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The Impact of Leader Dominance on Employees' Zero-Sum Mindset and Helping Behavior  
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**Supplementary Information**

**for**

**The Impact of Leader Dominance on Employees' Zero-Sum Mindset and Helping Behavior**

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### STUDY 3B

The objective of this study was to replicate findings from Study 3 using a different online sample and an alternate measure of zero-sum mindset developed by Esses and colleagues (Esses et al., 1998). This four-item measure has been used more often in the management literature to capture employees' construal of zero-sum mindset. Hence, we set out to demonstrate the convergence of this zero-sum mindset measure with the one used so far in our studies (Różycka-Tran et al., 2015). At the same time, using a different measure of zero-sum mindset increases the robustness of our findings.

#### Method

*Sample.* A total of 350 Mturk participants who were able to chat with other participants using chatplat.com completed our study. In line with our exclusion criteria, we dropped one participant for having a non-US IP address, one was identified having a suspected geolocation or ISP address, one for doubting the procedure of our study and 19 for using automatic form fillers (Buchanan & Scofield, 2018). Our results remained statistically significant if none of these participants were excluded. The final sample consisted of 328 participants, 165 in the dominance and 163 in the prestige condition ( $M_{Age} = 38.71$  y,  $SD = 12.08$ , 49.70% females, .30% non-binary).

*Design and Procedure.* The design and procedure of this study was identical to Study 3a, except participants responded to an additional measure of zero-sum mindset.

*Measures.* The additional measure of zero-sum mindset was taken from a scale developed by Esses and colleagues (Esses et al., 1998). This four-item measure of zero sum mindset has been extensively used in the management literature (He et al., 2020; Sirola & Pitesa, 2017). Sample items are “When some workers make economic gains, others lose out

economically”, and “The more employees a company employs, the harder it is for existing employees to advance” ( $\alpha = .88$ ). Zero-sum measure of Różycka-Tran and colleagues ( $\alpha = .94$ ), manipulation items capturing dominance ( $\alpha = .97$ ) and prestige ( $\alpha = .94$ ), all showed good reliability. We discuss Esses and colleague's zero-sum mindset measure as ES and Różycka-Tran and colleagues as RT.

## Results

**Manipulation check.** Our manipulation worked as intended. The leader was perceived as more dominant in the dominance condition,  $F(1, 326) = 130.43, p < .001, \eta^2 = .29, (M_{Dom} = 5.75, SD = 1.09; M_{Prg} = 4.06, SD = 1.56)$  and more prestigious in the prestige condition,  $F(1, 326) = 41.83, p < .001, \eta^2 = .11, (M_{Dom} = 4.83, SD = 1.12; M_{Prg} = 5.60, SD = 1.01)$ .

**Zero-sum mindset.** A one-way ANOVA revealed a significant main effect of our manipulation on participants zero-sum mindset with both RT,  $F(1, 326) = 9.21, p = .003, \eta^2 = .03$ , as well as EM measures,  $F(1, 326) = 9.92, p = .002, \eta^2 = .03$ . Participants reported higher zero-sum mindset in the dominance condition ( $M_{RT} = 4.17, SD = 1.36; M_{EM} = 4.43, SD = 1.44$ ) than in the prestige condition ( $M_{RT} = 3.72, SD = 1.33; M_{EM} = 3.92, SD = 1.48$ ), in support of Hypothesis 1. Additionally, the two measures of zero-sum mindset were highly correlated, suggesting that they captured the same underlying construct ( $b = .79, p < .001$ ).

**Interpersonal helping: Categorical DV.** We coded dominance manipulation as 1 and prestige 0. Of the 328 participants, 77.74% ( $n = 255$ ) indicated they wanted to help and were coded as 1 and 22.26% ( $n = 73$ ) who did not want to help were coded as 0. The logit regression on binary choice to help as the dependent variable did not reveal a significant effect of our manipulation, both with and without the inclusion of control variables ( $p > .05$ ). Hence Hypothesis 2 was not supported for categorical measure of helping. Zero-sum mindset however,

