured via participants' communication behavior, represented by the use of emoticons (emotion icons). Our use of emoticons was inspired by research in other domains that has investigated computer-mediated communication (cf. Derks, Fischer, & Bos, 2008). Emoticons are a popular form of nonverbal,

[3] In the debriefing, we explained that all participants would be entered into the raffle for the bonuses, regardless of their actual result in the dice game.

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Figure 2. The emoticon-based interpersonal deviance scale used in Study 2. Colored versions of the emoticons were used in the study.

computer-mediated expression, and as such, there are a large number of them available. For our experiment, we used colored smiley pictures (downloaded on November 28, 2013, from the free Wikimedia Commons repository, http://commons.wikimedia.org/wiki/Smiley). In a break between the second and third dice rolls, participants had to select one emoticon from a scale of five different faces that would then (ostensibly) be sent to the other players.

To develop the emoticon scale, we initially pretested the interpersonal deviance of 10 emoticons with a convenience sample (N = 37). Participants rated every emoticon on a 9-point scale with regard to how insulting, hurtful, inappropriate, and aggressive they perceived the specific smiley, assuming it had been sent to them during an online game by an unknown person (e.g., 1 = "*not insulting at all*" to 9 = "*completely insulting*"). The mean of these four items resulted in a score of interpersonal deviance for each emoticon. From the pairwise comparisons of a within-subject ANOVA, we selected the five emoticons that had significantly different means from all others: Friendly waving (M = 1.32, SE = .13), sticking out tongue (M = 2.13, SE = .25), angry look and shaking fists (M = 4.04, SE = .35), very angry red face (M = 4.95, SE = .38), and showing the middle finger (M = 6.01, SE = .39). These five emoticons comprised our scale of emoticon-based interpersonal deviance, which is shown in Figure 2.

Results

Table 4 presents the means, standard deviations, Cronbach's α, and correlations between all constructs in Study 2.

The relationship between PfP and interpersonal deviance (Hypothesis 1) was positive, but not significant (r = .07, p = .50). To test the moderation effect (Hypothesis 2), we regressed interpersonal deviance on the dichotomous PfP manipulation (low vs. high), the continuous individual competitiveness, and the interaction of the two. Table 5 reports the regression coefficients. The results showed a significant main effect of individual competitiveness, but not PfP size, on emoticon-based interpersonal deviance. Adding the interaction term to the model led to a marginally significant increase (albeit using two-sided testing) in the model's explained variance, which supports the hypothesized interaction effect of PfP manipulation and individual competitiveness on emoticon-based interpersonal deviance, b = .30, SE = .15, p = .05. Figure 3 displays the interaction effect. The results of the simple slope analysis (Aiken & West, 1991) revealed that the interaction is in the hypothesized direction. For participants high in individual competitiveness (1 SD above the mean), there was a positive relationship between PfP size and emoticon-based interpersonal deviance, b = .52, SE = .26, p = .048; for participants low in trait competitiveness (1 SD below the mean), there was no significant relationship between PfP size and emoticon-based interpersonal deviance, b = −.21, SE = .26, p = .44.

Table 4. Descriptive statistics, correlation, and Cronbach's α of all variables, Study 2

	M	SD	1	2
1. PfP (manipulation)	0.51	0.50		
2. Individual competitiveness	4.06	1.22	−.08	(.82)
3. Emoticon-based interpersonal deviance	1.53	0.91	.07	.22*

Notes. N = 92. Cronbach's α in parentheses on the main diagonal. *p < .05; **p < .01 (two-sided).

Discussion

Study 2 demonstrates that individual competitiveness marginally moderates the effect of PfP size on interpersonal deviance. Specifically, participants high in individual competitiveness showed more interpersonally deviant behavior (via emoticon communication) when faced with a high PfP size compared to a low PfP size, while there was no relationship between PfP size and interpersonal deviance for participants low in individual competitiveness. These findings provide a behavioral proxy for the self-reported data in Study 1. We did not find a significant relationship between PfP and interpersonal deviance, and thus did not replicate the results of Study 1 with regard to Hypothesis 1.

It should be noted that the interaction was only marginally significant when using a two-tailed test, even though our hypotheses are directional and would allow for one-sided testing. Granted, one could argue that the artificial nature of the competition setting makes it difficult to generalize the results across PfP settings. Moreover, the smileys, while simplistic, may not represent a common form of expression for every participant. To address these shortcomings, we conducted another study.

