

In It to Win It? Comparative Evaluation Increases Zero-Sum Beliefs

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As individuals seek success, destructive interpersonal clashes can emerge when they believe they can only succeed at the expense of others. Prior work suggests this zero-sum construal of success is more likely occur when people receive negative feedback regarding their achievement. In the present research, we identify another element in the workplace that can strengthen zero-sum beliefs, and not just for those who receive negative feedback, but even for those who receive positive feedback. We propose feedback that compares recipients' performance to others can lead recipients' to believe that their coworkers' achievement is the benchmark for them to surpass, and accordingly, their own success means coworkers' failure (and vice versa). Supporting our proposition, we find, in both experimental and real-world organizational settings, that feedback involving a comparative evaluation results in zero-sum view of success in the workplace. This effect emerges for both those who receive negative feedback (i.e., people who have lost) and those who receive positive feedback (i.e., people who have won). Moreover, it remains robust when controlling for various individual differences discussed in past research. Finally, we find that when people recall emotional and practical support from their coworkers, comparative evaluations exert significantly weaker effects on zero-sum beliefs.

Keywords: comparative evaluation, feedback, zero-sum beliefs, competition, social support

In both popular media and academic research, people often raise the question of whether success inevitably involves competition (Brown et al., 1998; Clinkenbeard, 1989; Tjosvold, 1998; Wooden & Carty, 2005). According to the view that equates success with doing better than others, not everyone can succeed simultaneously because one's achievement naturally precludes others from achieving. Researchers have referred to this view as zero-sum beliefs (or fixed-pie beliefs; Bazerman, 1983; Róz'ycka-Tran et al., 2015; Siroła & Pitesa, 2017). A zero-sum construal of success evokes hostile attitudes toward others at both the individual and group levels, disrupting collaboration and cooperation among parties (Davidai et al., 2022; Esses et al., 1998; Kuchynka et al., 2018; Norton & Sommers, 2011). Because a zero-sum belief in this context dictates that success requires outperforming others, it can lead people to recognize others as targets that they have to defeat and to develop antagonistic views of those others.

Given the theoretical and practical significance of zero-sum beliefs, research has delved into its antecedents. One robust predictor of zero-sum beliefs is the positivity of one's current state. Those who are in unfavorable situations demonstrate stronger zero-sum thinking than those who are in favorable situations (Dong et al., 2022; Siroła & Pitesa, 2017). For example, following negative feedback on accomplishments, people tend to hold stronger zero-sum beliefs compared

to those who receive positive feedback (Ongis & Davidai, 2022). People who receive negative feedback tend to develop cynical perspectives on their prospects, which includes the possibility that other people may take things away from them and prevent their success (Zuckerman, 1979). In contrast, people who receive positive feedback are more likely to believe that they can achieve success using their own effort, which can generalize to beliefs that everyone can succeed simultaneously, as long as they try (Bradley, 1978).

In the present research, in the context of work organizations, we identify a factor that can strengthen zero-sum beliefs *even for those who receive positive feedback* in the context of work organizations. We focus on the way achievement is discussed. We predict that when comparative evaluation is used (i.e., when achievement is discussed in comparison to coworkers), zero-sum beliefs will be triggered independent of feedback valence. We propose that this effect emerges because comparative evaluation activates beliefs that competition is inherent to success. We predict this effect will arise both for those who think they have won (i.e., those who receive positive feedback) and for those who think they have lost (i.e., those who receive negative feedback).

Our predictions and findings hold significance because comparative assessments are widely used in evaluative communications, such as performance feedback (Chun et al., 2018). In hopes of facilitating the learning process, managers or supervisors often rely on comparative evaluation to communicate expectations in their current environment (Klein, 1997). Moreover, feedback that involves comparative evaluation should enable learning about others who are performing better versus worse, helping one identify relevant role models (Collins, 1996).

In addition to showing the effect of comparative evaluation on zero-sum beliefs—independent of feedback valence (positive vs. negative)—we identify a boundary condition. We show that people

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who enjoy practical and emotional support from coworkers can recognize the possibility of mutually beneficial relationships, even in the face of comparative evaluation. By doing so, we elucidate when the social risks of comparative evaluation emerge more strongly, providing insights into how to provide feedback in a manner that facilitates learning while sustaining productive collaboration (Alper et al., 2000).

Comparative Evaluation and Zero-Sum Beliefs

When individuals' achievement is discussed in comparison to their coworkers, they can assess whether they are delivering on par with the performance norm of their organization. Moreover, people can use this information to find strong performers and learn lessons from them, while avoiding the approaches taken by those who underperform (Klein, 1997; Levine & Green, 1984; Zell & Alicke, 2009). This can explain the wide use of comparative evaluation in the context of performance feedback (Chun et al., 2018). Indeed, recipients sometimes enhance performance following a comparative evaluation (Azmat & Iriberri, 2010; see also Reiff et al., 2022).