marginally predicted participants reluctance to help with, ( $b_{RT} = -.20$ ,  $SE = .11$ ,  $p = .059$ ;  $b_{ES} = -.19$ ,  $SE = .10$ ,  $p = .062$ ) or without, ( $b_{RT} = -.20$ ,  $SE = .10$ ,  $p = .057$ ;  $b_{ES} = -.18$ ,  $SE = .09$ ,  $p = .051$ ) the covariates. Given, we found a significant relationship between the IV and the mediator and a marginal one between the mediator and the DV, it was possible to test for an indirect effect—having a direct effect of IV on DV is not a necessary condition for a meaningful indirect effect (Zhao et al., 2010). Hence, we ran a bootstrap mediation with 5000 resamples using `binary_mediation` stata package. The resulting analysis revealed a significant indirect effect with both measures of zero-sum mindset as the bias corrected 95% CI did not contain zero ( $b_{RT} = -.03$ , 95% bias corrected CI [-.063, -.002];  $b_{ES} = -.02$ , 95% bias corrected CI [-.062, -.005]). In short, Hypothesis 3 was supported.

***Interpersonal helping: Continuous DV.*** We next examined the main effect of our manipulation on the total number of characters transcribed as the dependent variable. Like Study 3, we ran a Poisson regression as the dependent variable was based on count. Character count for participants who did not indicate their willingness to help was accordingly adjusted to zero. Similar to Study 3, we therefore performed regression analysis on the entire sample. In support of Hypothesis 2, a significant negative effect of dominance was observed on the number of characters transcribed with ( $b = -.05$ ,  $SE = .006$ ,  $p < .001$ ) or without ( $b = -.02$ ,  $SE = .006$ ,  $p = .001$ ) the inclusion of covariates. Additionally, both measure of zero-sum mindset negatively predicted helping behavior with ( $b_{RT} = -.13$ ,  $SE = .002$ ,  $p < .001$ ;  $b_{ES} = -.13$ ,  $SE = .002$ ,  $p < .001$ ) or without ( $b_{RT} = -.12$ ,  $SE = .002$ ,  $p < .001$ ;  $b_{ES} = -.12$ ,  $SE = .002$ ,  $p < .001$ ) the control variables. We then ran a mediation analysis using `med4way` stata package that performed a simultaneous Poisson regression for the dependent variable and liner regression for the continuous mediator. The resulting bootstrap analysis with 5000 resamples revealed significant indirect effect with both

measure of zero-sum mindset, ( $b_{RT} = -.06$ , 95% bias corrected CI [-.18, -.01];  $b_{ES} = -.085$ , 95% bias corrected CI [-.173, -.023]). Overall, Hypothesis 3 was supported.

## **Discussion**

The objective of this study was to replicate findings of Study 3 using a different measure of zero-sum mindset. At the same time, we wanted to show convergence between the two measures. This study met both of these objectives and provides further support and robustness to our theoretical model.

## STUDY S1

We performed Study S1 to test whether our findings from Study 2 replicate if we use a text-based stimulus to manipulate dominance, prestige and control conditions. Additionally, we wanted to examine if the effect of zero-sum mindset on helping behavior manifests beyond robust predictors of interpersonal helping such as autonomy and in-role perception.

### Method

*Sample.* We recruited 603 participants via MTurk. Two participants were dropped for having a duplicate IP address and 11 for not being a native English speaker. Our results remained consistent if we do not drop any participants. The final sample consisted of 590 participants with 204 participants in the dominance condition, 189 in the prestige condition and 197 in the control condition ( $M_{Age} = 39.45$  y,  $SD = 11.81$ , 52.03% females).

*Design and Procedure.* Study S1 was a conceptual replication of Study 2, with a key difference that participants learned about the leader's influence style via a text stimulus. Participants were randomly assigned to any of the three conditions – dominance, prestige or control. They read that Riley has been a manager at the ABC company for five years. This was followed by our manipulation [text in the brackets denote dominance and prestige manipulation respectively]:

Riley was promoted within the company quickly as a result of having [a dominant and assertive attitude/ respect and admiration afforded by other]. Riley has ambitions to continue growing in the company. Riley [is controlling in interactions with members within the organization/ in interactions with members within the organization is often granted deference]. Riley is often described as a manager who is [forceful in his behavior towards clients and other stakeholders/ granted high esteem from clients and other stakeholders]. Riley remains an asset to the company.



In the control condition, participants read that “Riley was promoted within the company quickly. Riley has ambitions to continue growing in the company. Riley remains an asset to the company.” Thus, in all the three conditions Riley was described as an ambitious manager and an asset to the company. The only difference across conditions was the manner by which they use their leadership position to influence others. Following this, participants spent some time thinking about how it would be working under a manager like Riley. This was done to ensure participants placed themselves in the mindset of an employee having a boss like Riley, instead of passively filling out the questionnaire without adequately taking an employee's perspective. Thereafter, participants responded to our key measures and reported their demographics. We also included job characteristic variable such as autonomy (Hackman & Oldham, 1976) and employee's role perceptions (Kamdar et al., 2006), to further examine whether the effect of zero-sum mindset uniquely impact helping behavior beyond the effect of these well-known predictors.