Study 3

The design of Study 2 revolved around a structured competition in which only the winner of a dice game (ostensibly) had the chance to obtain the bonus. Hence, it is comparable

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Table 5. Overview of regression results for emoticon-based interpersonal deviance, PfP manipulation, individual competitiveness, Study 2

	Model 1			Model 2		
	b	*SE*	95% CI	*b*	*SE*	95% CI
PfP (manipulation)	.16	.19	[−.21, .53]	.16	.18	[−.21, .52]
Individual Competitiveness	.17*	.08	[.01, .032]	−.00	.12	[−.23, .23]
PfP × Individual Competitiveness				.30†	.15	[−.01, .60]
ΔR^2		.06			.04	
Overall R^2		.06			.09	
Overall *F*		2.6†			3.06*	

Notes. N = 92. PfP = pay-for-performance, CI = confidence interval. Table presents unstandardized regression coefficients. †$p < .10$; *$p < .05$ **$p < .01$ (two-sided).

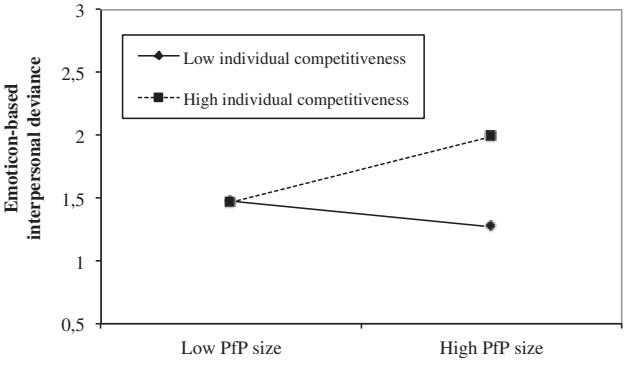


Figure 3. Interaction between pay-for-performance (PfP) size (low vs. high) and individual competitiveness on emoticon-based interpersonal deviance, Study 2 (b = .30, p = .05).

to PfP environments that include internal rankings and competitions for bonuses. It also forged a direct link between the competitive element and the PfP payment, as the only way to obtain the extra payment was to win the game against the other (bogus) participants. In Study 3, we artificially disentangled the PfP payment from the competitive element by letting people win a bonus without having to win against others. Thereby, we aimed to increase the generalizability of our results to cover situations in which people receive PfP payments that are not tied to their individual performance. In addition, Study 3 offered participants an open-answer text box rather than emoticons so as to reduce the artificiality of the expression and allow them to more freely express their behavior, or even completely refrain from it. Finally, Study 3 investigated the malleable nature of individual competitiveness; to this end, we tried to induce a state of competitiveness with a priming cue. Our intent was to know whether participants can be primed with a competitive state, which would bolster our conclusions about competitiveness as the underlying psychological process. To keep the competitiveness construct as similar as possible to the construct measured in Studies 1 and 2, we used the exactly same items to create the competitiveness priming (see below for details).

Method

Participants and Design

For this study, we recruited high-reputation participants from Amazon Mechanical Turk (Buhrmester et al., 2011; Peer, Vosgerau, & Acquisti, 2013), all of whom participated voluntarily in return for a small reward. As in Studies 1 and 2, nine participants who failed to correctly answer an IMC (Oppenheimer et al., 2009) were automatically screened out before the end of the survey. Furthermore, we excluded three participants who clearly indicated in written statements that they did not trust the manipulation. Thus, 192 participants remained for the analysis. They were between 18 and 68 years old (M = 32.4, SD = 12.0), and 59.4% were male. The participants were randomly assigned to a 2 (low vs. high PfP payment) × 2 (low vs. high competitiveness) between-subjects design.

Design and Procedure

The procedure of the game was similar to Study 2, save for a few select differences. To manipulate individual state competitiveness, we used a semantic priming method that has been successfully applied in power research (see Galinsky, Gruenfeld, & Magee, 2003). As before, we measured the dependent variable by allowing participants to communicate with the other (bogus) players in the middle of the game. Instead of sending emoticons, as per Study 2, the participants could free-write a comment in a text box that would then (supposedly) be sent to the other players.