Although there are clear advantages to offering a comparative evaluation when providing feedback, we suggest that evaluators must also recognize a risk attached to this approach. Specifically, we draw on the premise that the metrics or referents used in feedback are often taken as the benchmark to surpass (Locke & Latham, 2002). Because comparative evaluation discusses achievement in comparison to coworkers (or other relevant peers), it can provide a signal that one needs to outperform them to succeed (Ordóñez et al., 2009). These signals can be particularly powerful when coming from those who are authority figures, which is often the case for those who give formal feedback. We thus predict that those who receive comparative evaluation will be more likely to endorse an overall view that their success is incompatible with others' success, implying that if some people win, then others have to lose (Bazerman, 1983; Esses et al., 1998). We thus predict that comparative evaluation in performance feedback triggers zero-sum beliefs.

We predict these effects regardless of feedback valence. Those who experience comparative evaluation in negative feedback would recognize that the coworkers who achieved stronger performance are the ones that they should overcome, believing that they can win only by outperforming those coworkers (Collins, 1996). A similar dynamic should arise with positive feedback. Comparative positive evaluation should lead individuals to believe that to succeed, they need to continue to surpass others (To et al., 2020). Moreover, even when receiving a positive appraisal, people may identify others who are still above them or those who are near them in terms of the achievement, and devise plans to overcome them (Mendes et al., 2001). Hence, because comparative evaluation involves the idea that ultimately not everyone can achieve success, it should trigger zero-sum beliefs not only in negative feedback but also in positive feedback.

The Moderating Effect of Social Support

As we propose that comparative evaluation increases zero-sum beliefs in both negative and positive feedback, we suggest a boundary condition for the effect. In the present research, we focus on the quality of social relationships that people enjoy in their given environment. Social support refers to emotional and instrumental help that sustains

people's achievement and well-being, and this is one of the most important resources in human life (Cohen & Syme, 1985; Hooker et al., 2018). In workplace contexts, social support often originates from coworkers who work toward collective success (Bakker et al., 2014). For example, coworker support can buffer the effect of work stressors (Ilies et al., 2011).

In contrast to past work that has discussed social support in terms of the benefits it offers to well-being and achievement, we consider how social support from coworkers influences people's social beliefs in the workplace. Our core prediction delineated above suggests that a comparative evaluation increases the belief that one can only attain success by outperforming coworkers. However, we predict that a high level of social support from coworkers should sustain one's recognition that one can continue to share beneficial relationships with coworkers—even when supervisors comparatively discuss performance (Beehr et al., 2000; Halbesleben & Wheeler, 2015). In other words, the extent to which people develop zero-sum beliefs in response to comparative evaluation should be weaker when they enjoy stronger social support. Being aware of the support they have received so far, if their coworkers were to outperform them, people would then know who to go to for help; they can expect to benefit from the knowledge and resources that their coworkers may share with them (Zou & Ingram, 2013). Similarly, if people outperform their coworkers, then with a more supportive attitude, they would feel motivated to help coworkers, based on their own experiences and resources (Landkammer & Sassenberg, 2016; Methot et al., 2016). Therefore, when social support is high, people should perceive the possibility of mutual success, and thus comparative evaluation should less provoke zero-sum beliefs.

In contrast, without strong social support, the comparative evaluation emphasized in feedback may serve as a signal for a zero-sum game (Garcia et al., 2013). Without a sense of support from coworkers, comparative evaluation should direct attention to the idea that there is a competition where the losers *do not* benefit from the winners (Edelman & Larkin, 2015). Therefore, the notion that not everyone can succeed would be strengthened.

Overview of the Studies

We tested our predictions across four studies using experimental and observational designs, with samples obtained from multiple sources. In Study 1, we used hypothetical scenarios to experimentally manipulate comparative evaluation and tested its effects on zero-sum beliefs. In Study 2, we addressed whether the effect of comparative evaluation emerges over and above the effect of objective performance information represented by performance rankings. In Study 3, we conducted a multi-wave survey to test the effects of comparative evaluation on zero-sum beliefs in an observational setting, controlling for other variables found to influence individuals' beliefs and behaviors at work. Moreover, we tested whether zero-sum beliefs have a downstream effect on competitive behaviors toward coworkers. In Study 4, we examined whether social support moderates the association between comparative evaluation and zero-sum beliefs.

For each study, we determined the sample size before the data collection process began. The results from pilots revealed a small effect ($d = .20$). Assuming $\alpha = .05\%$ and 80% power, we estimated the number of participants required to detect such an effect using the *pwr* 1.3-0 R package (Champely et al., 2020). This yielded

approximately 200 participants per condition, which informed our decision for the sample size of Study 1. For subsequent studies, we determined the sample sizes to accommodate additional empirical features. We report all measures, manipulations, and exclusions in our studies. All study materials can be found on <https://osf.io/9432e/>. Our studies received approval from Sungkyunkwan University Institutional Review Board, and the title of the protocol was “The effect of performance feedback on zero-sum beliefs.”

Study 1

In Study 1, we experimentally manipulated comparative evaluation and tested its effect on zero-sum beliefs. In the comparative evaluation condition, participants’ achievement was compared with other employees’ achievement, whereas in the control condition, participants’ achievement was discussed in the context of their performance goals. We incorporated feedback valence to demonstrate that comparative evaluation can trigger zero-sum beliefs when it comes to both positive and negative feedback.