*Measures.* The measures in this study were identical to Study 2. We used both person-, ( $\alpha = .96$ ) and task-focused ( $\alpha = .95$ ) forms of helping, along with the same zero-sum scale ( $\alpha =$  and manipulation checks ( $\alpha_{\text{Dominance}} = .98$ ,  $\alpha_{\text{Prestige}} = .95$ ). Autonomy was measured using three items ( $\alpha = .94$ ) (Barrick & Mount, 1993) and in-role perceptions using a six-item scale ( $\alpha = .92$ ), asking participants to indicate whether they would consider interpersonal helping as part of their job role requirement under Riley's supervision (Kamdar et al., 2006).

## Results

*Manipulation check.* Our manipulation worked as intended (see rows 6 and 7, Table S4). Riley was perceived as more dominant in the dominance condition and more prestigious in the prestige condition, in comparison to the other two conditions.

**Main effect of leader dominance.** A one-way ANOVA on zero-sum mindset was consistent with Hypothesis 1, such that participants reported greater zero-sum mindset in the dominance condition than in the prestige or control condition (see row 1, Table S4). Similar analysis revealed a main effect of leader dominance on both person- and task-focused forms of helping (see rows 2 & 3, Table S4). Participants indicated lesser tendency to provide person or task centric help in the dominance condition than in the prestige or control condition in support of Hypothesis 2. Additionally, we also observed main effect of dominance on autonomy and in-role perceptions. (See rows 4 & 5, Table S4).

**Mediation analysis.** We performed a mediation analysis using SEM with two forms of helping as the dependent variable. We allowed the two forms of helping to covary in the model and controlled for participants' demographics, autonomy and in-role perceptions. Since, there wasn't any meaningful difference between prestige and control condition for zero-sum mindset and the two forms of helping, we collapsed the two conditions and coded as 0. Dominance was coded as 1. A bootstrap procedure with 5000 replications resulted in a significant negative indirect effect of leader dominance in comparison to the baseline conditions for both person centric ( $b = -.04, z = 2.15, p = .032, 95\%CI [-.08, -.004]$ ) and task centric ( $b = -.06, z = 2.93, p = .003, 95\%CI [-.09, -.02]$ ) forms of helping via zero-sum mindset. We performed additional mediation analysis accounting for indirect effect of both autonomy and in-role perceptions on helping instead of just controlling for their main effects. The indirect effect via zero-sum mindset remained negative and significant over and above the indirect effect of these two variables (which were also significant) on both person- ( $b = -.04, z = 2.09, p = .037, 95\%CI [-.09, -.01]$ ) and task-focused ( $b = -.06, z = 2.78, p = .005, 95\%CI [-.10, -.02]$ ) helping. This suggests that

zero-sum mindset explains additional variance beyond these explanatory predictors on interpersonal helping. To sum up, Hypothesis 3 was supported.

## **Discussion**

Study S1 conceptually replicated findings from Study 2 by overcoming one of its limitations that leaders introducing themselves via a video could lead to demand effect concerns. At the same time, these results demonstrate the role of zero-sum mindset in influencing interpersonal helping beyond autonomy and in-role perceptions. Taken together, Study 2 and S1, go beyond the correlational nature of Study 1 to provide causal support in favor of our theoretical model. Specifically, these studies collectively highlight how leader's dominant displays of influence may affect their followers' zero-sum perceptions, and in turn helping behaviors.