Experimental Manipulations

We manipulated *individual state competitiveness* by asking participants to recall a situation in which they felt very competitive and had a strong desire to win (high-competitiveness condition), or a situation in which they did not feel competitive at all and had no desire to win (low-competitiveness condition). Participants were asked to write a few sentences about the personal memory that was evoked by the instruction. This manipulation was supposed to activate the concept of low or high individual

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competitiveness in a way that was meaningful for each participant. As far as we can ascertain, all participants wrote credible stories in this task.

To avoid making our competitiveness priming explicit and transparent to participants, we tested our manipulation of competitiveness in a pilot study (N = 113). In the pilot study, the competitiveness manipulation had a significant effect on participants' perceptions of their current individual competitiveness, $F(1, 111) = 70.37$, $p < .01$. Specifically, participants in the high-competitiveness condition reported higher feelings of competitiveness on a 7-point scale (M = 5.00, SD = 1.81) than participants in the low-competitiveness condition (M = 2.33, SD = 1.56).

Lastly, we manipulated the *PfP payment* by telling participants that they could win a $5 bonus (low PfP payment condition) or a $50 bonus (high PfP payment condition), which would be paid directly via Amazon Mechanical Turk after data collection was over.

Measures

We measured the *interpersonal deviance* in participants' communication behavior by rating the text messages that participants sent to the other (bogus) players. Two independent raters, blind to the study's purpose, rated participants' comments according to a coding scheme developed by the authors. The raters evaluated the comments' interpersonal deviance using the following scale: 0 = *no comment*; 1 = *saying something nice/greeting* (e.g., "Good luck!"[4]); 2 = *commenting on the game, but not addressing the other* (e.g., "I like this kind of game"); 3 = *performance-oriented, self-focused* (e.g., "I'm really doing well right now!"), 4 = *Performance-oriented with interpersonal comparison/challenge* (e.g., "Let's see how good you are!" or "I will win against you!"), and 5 = *aggressive toward the other person* (e.g., "Hey you suckers!"). We used the mean of the two rater values as the dependent variable for the analyses. Only two participants refrained from typing a message to the other participants.

Results

To test the moderation effect predicted in Hypothesis 2, we conducted a two-way ANOVA; the results revealed no main effect for either the PfP payment, $F(1, 188) = 0.29$, $\eta^2_p = .00$, $p = .59$, or the competitiveness manipulation, $F(1, 188) = 2.15$, $\eta^2_p = .01$, $p = .14$. Our analysis did uncover a marginally significant interaction effect of PfP manipulation and competitiveness manipulation on interpersonal deviance, $F(1, 188) = 3.50$, $\eta^2_p = .02$, $p = .06$ (see Figure 4; means for this analysis are shown in Table 6), thereby providing support for our hypothesis. Pairwise comparisons (with Bonferroni adjustment) revealed that the difference between the low and high PfP payment conditions was marginally significant for participants in the high-competitiveness condition, $M_{lowPfP} = 1.44$, $SE_{low} = .16$, $M_{highPfP} = 1.82$, $SE_{high} = .17$, $F(1, 188) = 2.75$, $\eta^2_p = .014$, $p = .099$, while it was not significant for participants in the low-competitiveness condition, $M_{lowPfP} = 1.50$, $SE_{low} = .16$, $M_{highPfP} = 1.29$, $SE_{high} = .15$, $F(1, 188) = 0.94$, $\eta^2_p = .005$, $p = .33$. These results suggest that participants in the low-competitiveness situation responded similarly regardless of the bonus amount.

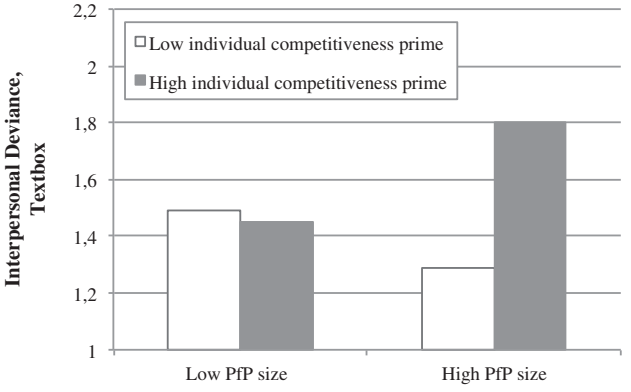


Figure 4. Interaction between pay-for-performance (PfP) and competitiveness manipulation on interpersonal deviance, Study 3, $F(1, 188) = 3.50$, $\eta^2_p = .02$, $p = .06$.