Sample

We posted a study about people’s experiences in the workplace on Prolific, an online platform for academic research (Palan & Schitter, 2018; Peer et al., 2017). We sought to recruit 400 participants, and one participant completed the study but did not submit the compensation code in time (allowing another to take part). Our sample thus was comprised of 401 individuals ($M_{\text{age}} = 40.4$; 182 female, 212 male, 7 nonbinary; 42 Asian, 25 Black, 287 White, 18 Latino(a), 1 Native American, 27 two or more races, 1 unspecified).

Procedure

We used a 2 (evaluation; comparative evaluation vs. control) \times 2 (feedback valence; positive vs. negative) factorial design. We asked participants to imagine that they were a sales employee in a mid-sized firm. Participants were informed that employees in their firm receive performance feedback from their manager every 3 months. To ensure participants understood that the feedback was conducted purely for learning purposes without any practical ramifications, participants were given the following instructions about the feedback: “While your individual performance (i.e., sales volume) solely determines your compensation and personnel decisions about you, employees in your firm also receive formal performance feedback from their managers every 3 months. The purpose of this feedback is to facilitate employees’ learning process and help them develop further.” Moreover, the feedback message in all conditions started with the following comment from the manager (followed by the experimental manipulation): “Before we start, the sole purpose of this feedback session is to facilitate your learning process. Also, your compensation will be solely determined by your absolute sales volume.”

In the *control condition* ($n = 190$), participants received the following [positive vs. negative] feedback from their manager:

I would say you are doing [great vs. okay]. As for your performance, it was [higher vs. lower] than the performance goals set by the firm at the beginning of this period. In other words, you performed [better vs. worse] than your performance goals. Please keep this information in mind going forward.

In the *comparative evaluation condition* ($n = 211$), participants imagined receiving the following [positive vs. negative] feedback:

I would say you are doing [great vs. okay]. As for your performance, it was [higher vs. lower] than other people in the department. In other words, you performed [better vs. worse] than your coworkers. Please keep this information in mind going forward.

After participants read the feedback message, we asked them to write 2–3 sentences to describe what they would think of it. We then measured participants’ *zero-sum beliefs* (1 = *strongly disagree* to 7 = *strongly agree*) using six items adapted from Sirola and Pitesa (2017). The items were, “In that firm, employees who want to get ahead must do so at the expense of others,” “In that firm, not everyone can attain the resources and rewards they want,” “In that firm, more opportunities for some employees mean fewer opportunities for other employees,” “In that firm, when some employees get promoted, others lose out such opportunities,” “In that firm, for every successful employee, there is usually a person falling behind,” and “The more people that firm employs, the harder it is for existing people to advance” ($\alpha = .91$).

On the following page, to ensure that participants correctly understood that their practical outcomes were solely determined by their absolute performance, we asked participants to type in their answer to the following question: “In the company described on the previous page, what is the determinant of each employee’s compensation?” Finally, participants provided demographic information.

Results and Discussion

We analyzed zero-sum beliefs using a 2 (evaluation; comparative evaluation vs. control) \times 2 (feedback valence; positive vs. negative) ANOVA. Consistent with past research, feedback valence had a significant main effect, revealing that participants who received negative feedback reported stronger zero-sum beliefs ($M = 4.36$, $SD = 1.46$) than those who received positive feedback ($M = 3.86$, $SD = 1.52$), $d = .33$, $F(1, 397) = 12.35$, $p < .001$. Moreover, as predicted, there was also a main effect of evaluation such that participants in the comparative evaluation condition demonstrated stronger zero-sum beliefs ($M = 4.41$, $SD = 1.44$) than those in the control condition ($M = 3.79$, $SD = 1.52$), $d = .41$, $F(1, 397) = 18.12$, $p < .001$. The interaction between the two independent variables was not significant, $F(1, 397) = 1.03$, $p = .309$, suggesting that the effect of comparative evaluation on zero-sum beliefs emerged similarly in the negative feedback ($M_s = 4.60$ vs. 4.12) and positive feedback ($M_s = 4.23$ vs. 3.45) conditions.

Finally, we examined participants’ open-ended responses on the determinant of compensation in the firm. We found seven participants (three in the positive comparative evaluation condition, four in the negative comparative evaluation condition) who reported that employees’ compensation was determined by their relative performance to coworkers and 19 participants (eight in the positive control condition, eight in the negative control condition, one in the positive comparative evaluation condition, two in the negative comparative evaluation condition) who reported that the compensation was determined by relative performance to employees’ goals. There were also 20 participants who mentioned something other than absolute sales volume (e.g., “by improvement and learning”). We then conducted the same analyses as above excluding these participants. The results remained consistent in terms of statistical

significance: a main effect of valence, $F = 6.61$, $p = .011$, a main effect of comparative evaluation, $F = 17.32$, $p < .001$, and no interaction, $F = .84$, $p = .361$. These results indicated that even among the participants who understood that their practical outcomes in the firm were purely determined by their absolute performance, still comparative evaluation included in performance feedback influenced participants' perspectives on the extent to which zero-sum competition was required to succeed in the workplace.