## STUDY S2

Despite the similarities between dominance and directive leadership styles or prestige and participative leadership styles, there remain important conceptual differences. For instance, both participative leaders and those associated with prestige, incorporate followers' viewpoints. However, a participative leader does so to improve work efficiency and also to encourage team members' influence in the decision-making process (Bass et al., 1975; Koopman & Wierdsma, 1998; Lam et al., 2014; Lorinkova et al., 2012), whereas leaders associated with prestige may not necessarily care about increasing followers' influence in decision-making. On the contrary, they are often worried about ensuring their positive self-image and engage in participatory behaviors in the service of this desire (Case et al., 2018, 2020). Hence, the motivations to influence via prestige or participative leadership are conceptually different. Likewise, directive leaders provide strict rules and guidelines to followers on work tasks and seek their compliance with limited input from them to ensure that the group performs the task efficiently (Bass et al., 1975; Kahai et al., 1997; Lorinkova et al., 2012), while leaders associated with dominance may seek employee compliance, driven primarily by their need to maintain control and ensure that any team accomplishment is credited to them, rather than the team. Although both forms of leadership may discourage interpersonal helping among employees, we predict that employees working under a dominant (and not directive) leader will develop greater zero-sum thinking due to their leader's self-oriented tendencies. For these reasons, we expected participants to distinguish between these different leadership behaviors and that dominance will uniquely predict the negative effect on followers' interpersonal helping via zero-sum mindset.

## Methods

**Sample.** We decided to recruit about 100 participants in each condition giving us an ability to detect an effect size of  $d = .40$  with 80% power. 395 participants with relevant work experience recruited via CloudResearch online panels completed our study. Nine participants were dropped for using automatic form fillers (Buchanan & Scofield, 2018) and one was dropped for having a non-U.S. IP address. Our results remained consistent if we do not exclude any participants. The final sample consisted of 385 participants with 98 participants in each of the dominance and directive conditions, 95 in the participative condition, and 94 in the prestige condition ( $M_{Age} = 38.52$  y,  $SD = 12.42$ ; 49.09% males, 49.87% females, 1.04% non-binary).

**Design and procedure.** Study S2 was a conceptual replication of Study 2, with two key differences. First, participants learned about the leader's behavioral style via text, and second, we included two additional leadership conditions—directive and participative—to further determine the effect of leaders' dominance or prestige influence tactics. Participants were randomly assigned to any of the four conditions: dominance, prestige, directive, or participative leadership. They read that "Riley" has been a manager at the ABC company for five years. This was followed by our manipulation. In the dominance and prestige conditions, participants read [the text in the brackets denotes the dominance or prestige manipulation, respectively]:

Riley was promoted within the company quickly as a result of having [a dominant and assertive attitude/respect and admiration afforded by others]. Riley has ambitions to continue growing in the company. Riley [ensures that subordinates are aware of who is in charge and is controlling in his/her interactions with others/is keen to share his/her expertise with subordinates and is granted deference by others]. Riley is often described as a manager who is [forceful in his/her behavior toward subordinates/held in high esteem by his/her subordinates]. Riley remains an asset to the company.

In the directive and participative conditions, participants read [the text in the brackets denotes the directive or participative manipulation, respectively]:

Riley was promoted within the company quickly as a result of having a [direct/participative] approach to leadership. Riley has ambitions to continue growing in the company. Riley [is task-oriented and provides clear guidelines to his/her subordinates/encourages his/her subordinates to share their opinions and ideas], as a means to ensure the task is carried out in an efficient and effective manner. Riley is often described as a manager who is [a taskmaster and directs subordinates to that end/consultative in his/her interactions with subordinates]. Riley remains an asset to the company.

Thus, in all the four conditions Riley was described as an ambitious manager who is an asset to the company; the only difference was the manner in which Riley influences others. After reading the description, participants spent some time thinking about how it would be to work under a manager like Riley. This was done to ensure that participants were placed in the mindset of an employee having a boss like Riley, instead of passively filling out the questionnaire without adequately considering an employee's perspective. Thereafter, participants responded to our key measures and reported their demographics.

*Pretest.* To test the effectiveness of our manipulations, we ran a separate pilot study with 226 mturk participants ( $M_{Age} = 39.01y$ ; 46.46% males, 52.21% females, 1.33% non-binary), with an average work experience of 17.56 years. Participants were randomly assigned to one of the four manipulations, following which they rated Riley on measures capturing dominance, prestige, directive and participative leader attributes. The dominance and prestige scale items were similar to Study 2 ( $\alpha_{Dominance} = .98$ ,  $\alpha_{Prestige} = .93$ ). We used established scales of directive and participative leadership measures in the management literature to capture these two leadership styles (Kahai et al., 2004; Li et al., 2018). Sample item for directive leadership: "Riley is a kind of leader who tells subordinates how to accomplish tasks" ( $\alpha = .92$ ). Sample item for participative leadership: "Riley is a kind of leader who puts suggestions from subordinates into the final decision" ( $\alpha = .98$ ). One-way ANOVA and comparison of means for each leadership construct across conditions is reported in Table S5. As reported in the table, the results are not