Table 6. Mean interpersonal deviance as a function of PfP payment and competitiveness prime, Study 3

	Low competitiveness prime	High competitiveness prime
Low PfP payment	1.50 $(.16)_a$	1.44 $(.16)_a$
High PfP payment	1.29 $(.15)_a$	1.82 $(.17)_b$

Notes. N = 192. PfP = pay-for-performance. Higher ratings indicate higher levels of predicted deviance. Standard errors in parentheses. Means with different subscripts differ significantly from each other after pairwise comparisons (Bonferroni adjusted).

Discussion

Study 3 confirmed the interaction effect of PfP and individual competitiveness on interpersonal deviance, and thereby replicated the results of Study 2. Participants in the high-competitiveness condition showed increased levels of interpersonal deviance in the presence of a higher PfP payment, even though they had the freedom to refrain from communication entirely. In other words, any communication in

[4] All examples in apostrophes represent actual participant comments.

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Study 3 was completely voluntary and not promoted by the design of the study. Similar to Study 2, but in contrast to Study 1, no main effect of PfP on interpersonal deviance was found. Although both experiments presented effect sizes that were rather small and results that were marginally significant, they generally confirm the causal direction of our proposed moderation effect. Importantly, this study demonstrated that participants could be primed with individual state competitiveness. This finding provides additional support for our general theoretical argument that perceptions of competitiveness act as the underlying psychological process between PfP and interpersonal deviance. At the same time, the results indicate that it might be possible to actively reduce negative effects of competitive perceptions in PfP systems when people are explicitly reminded not to think too competitively.

General Discussion

Across three studies, we investigated the interplay between PfP, individual competitiveness, and interpersonal deviance. The evidence for our first hypothesis, that PfP may influence interpersonal deviance, was mixed. Results of Study 1 suggest that PfP is related to more negative interpersonal behavior (Hypothesis 1), however we were not able to replicate this main effect in Study 2 and Study 3. Yet, in all three studies, we consistently found that individual competitiveness moderates the effect of PfP on interpersonal deviance. Specifically, people who are high in individual competitiveness react with more interpersonal deviance in a PfP situation, compared to people with low individual competitiveness. This effect for high competitiveness holds not only when it is measured as a trait-like variable (Studies 1 and 2), but also when it is induced as a salient state (Study 3).

Through our methodology, we were able to gain more insight into the underlying process without measuring it directly (Jacoby & Sassenberg, 2011; Spencer et al., 2005). For instance, the fact that competitive people reacted more strongly to the PfP-elicited cue suggests that the underlying process parallels competitiveness. Taken together, the results of our model suggest that individuals with a heightened perception of competition may adopt interpersonally deviant behaviors in response to the competitive cues inherent to most PfP systems.

Theoretical Implications

Our findings have several implications for research on organizations' reward management. First, our research provides a more nuanced perspective, relative to earlier studies, on the potential side effects of PfP in organizations. As we indicated before, many studies support the idea that PfP can yield positive effects (Gerhart et al., 2009). However, most of the research on PfP has focused on individual task performance outcomes and only sparsely acknowledges the possible negative outcomes regarding interpersonal behavior (e.g., Burks et al., 2009). In contrast, our set of studies focused on the possible, contextual side effects of PfP. To the best of our knowledge, this research is the first to demonstrate that PfP can lead to interpersonal deviance when matched with individual competitiveness. Thereby, we extend research on PfP by adding employees' interpersonally deviant behavior as a potentially grave outcome of such incentive systems.

Furthermore, by investigating individual competitiveness as a moderator, we offer a possible explanation for the underlying psychological process: If people who are highly competitive react more strongly to the competitive cues, the underlying process should parallel competitiveness. Thus, we demonstrate that PfP and its competitive element, while possibly desirable for increasing individual effort, can inflict potential collateral damage that has not been previously accounted for. This might range from reduced cooperative behavior (Burks et al., 2009) to active psychological harming behavior. Of course, there might be PfP designs that do not evoke competition. Still, social comparison theory argues that human beings by default compare themselves with others on relevant dimensions. Thus, PfP systems might not evoke comparison cues only if employees do not care about performance and money in general. In line with that, our results show that at least in our field study, confrontation with a PfP system triggers negative interpersonal behavior in most of the employees.