Study 2

In Study 2, we examined whether the effect of comparative evaluation emerged over and above another factor that has been discussed in the literature to increase zero-sum beliefs: rankings (Chambers & Baker, 2020; Woike & Hafenbrädl, 2020). We manipulated rankings independent of comparative evaluation (thus yielding a 2×2), and the rankings served as our feedback valence manipulation. Again, we tested whether the discussion of performance compared with others significantly increased zero-sum beliefs.

Sample

Similar to Study 1, we posted a study about people's experiences in the workplace on Prolific. We recruited 400 full-time employees ($M_{\text{age}} = 36.4$; 209 female, 180 male, 11 nonbinary; 29 Asian, 32 Black, 23 Hispanic, 2 Native American, 289 White, 25 two or more races).

Procedure

This study also had a 2 (evaluation; comparative evaluation vs. control) $\times 2$ (feedback valence; positive vs. negative) factorial design. As in Study 1, participants imagined that they were a sales employee receiving feedback every 3 months. In addition, participants imagined that they were working in a team comprised of 12 employees including themselves. Moreover, participants *in all conditions* received a performance report that included rank information. In the [positive vs. negative] feedback condition, the report offered the following information:

Your sales volume: \$43,000, ranking = [3/12 vs. 10/12]
Your customer satisfaction: 4.1/5.0, ranking = [4/12 vs. 9/12]

In addition to the performance report, participants in the *control* condition ($n = 198$) received the following message from their manager:

I hope you'd learn valuable lessons from the information regarding your quarterly performance. Please take a look at the information and let me know if there's anything you'd like to discuss with me.

In the *comparative evaluation* condition ($n = 202$), participants imagined receiving the following message, which included comparative discussions of performance between the two sentences of the control condition:

I hope you'd learn valuable lessons from the information regarding your quarterly performance. In terms of sales volume, your performance was [higher vs. lower] than 9 and [lower vs. higher] than 2 other employees. In customer satisfaction, your performance was [higher vs. lower] than 8 and [lower vs. higher] than 3 other employees. Please take a look at the

information and let me know if there's anything you'd like to discuss with me.

After the manipulation, participants reported their *zero-sum beliefs* using the same scale as in Study 2 ($\alpha = .89$). Finally, participants provided demographic information.

Results and Discussion

We ran a 2 (evaluation; comparative evaluation vs. control) $\times 2$ (feedback valence; positive vs. negative) ANOVA with zero-sum beliefs as the dependent variable. Consistent with Study 1 and past research, we observed a trend such that participants who received negative feedback reported stronger zero-sum beliefs ($M = 4.76$, $SD = 1.29$) than those who received positive feedback ($M = 4.51$, $SD = 1.33$), $d = .19$, $F(1, 396) = 3.71$, $p = .055$.

Supporting our prediction, there was also a main effect of evaluation such that participants in the comparative evaluation condition demonstrated stronger zero-sum beliefs ($M = 4.81$, $SD = 1.19$) as compared with those in the control condition ($M = 4.46$, $SD = 1.43$), $d = .27$, $F(1, 396) = 6.97$, $p = .009$. Finally, the interaction between the two independent variables was not significant, $F(1, 396) = .02$, $p = .883$, showing that comparative evaluation increased zero-sum beliefs similarly in both negative feedback ($M_s = 4.94$ vs. 4.57) and positive feedback ($M_s = 4.67$ vs. 4.34) conditions. These results suggest that over and above the rankings of performance, managers can influence zero-sum beliefs by using comparative evaluation.

Study 3

In Studies 1 and 2, we manipulated comparative evaluation to establish its causal effect on zero-sum beliefs across different levels of feedback valence. In Study 3, we measured these variables so that we could examine them as they naturally occur in the workplace. Moreover, we examined participants' competitive behaviors as a downstream consequence of zero-sum beliefs. We also addressed other variables that have been found to influence zero-sum beliefs. By doing so, we attempted to secure ecological validity and observe the effect of comparative evaluation over and above other important variables.

Sample and Procedure

We sought to recruit 400 individuals to complete three surveys on people's experiences in the workplace, from Amazon Mechanical Turk (mTurk), which has been shown to be a reliable source of data (Porter et al., 2019) with results comparable to those obtained from other sources (e.g., R. E. Johnson et al., 2017). One participant did not submit the completion code in time, resulting in 401 individuals in the original participant pool. Of those participants, 180 matched eligibility criteria and completed all three surveys, and thus constituted our final sample ($M_{\text{age}} = 37.4$; $M_{\text{tenure in company}} = 7.2$; 82 female, 98 male; 7 Asian, 13 Black, 5 Hispanic, 1 Native American, 144 White, and 10 two or more races).

We separated the measurement of the variables across three time points (Podsakoff et al., 2003). In the first survey (Time 1) where we measured individual differences, we also collected data on participants' job characteristics: employment status, organizational tenure, regularity of performance feedback, and interactions with

coworkers. We aimed to target full-time employees who received performance feedback on a regular basis and interacted with coworkers at least to some extent. Therefore, participants with the following characteristics were not invited to complete the second survey: (a) part-time employees, unemployed, self-employed, or working without pay, (b) not receiving performance feedback on a regular basis, and/or (c) never or rarely interacting with coworkers. Participants also provided demographic information.