perfect. For instance, there was no significant difference between directive and dominance condition on directive leadership manipulation checks. Likewise, ratings on participative leadership did not differ significantly across prestige and participative conditions. This lack of differences probably reflects overlap between these related constructs. However, and more importantly, participants rated the leader highest on dominance in the dominance condition compared to the other three conditions. Riley was rated as more directive in the directive condition than in the participative or prestige conditions. Lack of significance in directive ratings between dominance and directive conditions, makes our comparison of helping behaviors via zero-sum mindset, between the two conditions a more conservative test. Riley was rated as highest on prestige in the prestige condition, compared to the other three conditions and Riley was judged as higher on participative ratings than in the directive or dominance conditions. The difference in participative ratings was marginally significant between participative and prestige conditions. Overall, our manipulation worked as intended.

*Measures.* The measures in this study were identical to those in Study 2. We used both person- ( $\alpha = .97$ ) and task-focused ( $\alpha = .96$ ) forms of helping, along with the same zero-sum scale ( $\alpha = .94$ ). The manipulation check items of dominance and prestige were also the same as Study 2 ( $\alpha_{\text{Dominance}} = .97$ ,  $\alpha_{\text{Prestige}} = .90$ ).

## **Results**

*Leadership manipulation check.* Despite conceptual differences among the various leadership styles, it was important to empirically demonstrate that our manipulation of dominance and prestige did not manipulate other leadership styles. Accordingly, we performed a one-way ANOVA on participants' dominance and prestige ratings. Consistent with our theory, we found that the leader was rated significantly higher on dominance,  $F(3, 381) = 207.65, p <$

.001,  $\eta^2 = .62$ , in the dominance condition ( $M = 6.46$ ,  $SD = .68$ ) compared to the prestige ( $M = 2.59$ ,  $SD = 1.26$ ,  $F(1, 381) = 131.06$ ,  $p < .001$ ,  $d = 3.85$ ), participative ( $M = 2.61$ ,  $SD = 1.41$ ,  $F(1, 381) = 128.6$ ,  $p < .001$ ,  $d = 3.5$ ), or directive ( $M = 4.69$ ,  $SD = 1.56$ ,  $F(1, 381) = 95.59$ ,  $p < .001$ ,  $d = 1.47$ ) conditions. Additionally, dominance ratings were significantly higher in the directive condition compared to participative  $F(1, 381) = 442.72$ ,  $p < .001$ ,  $d = 1.40$ , or prestige  $F(1, 381) = 446.17$ ,  $p < .001$ ,  $d = 1.48$ , conditions. The prestige and participative conditions were not significantly different.

Likewise, a significant one-way ANOVA emerged for the prestige ratings,  $F(3, 381) = 67.36$ ,  $p < .001$ ,  $\eta^2 = .35$ . The leader was rated significantly higher on prestige in the prestige condition ( $M = 6.28$ ,  $SD = .62$ ), compared to the dominance ( $M = 4.35$ ,  $SD = 1.40$ ,  $F(1, 381) = 181.75$ ,  $p < .001$ ,  $d = 1.77$ ), participative ( $M = 5.86$ ,  $SD = .84$ ,  $F(1, 381) = 8.64$ ,  $p = .004$ ,  $d = .56$ ), or directive conditions ( $M = 5.48$ ,  $SD = .92$ ,  $F(1, 381) = 31.61$ ,  $p < .001$ ,  $d = 1.02$ ). As above, given that there are some conceptual similarities between prestige and participative leadership, participants in the participative condition rated the leader significantly higher on prestige in comparison to the directive,  $F(1, 381) = 7.12$ ,  $p = .008$ ,  $d = .43$ , and dominance conditions,  $F(1, 381) = 111.25$ ,  $p < .001$ ,  $d = 1.3$ . There was also a significant difference in the prestige ratings between the directive and dominance conditions,  $F(1, 381) = 63.07$ ,  $p < .001$ ,  $d = .95$ . Overall, our manipulation of dominance and prestige was successful in manipulating leader influence tactics along dominance and prestige rather than along directive and participative leadership styles. In short, Riley was perceived as more dominant in the dominance condition and more prestigious in the prestige condition in comparison to the other three conditions.