Second, our research corroborates previous findings that emotional responses, such as envy, moral disengagement, or aggression, can also lead to negative interpersonal behavior (Aquino & Thau, 2009; Barling et al., 2009; Duffy, Scott, Shaw, Tepper, & Aquino, 2012). Moreover, our studies show that PfP, as a competition-based system, can ignite these processes by inducing a competitive mindset in the employees. For this reason, we suggest that competition constitutes the basic process underlying the effect; however, we cannot rule out the possibility that the social comparison processes inherent to this competition produce the aforementioned emotional reactions (e.g., Duffy et al., 2012). Notably, our results suggest that this response need not be functional, that is, serve the actual competition in any way.

Third, we add to the literature on deviance in organizations. Interpersonal deviance has been investigated as an outcome from a social exchange perspective (Colbert, Mount, Harter, Witt, & Barrick, 2004), a psychological contract perspective (Bordia, Restubog, & Tang, 2008),

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and a within-individual perspective (Judge, Scott, & Ilies, 2006). Our research supplements this base by emphasizing the impact of organizational antecedents (i.e., high-performance work systems, PfP). In doing so, we illuminate how structural, organizational-level variables (i.e., pay strategy) might influence individual behavior in a counterproductive way (i.e., lead to interpersonal deviance).

More generally, our results support the idea, in line with the social comparison framework (Garcia et al., 2013), that competition is a double-edged sword for organizations. It seems that PfP can entail strong and important situational cues, while competitiveness, as a powerful individual trait or state, increases the likelihood of unhealthy competitive behavior. Our methodological way of priming individual competitiveness (Study 3) expands the construct's real-world significance, as employees might be exposed to competitive primes in numerous ways (e.g., internal rankings, monthly competitions, etc.). Ultimately, our paper posits that interpersonal deviance – as an expression of an overly competitive organizational climate – may arise from the confluence of individual competitiveness and PfP.

Practical Implications

Our research has several managerial implications. First of all, our results indicate that PfP could have unwanted side effects on employees' interpersonal behavior. In other words, the added value of employees' effort and performance could be undermined by harmful interpersonal behaviors. As collaboration and teamwork become an integral part of innovation and creativity in highly specialized knowledge-work cultures (George, 2007; Hülsheger, Anderson, & Salgado, 2009), it seems important to minimize interpersonal deviance, which could corrupt the climate and foster turnover intentions (Hershcovis & Barling, 2010).

Furthermore, our results are relevant for recruiting, selection, and other HR processes: They question the idea of using PfP to attract and retain highly competitive candidates, who may be more prone to perceiving PfP as a cue for interpersonal competition and thus reacting with interpersonal deviance. Beyond their implications for hiring, our results suggest that HR departments need to weigh the positive aspects of PfP (e.g., fueling employee effort and performance) against its negative aspects, which can range from the ethical (e.g., the responsibility for the well-being of the workforce) to the economical (e.g., thwarting productivity and innovation). This is an admittedly difficult task, as PfP – in interaction with the individual trait or state predisposition of an employee – seems to have a profound influence on interpersonal behavior. Practitioners thus face a serious challenge in finding ways to exploit the motivating power of PfP while minimizing its collateral damage. In our humble opinion, HR departments seem better advised to focus on measures that emphasize personal growth and collaboration, while trying to avoid evoking perceptions of competition in the interpersonal climate. The results of our Study 3 indicate that when clearly separated from competitive elements, the negative effects of PfP on interpersonal behavior might get reduced.

Strengths, Limitations, and Future Directions

We designed our three complementary studies so as to provide a constructive replication of our effect while simultaneously compensating for each study's limitations. For example, the experiments in Studies 2 and 3 helped to negate the possibility that Study 1's findings were due to same-source bias (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). To be fair, though, a same-source bias should have made it more difficult to detect this interaction (McClelland & Judd, 1993).

It could be argued that interpersonal deviance is not reliably measured in self-ratings and that participants' answers could have been distorted by social desirability problems. However, meta-analytical results show that other-ratings offer no tangible, incremental value beyond self-ratings in the context of interpersonal counterproductive work behavior, especially when participants are provided with greater assurances of anonymity (which was the case in our recruiting strategy; Berry, Carpenter, & Barratt, 2012). Furthermore, we were able to replicate the results in our experiments by measuring actual behavior. At the same time, we enhanced the generalizability of our experiments by demonstrating the mechanism in our field study. Thus, we are confident that the reports of interpersonal deviance in our study provide a realistic picture.