In the second survey, which we administered 1 week after the first survey (Time 2), we measured the characteristics of performance feedback that participants received most recently. Among 270 participants who were invited, 236 took the second survey. To help participants recall their real-world feedback, we asked about various characteristics of the feedback, such as when it took place, who the evaluator was, whether the session was a face-to-face meeting, how long the feedback session lasted, and what comments they received from the session. We also asked whether the feedback session happened in their current job or previous job; only those who described performance feedback from their current job were invited to the third survey.¹ We conducted the third survey a week after the second survey (Time 3). Among 220 participants who were invited, 180 completed the third survey.

Measures

Focal Variables

All variables were measured using 7-point scales, with anchors based on the original scales. We measured *comparative evaluation* (Time 2) with three items adapted from Chun et al. (2018). An example item was “My evaluator compared my performance to my coworkers’ performance.” We measured *feedback positivity* (Time 2) by the following item: “My evaluation emphasized the positive side of my performance.” Similar to Studies 1 and 2, we measured *zero-sum beliefs* (Time 3) with the six-item measure adapted from Sirola and Pitesa (2017), with the referent “my current workplace.” We measured *competitive behaviors* (Time 3) using a three-item scale on competitiveness (Gelfand et al., 2012; Ilies et al., 2011; Wong et al., 2005). The items were “Show that I am better than others,” “Show disapproval of the way others handled tasks,” and “Force others to accept my own points of view.”

Control Variables

We accounted for other variables that may be relevant to zero-sum beliefs. First, Moon et al. (2016) argued that the injustice perceived from performance appraisals can explain the effects of comparative evaluation on counterproductive workplace behaviors. We thus measured perceptions of distributive justice (Time 2; e.g., “Was your outcome justified, given your performance?” Colquitt, 2001). Second, Sirola and Pitesa (2017) found that people develop zero-sum beliefs when they feel threatened by the struggling economy. We thus measured perceptions of economic downturn (Time 1; e.g., “The state of the economy is bad”; Sirola & Pitesa, 2017). Third, some individuals may be more likely to compare themselves with others even when they do not receive comparative evaluation from someone else. We thus also measured participants’ social comparison orientation (Time 1; e.g., “I often compare myself with others with respect to what I have accomplished in life”; Gibbons & Buunk, 1999). Fourth, we measured agreeableness, as it can shape an overall

orientation toward others (Time 1; e.g., “I see myself as sympathetic, warm”; Gosling et al., 2003). Fifth, because affective states can shape the way individuals behave toward others, we measured positive and negative affective states in the workplace (Time 3; e.g., “determined,” “upset”; Watson et al., 1988). Our results remained similar with or without these control variables and we report both analyses (Becker et al., 2016).²

Results and Discussion

We report descriptive statistics and correlations in Table 1. Table 2 reports the results of our ordinary least squares (OLS) regression analyses. Comparative evaluation significantly predicted both zero-sum beliefs ($b = .12$, $SE = .06$, $t = 2.12$, $p = .035$; Model 1) and competitive behaviors ($b = .13$, $SE = .06$, $t = 2.31$, $p = .022$; Model 4). These associations remained significant when controlling for feedback positivity (Models 2 and 5), and when other control variables were included in the models as well (Models 3 and 6). We then estimated the indirect association between comparative evaluation and competitive behaviors via zero-sum beliefs (controlling for feedback positivity) using a quasi-Bayesian approximation with 5,000 Monte Carlo draws, with the R package “mediation” (Tingley et al., 2019). We found a significant indirect association (estimate = .05, 95% CI = [0.006, 0.091]). This association remained significant when other control variables were included in the model (estimate = .03, [0.004, 0.068]).

We next examined whether feedback positivity moderated the effect of comparative evaluation on zero-sum beliefs by adding the interaction term to Model 1. The interaction term did not reach statistical significance, $b = .07$, $SE = .04$, $t = 1.83$, $p = .069$. When the interaction term was added to Model 3 with competitive behaviors as the dependent variable, the interaction was also nonsignificant, $b = -.04$, $SE = .04$, $t = .82$, $p = .412$.

In Study 3, we found that comparative evaluation predicted zero-sum beliefs in the workplace. This effect arose when controlling for feedback positivity along with other constructs found to predict zero-sum beliefs. Moreover, there was no significant interaction between comparative evaluation and feedback positivity, suggesting that the effect of comparative evaluation emerged even for those who received positive feedback. Finally, comparative evaluation also predicted competitive behaviors via zero-sum beliefs.

Study 4

Whereas Studies 1–3 addressed the main effect of comparative evaluation on zero-sum beliefs, our final study tested how this effect was moderated by social support from coworkers. We thus manipulated the salience of social support in a field setting and examined

¹ This was important because our interest was to examine how comparative evaluation that individuals experience in a given social context affects their social beliefs in that same context.

² Given that there was attrition from Time 1 to Time 3 surveys, we checked whether there was a significant difference between those who completed all three surveys and those who did not. We only observed a significant difference in perceptions of economic downturn (those who did not complete all three surveys reported stronger perceptions, $p = .002$). This was largely driven by the fact that of the people who participated in the Time 1 survey, those who did not have a full-time job were not invited to subsequent surveys. This is also consistent with past research that shows how economic status shapes individuals’ perceptions of the economy.