**Zero-sum mindset.** A one-way ANOVA on zero-sum mindset was significant,  $F(3, 381) = 31.93$ ,  $p < .001$ ,  $\eta^2 = .20$ . Participants reported higher zero-sum thinking in the dominance



condition ( $M = 4.49$ ,  $SD = 1.36$ ) than in the prestige ( $M = 2.80$ ,  $SD = 1.39$ ,  $F(1, 381) = 76.58$ ,  $p < .001$ ,  $d = 1.22$ ), directive ( $M = 3.61$ ,  $SD = 1.29$ ,  $F(1, 381) = 20.95$ ,  $p < .001$ ,  $d = .66$ ), or participative ( $M = 2.95$ ,  $SD = 1.30$ ,  $F(1, 381) = 63.53$ ,  $p < .001$ ,  $d = 1.16$ ) conditions. The prestige and participative conditions were not significantly different ( $F(1, 381) = .63$ ,  $p = .43$ ); however, participants in the directive condition reported greater zero-sum thinking than those in the participative,  $F(1, 381) = 11.76$ ,  $p < .001$ ,  $d = .51$  and prestige,  $F(1, 381) = 17.82$ ,  $p < .001$ ,  $d = .61$ , conditions. Overall, Hypothesis 1 was supported.

**Interpersonal helping.** Similar analysis revealed a main effect of our manipulation on both person-focused,  $F(3, 381) = 46.36$ ,  $p < .001$ ,  $\eta^2 = .27$ , and task-focused,  $F(3, 381) = 37.37$ ,  $p < .001$ ,  $\eta^2 = .23$ , forms of helping. Participants' tendency to provide person- or task-focused help was lower in the dominance condition ( $M_{PffHelp} = 4.39$ ,  $SD_{PffHelp} = 1.76$ ;  $M_{TffHelp} = 4.37$ ,  $SD_{PffHelp} = 1.58$ ) than in the prestige ( $M_{PffHelp} = 6.11$ ,  $SD_{PffHelp} = .80$ ,  $F_{PffHelp}(1, 381) = 96.1$ ,  $p < .001$ ,  $d = 1.25$ ;  $M_{TffHelp} = 5.87$ ,  $SD_{PffHelp} = .94$ ,  $F_{TffHelp}(1, 381) = 76.82$ ,  $p < .001$ ,  $d = 1.15$ ), participative ( $M_{PffHelp} = 6.13$ ,  $SD_{PffHelp} = .77$ ,  $F_{PffHelp}(1, 381) = 98.72$ ,  $p < .001$ ,  $d = 1.27$ ;  $M_{TffHelp} = 5.89$ ,  $SD_{PffHelp} = .82$ ,  $F_{TffHelp}(1, 381) = 78.75$ ,  $p < .001$ ,  $d = 1.19$ ), or directive conditions ( $M_{PffHelp} = 5.11$ ,  $SD_{PffHelp} = 1.23$ ,  $F_{PffHelp}(1, 381) = 17.51$ ,  $p < .001$ ,  $d = .47$ ;  $M_{TffHelp} = 4.98$ ,  $SD_{PffHelp} = 1.21$ ,  $F_{TffHelp}(1, 381) = 12.82$ ,  $p < .001$ ,  $d = .43$ ). Additionally, replicating past findings, we also found a significantly lower tendency to offer both forms of helping in the directive condition compared to the participative,  $F_{PffHelp}(1, 381) = 33.45$ ,  $p < .001$ ,  $d = .99$ ;  $F_{TffHelp}(1, 381) = 28.32$ ,  $p < .001$ ,  $d = .87$ ), and prestige,  $F_{PffHelp}(1, 381) = 32.06$ ,  $p < .001$ ,  $d = .96$ ;  $F_{TffHelp}(1, 381) = 27.27$ ,  $p < .001$ ,  $d = .82$  conditions. There were no differences between the prestige and participative conditions ( $p > .05$ ). In sum, we found support for Hypothesis 2.

**Mediation analysis.** We performed a mediation analysis using generalized SEM that allows for testing the conditional indirect effects of the categorical variable on the two types of helping behaviors. We allowed the two forms of helping to covary in the model and controlled for participants' demographics. We ran the mediation analysis, by treating the indirect effect via directive as the base case and compared this to other indirect effects. This allowed us to directly test the indirect effect of dominance via zero-sum mindset on helping after incorporating the indirect effect via directive. We performed a bootstrap procedure with 5,000 replications and examined 95% confidence intervals to ascertain the presence of a significant indirect effect. The resulting analysis revealed a significant negative indirect effect of dominance for both person-centric ( $b = -.16$ , 95%CI [-.30, -.07]) and task-centric ( $b = -.15$ , 95%CI [-.27, -.05]) forms of helping via zero-sum mindset in comparison to the directive condition. Further, the indirect effect of dominance was also significantly different when compared to the prestige condition ( $b_{PfHelp} = -.31$ , 95%CI [-.52, -.15];  $b_{TfHelp} = -.28$ , 95%CI [-.49, -.12]), as well as participative leadership ( $b_{PfHelp} = -.29$ , 95%CI [-.47, -.14];  $b_{TfHelp} = -.26$ , 95%CI [-.43, -.11]). These results suggest that dominance explains unique variance via zero-sum thinking on helping behavior in comparison to directive leadership as well as prestige and participative leadership. Overall, Hypothesis 3 was supported.