In addition, the heterogeneous composition of the field study sample can be seen as a strength that increases the generalizability of our results. Apparently, our sample did not overly represent any extremely PfP-prone sectors or organizations. By calculating our model with real-world PfP payments that are a part of salary (Study 1), alongside a potential PfP payment in an online gaming situation (Studies 2 and 3), we show that PfP systems can have critical effects on interpersonal behavior regardless of the PfP payment context (individual, team, or organizational performance, with quality or quantity goals).

Of course, our research possesses some limitations. To begin with, we were not able to consistently replicate the main effect in our experiments even though the relationship between PfP and interpersonal deviance was positive in the experiments. It is possible that our samples did

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not provide enough variation in the extreme ends and that it was thus more unlikely to find significant main effects. Furthermore, the effect sizes for the interaction effect in our experimental studies were rather small. The reduced power resulting from these small samples might be one explanation for the marginally significant effects. Future studies should strive to replicate the results in larger, cross-sectional studies in order to better estimate the real-world size of the effect. In addition, interpersonal deviance is a low base rate phenomenon (see, e.g., Bennett & Robinson, 2000, or Ferguson & Barry, 2011, as a comparison) and our study is no exception to that. While the low overall means in the field study reflect the low base rate of interpersonal deviance in real-life settings, the low means in the experiments could be a result of online participants – particularly the high-reputation MTurk participants in Study 3 (Peer et al., 2013) – being specifically motivated to deliver acceptable "work" results. However, the low means should also make it more difficult to find the interaction effect investigated in our studies. Thus, the replication of the interaction effect across all three studies speaks for the robustness of the effect.

Furthermore, we used a rather simplified measure for PfP for our field study and thus avoided information about the reference points of the PfP system (i.e., individual, team, organizational performance; quality vs. quantity goals, see Table 1). We had several reasons for choosing this strategy. First, on a conceptual level, we argue that PfP generally facilitates social comparisons and, as such, competitive cues; these cues then inform the subsequent aggressive behavior. The nature of PfP – which entails constant interpersonal comparison – evokes this reaction, regardless of the system's reference point for performance. Second, on a practical level, PfP systems in real work environments are not usually one type, but rather combine various individual and group performance measures (Gerhart et al., 2009). Likewise, more than half of our study participants (see Table 1) partook in a PfP system that based rewards on a combination of individual, team, or organizational performance, most possibly with each component reflecting a different percentage of the PfP payment. Third, it is a challenge to obtain comparable field data on PfP programs, and our data did not provide subsample sizes for each PfP type that were large enough for us to confidently run separate analyses. Yet, the fact that we were able to confirm our hypotheses in the field study across different PfP types may speak to the validity of our results.

On a related note, our theoretical model does not suggest that team PfP is any better than individual PfP with regard to interpersonal deviance. Paying for team performance might also lead to negative competitive behavior, due to the fact that higher-performing team members might suspect others of contributing less. These social loafing (Shepperd & Taylor, 1999) and free-rider problems (Kerr & Bruun, 1983) are important in the context of PfP, especially as "relevant objective [performance] measures are not available for most jobs, especially at the individual level" (Gerhart et al., 2009, p. 257). In that vein, PfP and the resulting perceptions of competitiveness would spur employees to feel like (a) they should compete with their coworkers, and/or (b) they would have to motivate and potentially punish team members so that everybody meets the team's equity needs. In both cases, the outcome might be more interpersonal deviance. These are, however, open questions. Therefore, future research may want to include multilevel approaches to uncover the effects of PfP at the individual, team, and organizational levels, thereby shedding light on the exact individual process that connects a competitive climate to interpersonal deviance.

Overall, we hope that our research sets the stage for more studies that approach PfP as not only a way to motivate and reward performance, but also as a mechanism for potentially increasing competitiveness and interpersonal deviance within organizations. On the practical end, future research should ascertain how the negative interpersonal side effects we uncovered – particularly for those high in individual competitiveness – can be reduced. In short, future studies should strive to determine how PfP can be used to reward employees without inducing greed.

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