Table 1
Descriptive Statistics, Reliability Estimates, and Intercorrelations (Study 3)

Variables	<i>M</i>	<i>SD</i>	α	1	2	3	4	5	6	7	8	9
1. Zero-sum beliefs	3.73	1.42	.90	—								
2. Competitive behaviors	2.57	1.47	.85	.39	—							
3. Comparative evaluation	3.16	1.88	.96	.16	.17	—						
4. Feedback positivity	5.99	1.28	—	-.24	-.18	.04	—					
5. Economic downturn	3.56	1.57	.90	.18	.04	.03	-.24	—				
6. Distributive justice	5.67	1.32	.94	-.37	-.16	.07	.49	-.26	—			
7. Social comparison orientation	3.88	1.58	.92	.16	.17	.18	.00	-.01	-.05	—		
8. Positive affective states	5.08	1.35	.86	-.19	-.13	.02	.30	-.11	.24	-.06	—	
9. Negative affective states	2.29	1.33	.87	.38	.49	.02	-.20	.25	-.35	.21	-.29	—
10. Agreeableness	5.43	1.30	.64	-.09	-.31	-.01	.25	-.08	.15	-.16	.25	-.41

Note. $n = 180$. $|r|s > .14$ are significant at .05 level.

whether it interacted with comparative evaluation to determine zero-sum beliefs.

Sample

We recruited 250 participants who met our eligibility criteria (identical to those in Study 3) from an online panel maintained by Positly, a company supporting scientific research ($M_{\text{age}} = 35.9$; $M_{\text{tenure in company}} = 3.9$; 170 female, 80 male; 9 Asian, 13 Black, 21 Hispanic, 1 Native American, 190 White, and 16 two or more races).

Procedure

We used the same items as in Study 3 to measure *comparative evaluation* and *feedback positivity*. Next, we randomly assigned participants to the *high* ($n = 112$) versus *low* ($n = 138$) *social support* conditions. Specifically, participants in the [high vs. low] social support conditions were asked to describe their experiences with their coworkers based on the following instructions³:

In this section, we ask you to think about your experiences in your current job. Specifically, we are interested in your experiences of feeling [support vs. lack of support] from your coworkers in your current job. For example, you can recall a situation that made you think that...

- Your coworkers [really cared vs. did not really care] about your well-being,
- Your coworkers [were vs. were not] willing to help you when you needed a special favor, and
- Your coworkers [would vs. would not] forgive an honest mistake on your part.

Participants then reported their *zero-sum beliefs* using the six items from Study 3 (using "my company" as the referent). Finally, participants provided demographic information.

Results and Discussion

We report descriptive statistics and correlations in Table 3. Table 4 reports the results from our OLS regression analyses. Comparative evaluation was significantly associated with zero-sum beliefs, $b = .14$, $SE = .05$, $t = 2.94$, $p = .004$ (Model 1). Again, this association remained significant when controlling for feedback positivity, $b = .16$, $SE = .05$, $t = 3.50$, $p < .001$ (Model 2). We examined

whether there was an interaction between comparative evaluation and feedback positivity (Model 3), and it was not significant, $b = .01$, $SE = .05$, $t = .28$, $p = .783$. However, comparative evaluation and social support had a significant interaction predicting zero-sum beliefs, $b = -.22$, $SE = .09$, $t = -2.46$, $p = .015$ (Model 4).⁴ We thus conducted simple slope analyses (Figure 1). The association between comparative evaluation and zero-sum beliefs was stronger in the low social support condition, $b = .28$, $SE = .06$, $t = 4.30$, $p < .001$, than in the high social support condition, $b = .06$, $SE = .06$, $t = .86$, $p = .391$, where there was no significant relationship.

In Study 4, we again found that comparative evaluation predicted zero-sum beliefs, and feedback positivity did not weaken the link between comparative evaluation and zero-sum beliefs; the effect of comparative evaluation emerged regardless of how positive the feedback was. Moreover, we found the predicted interaction between comparative evaluation and social support. Manipulating the situational saliency of social support significantly reduced the association between comparative evaluation and zero-sum beliefs. People who recalled their experiences of being socially supported by coworkers demonstrated a weaker association between comparative evaluation and zero-sum beliefs than those who recalled their experiences of not being socially supported. Thus, the quality of the social environment shapes the ramifications of comparative evaluation.

General Discussion

As we motivate ourselves toward success, we naturally seek to determine what it takes to succeed. The current work demonstrates that the ways in which others discuss our achievements shape what we think it takes to win. Regardless of whether they receive positive or negative feedback, when it features comparisons to other coworkers, people learn that to succeed, they must compete

³ We piloted this manipulation with 51 full-time employees to ensure its effect on the situational saliency of social support. In the pilot, participants answered the items on social support (adopting the scale from Rhoades et al., 2001) after the manipulation, on a 7-point scale (1—not at all to 7—very much). Participants in the high coworker support condition reported significantly higher levels of social support ($M = 5.90$, $SD = 1.04$) than those in the low social support condition ($M = 4.15$, $SD = 1.51$), $d = 1.21$, $F(1, 49) = 23.38$, $p < .001$.