## **Discussion**

Study S2 conceptually replicated the findings from Study 2 by demonstrating the role of dominance in reducing interpersonal helping via zero-sum mindset beyond directive and participative leadership styles. Specifically, although directive leadership has been shown to affect employee helping behavior based on motivational accounts, such as lack of support or

autonomy (Euwema et al., 2007; Martin et al., 2012; Tremblay et al., 2019), we find that only leaders associated with dominance decrease helping behavior via a zero-sum mindset.

### STUDY S3

The aim of this study was to demonstrate the effect of a dominant leadership style on individual's helping behavior in a controlled laboratory environment to increase our confidence on the causal role of leader dominance. Thus, to test our hypotheses and replicate our findings from previous studies, we invited participants to the behavioral lab of a European school in batches of six to eight.

#### Method

*Sample.* We recruited a representative sample of people living in a major European city. 232 participants signed up for the study, nine participants were excluded for incomplete submission or for not adhering to the experimental protocol. Of the remaining 223 participants, 109 were randomly assigned to the dominance condition and 114 to the prestige condition ( $M_{Age} = 32.70y$ ,  $SD = 13.06$ , 71.75% females). This sample size allowed us to detect an effect size of  $d = .38$  with 80% statistical power. 54.05% of the participants were currently employed in a full-time or part-time job, 10.81% were self-employed, 2.7% were retired, 2.25% were homemakers and 30.18% were currently unemployed, a majority of which were full-time students. The average work experience of participants in our data was 1.23 years.

*Design and Procedure.* After reaching the lab, participants signed a consent form and proceeded to individual terminals. In a between-subjects design they were randomly assigned to either a dominance or prestige condition. Participants learned that they will be taking part in a group study with other participants in the lab and will be connected to each other via the institution's internal computer network. To hide the true purpose of the study and to increase believability, we mentioned that the group study will involve four group members and a leader, and each participant will first take a standard leadership inventory questionnaire allowing the

researchers to learn about their leadership style. Hence, participants first responded to a short 10-item version of the dominance-prestige scale used in Study 2 ( $\alpha_{\text{Self\_Dominance}} = .84$ ,  $\alpha_{\text{Self\_Prestige}} = .84$ ). We administered self-rating of dominance and prestige scales to increase the credibility of our manipulation delivered later in the study for another ostensible participant who was selected as the leader and described either in dominance or prestige terms. Once their self-ratings were submitted, participants were told to wait for a few seconds as others were still working on the questionnaire and their scores were not yet tabulated. Then participants saw a small graphic where their terminal was connected to four other participants in the lab. All this was done to increase the credibility of the study. Once participants were ostensibly connected to each other, they learned another individual (Participant 102) had been selected as a leader and he/she will be working with four other participants (including them) as group members. Following this, participants learned about the group leader's leadership style based on his/her response to the leadership questionnaire. At this juncture, we introduced our manipulation of dominance and prestige to participants. Depending on their random assignment participants read that their leader's style was either based on dominance or prestige. Specifically, participants in the prestige condition read:

Participant 102 would be willing to share his/her thoughts and knowledge with other group members. Such leaders encourage others to discuss problems in detail and are ready to offer their advice without any hesitation. When making any group decision, Participant 102 would also consider input from other group members. It is extremely important for such leaders that as a group they are successful and known for their accomplishment. As a result, Participant 102 would be generally, respected, admired and held in high esteem by others.

Those in the dominance condition read:

Participant 102 would be assertive and direct in conveying his/her opinions and thoughts with other group members. Such leaders are known to take initiative and seize every opportunity to take control of the situation. When making any group decision, Participant

102 would rely on his/her own knowledge and would rarely seek other group member's opinion. It is extremely important for such leaders to be individually successful and known for their own accomplishments. As a result, Participant 102 would be perceived as a dominant, assertive leader who likes to take control of other group members.