⁴ The three-way interaction of comparative evaluation, social support, and feedback positivity was not significant, $b = -0.04$, $SE = .10$, $t = -0.35$, $p = .724$.

Table 2
Ordinary Least Squares Regression Analyses (Study 3)

Variables	Zero-sum beliefs			Competitive behaviors		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Comparative evaluation	.12 (.06)*	.13 (.05)*	.12 (.05)*	.13 (.06)*	.14 (.06)*	.13 (.05)*
Feedback positivity		-.27 (.08)*	-.08 (.09)		-.21 (.06)*	-.13 (.09)
Economic downturn			.02 (.06)			-.10 (.06)
Distributive justice			-.26 (.09)*			.02 (.09)
Social comparison orientation			.07 (.06)			.03 (.06)
Positive affective states			-.05 (.08)			.05 (.08)
Negative affective states			.30 (.08)*			.50 (.09)*
Agreeableness			.12 (.08)			-.12 (.08)
R ²	.02*	.08*	.26*	.03*	.06*	.29*

Note. $n = 180$. Values in parentheses are standard errors.

* $p < .05$.

with coworkers to win. In contrast to internally generated comparisons, people do not have control over the comparisons made by external sources. In this situation, they may be particularly sensitive to inferring the messages embedded in the structure of the evaluation (Peysakhovich & Rand, 2016; Raver et al., 2012).

Our finding that the effect of comparative evaluation occurs for both positive and negative feedback extends past research showing that zero-sum beliefs can become an issue for those who experience negativity in their current states (Dong et al., 2022; Ongis & Davidai, 2022; Sirola & Pitesa, 2017). It suggests that comparative evaluation can increase zero-sum beliefs even among those who are enjoying positive states. In fact, comparative evaluation and feedback positivity did not show significant interactions, indicating that the two constructs independently exerted their influences.

Our results are of practical importance because comparative evaluation is commonly used by supervisors to enhance individuals' learning and performance. Comparison with others can help people recognize how they are doing and where they can find a model for further success (Collins, 1996; Klein, 1997; Levine & Green, 1984; Wood, 1996). And yet comparison with others can also evoke the idea of zero-sum competition. Although a general sense of competition can be beneficial ("we are stimulating each other's ideas"), when that competition is based on zero-sum beliefs, people focus on enhancing their own standing while weakening others'. Such competitive behaviors increase the tension in teamwork and stymie collaboration.

In fact, the effect of comparative evaluation on zero-sum beliefs emerged even when controlling for rankings included in a performance report (Chambers & Baker, 2020; Woike & Hafenbrädl, 2020). This finding highlights the impact of managerial communications that occur between employees and their supervisors.

Table 3
Descriptive Statistics, Reliability Estimates, and Intercorrelations (Study 4)

Variables	<i>M</i>	<i>SD</i>	α	1	2	3	4
1. Zero-sum beliefs	2.79	1.44	.89	—			
2. Comparative evaluation	6.09	1.11	—	.18	—		
3. Feedback positivity	3.27	1.92	.91	-.17	.16	—	
4. Social support ^a	.45	.50	—	-.07	.11	.11	—

Note. $n = 250$. r 's $> .13$ are significant at .05 level. ^a 0 = low, 1 = high.

Supervisors, as authority figures in the workplace, act as powerful signals of priorities and how to attain success within the work environment (Ashford & Northcraft, 2003). What they emphasize for success can even overwhelm the effect of what is communicated in the performance reports.

Our findings highlight that when experiencing and recognizing support from others, a comparative evaluation does not have this pernicious effect. If people perceive supportive relationships with their coworkers as they encounter comparative evaluation, they may be less likely to develop competitive beliefs that can harm collaborative teamwork (Ilies et al., 2011). Although past work has shown that social support from other sources (e.g., supervisors) can have significant positive effects on job attitudes (Ng & Sorensen, 2008), when it comes to the social dynamics within the workplace, our results revealed that social support from coworkers is an important factor as well.

Limitations and Directions for Future Research

Our studies are limited in ways that can be addressed in future research. Study 3 relied on self-reports to measure competitive behaviors as a downstream consequence. Research would benefit from examining different operationalizations using various behaviors that individuals demonstrate in the workplace. Future work could also examine the causal impact of zero-sum beliefs on competitive behaviors. Although these constructs may be inherently related to each other, research can examine when and why the relationship between the two may become amplified or attenuated (To et al., 2020).

It may be also worth investigating how comparative evaluation may interact with reward structures to determine individuals' zero-sum beliefs. On the one hand, past research has examined the structural determinants of competitiveness among people, and there is rich evidence regarding the effect of reward structures on interpersonal attitudes (e.g., Barnes et al., 2011; Beersma et al., 2003; M. D. Johnson et al., 2006). On the other hand, our results revealed that feedback messages play a powerful role in shaping competitive dynamics in the workplace. A combination of these findings could result in a series of questions on how reward schemes and the messages communicated in feedback may interactively shape people's beliefs and behaviors.

Although we did not find significant interactions between comparative evaluation and feedback positivity predicting zero-sum

Table 4
Ordinary Least Squares Regression Analyses (Study 4)

Variables	Zero-sum beliefs				
	Model 1	Model 2	Model 3	Model 4	Model 5
Comparative evaluation (CE)	.14 (.05)*	.16 (.04)*	.16 (.05)*	.28 (.06)*	.27 (.07)*
Feedback positivity (FP)		-.27 (.08)*	-.26 (.08)*	-.24 (.08)*	-.23 (.08)*
Social support (SS) ^a				-.20 (.18)	-.21 (.18)
CE × FP			.01 (.05)		-.02 (.05)
CE × SS				-.22 (.09)*	-.23 (.09)*
R ²	.03*	.07*	.07*	.10*	.10*

Note. $n = 250$. Values in parentheses are standard errors. ^a 0 = low, 1 = high; Comparative evaluation was mean-centered prior to the analyses.

* $p < .05$.

beliefs, we suspect that there could be situations in which the effect of comparative evaluation may lessen depending on the level of feedback positivity. For example, there could be an extreme situation where a person is informed of outperforming everyone in a large group or organization. In this circumstance, in spite of the comparative evaluation, the individuals' urge to showcase their personal efforts may dominate the competitive logic they may observe, resulting in a minimal effect of comparative evaluation (cf., Fitch, 1970; Gilmor & Minton, 1974).

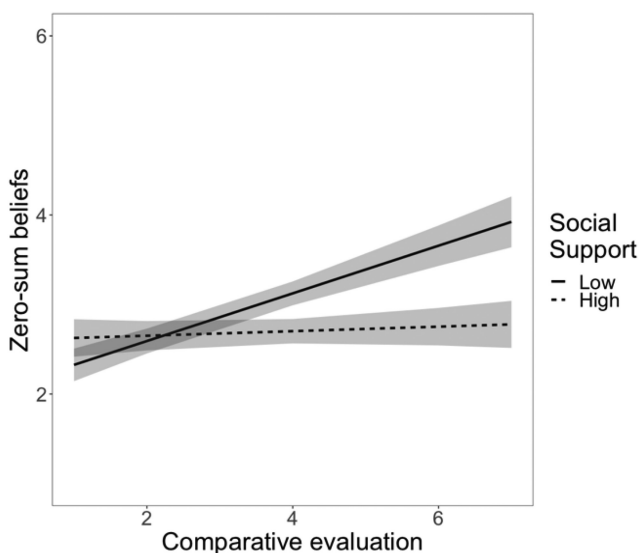
In terms of social support, future work can further examine the specificity of the moderation effect. In the present work, we did not specify the coworkers that individuals were compared to (i.e., the referent) and the coworkers that provided social support (i.e., the supporter). It is possible that social support may only have effects when there is a match between the referent and the supporter (i.e., it is the same coworker). Another possibility is that the moderating function of social support operates even in the case of a mismatch (i.e., a spillover effect). For example, even when the focal person has received support from one coworker, that

may shape overall perceptions of supportive norms in the organization, and buffer the effect of comparative evaluation that involves other coworkers as the referents. Future research can explore this issue.

Finally, it can be valuable to also investigate supervisors' theories behind comparative evaluation (Heslin & VandeWalle, 2011; Purcell & Hutchinson, 2007; Tjosvold, 1985). In conducting performance feedback, supervisors and managers often have a degree of freedom in determining which elements to emphasize. In Studies 3 and 4, we observed that mean levels of comparative evaluation were around the midpoint, suggesting that, on average, comparative evaluation was a common component of performance feedback. Research can thus examine why supervisors emphasize comparisons among employees (at least in some situations). For example, do supervisors rely on comparative evaluations because they believe that it can help people accurately assess their performance and facilitate their learning? Do they provide comparative evaluations to justify the individuals' rewards? Are they aware of the risks introduced by comparative evaluations? Such questions can enrich theoretical discussion of how feedback should be offered and formalized.

Figure 1

Moderation of Social Support in the Associations Between Comparative Evaluation and Zero-Sum Beliefs (Study 4)



Practical Implications

The present research illustrates why supervisors need to be careful when discussing performance. There are social risks involved in a comparative approach to delivering feedback, which can create hostile interactions even within real-world teams in the workplace context (Wong et al., 2005). Given the inherent need for collaboration in the modern world, evaluators across diverse contexts should consider the potential consequences of comparative evaluation before it is implemented.

As our final study suggests, one approach to reduce inferences of zero-sum games from comparative evaluation would focus on fostering a supportive network among peers (Beehr et al., 2000; Halbesleben & Wheeler, 2015; Raver et al., 2012). Our findings showed that comparative evaluation was less strongly linked to zero-sum beliefs when individuals recalled high levels of relevant social support. That is, simply recalling experiences of receiving help from coworkers was effective in reducing the impact of comparative evaluation. Therefore, implementing tools that make existing collaborative relationships cognitively salient could also be helpful (Caruso et al., 2006; Grant, 2008).

Conclusion

Comparative evaluation is a common approach to giving feedback. And yet, in seeking to help individuals' learning experiences, evaluators who provide it can provoke outcomes that work against a collaborative climate: zero-sum beliefs. Special care should thus be taken to consider just exactly what is communicated to people in terms of what it takes for them to succeed.

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