After going through the leader's description, participants learned about the group task. They had to transcribe images of text passages by typing the sentences in the textbox provided below each image. Participants saw one such image with six lines of text that they had to transcribe. After transcribing the text, they learned their task was finished but other members in their group have asked for their help. Participants then had to volunteer how many such images of passages they would be willing to transcribe for those needing help. They could choose any number between 0 and 10; this was our key measure of helping. Following this, participants responded to the same eight-item measure of zero-sum mindset as Study 2 ( $\alpha=.86$ ), same 17-item measure of leader's dominance and prestige judgment used in Study 2 as a manipulation check ( $\alpha_{\text{Dominance}} = .98$ ,  $\alpha_{\text{Prestige}} = .92$ ) and their demographics.

## Results

**Manipulation check.** A one-way ANOVA on dominance rating as the dependent variable and manipulation as the independent variable was significant,  $F(1, 221) = 1230.11$ ,  $p < .001$ ,  $d = 4.70$ , such that participants reported the group leader to be more dominant in the dominance condition ( $M = 6.18$ ,  $SD = .85$ ) than in the prestige condition ( $M = 1.90$ ,  $SD = .97$ ). Contrarily, there was also a significant main effect on the prestige ratings,  $F(1, 221) = 171.25$ ,  $p < .001$ ,  $d = 1.75$ , such that the leader was perceived as high on prestige in the prestige condition ( $M = 5.60$ ,  $SD = 1.01$ ) than in the dominance condition ( $M = 3.78$ ,  $SD = 1.07$ ). Thus, our manipulation was successful in communicating leader's tendency to behave in a dominant or prestigious manner.

**Main effect of leader dominance.** In support of Hypothesis 1, one-way ANOVA revealed a significant main effect of our manipulation on participants zero-sum mindset,  $F(1, 221) = 15.11, p < .001, d = .52$ , such that they reported higher zero-sum mindset in the dominance condition ( $M = 4.30, SD = 1.11$ ) than in the prestige condition ( $M = 3.72, SD = 1.12$ ). However, the main effect of our manipulation on individual's helping behavior was only marginally significant,  $F(1, 221) = 3.00, p = .085, d = .23$ , with participants volunteering a smaller number of passages to transcribe in the dominance than in the prestige condition ( $M_{Dominance} = 2.31, SD_{Dominance} = 2.30, M_{Prestige} = 2.96, SD_{Prestige} = 3.16$ ). In short, Hypothesis 2 was not fully supported in this study.

**Mediation analysis.** We next performed a mediation analysis as presence of significant direct effect on the dependent variable is not a necessary condition to achieve a meaningful indirect effect (Zhao et al., 2010). We coded dominance as 1 and prestige as 0. We also controlled for participants' gender, age and their self-report ratings of dominance and prestige while running the mediation analysis. Bootstrap analysis with 5000 replications resulted in a significant negative indirect effect of dominance in comparison to prestige on helping behavior via zeros-um mindset, ( $b = -.28, z = 2.06, p = .037, 95\%CI [-.63, -.07]$ ). Thus, Hypothesis 3 was supported.

## **Discussion**

In a laboratory environment, Study S3 further demonstrated that leader dominance could lower individuals' tendency to help via an increase in their zero-sum mindset. At the same time, the indirect effect remained significant even after accounting participant's self-rating of dominance and prestige, suggesting that this behavior is not driven by individual's own influence displays. However, we did not find a significant main effect of leader's dominance on

individuals' tendency to help. This limitation might be a result of requiring a much larger sample size to achieve adequate statistical power for the dependent variable. A post-hoc power analysis on helping behavior revealed statistical power to be 41% compared to 97% for the zero-sum mindset. Hence, insufficient sample size could be the primary contributor for failing to reach statistical significance.



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**Table S1: Results of Multilevel Regression for Zero-Sum Mindset and Helping in Study 1 after including cultural indicators**

	ZERO-SUM MINDSET		HELPING		
	<i>Model 1</i>	<i>Model 2</i>	<i>Model 3</i>	<i>Model 4</i>	<i>Model 5</i>
Dominant Leader <sup>a</sup>		.310*		-.644***	-.651***
		(.120)		(.108)	(.105)
Zero-Sum Mindset					-.023***
					(.003)
Income Level	-.033***	-.034***	-.021***	-.021***	-.021***
	(.006)	(.006)	(.004)	(.004)	(.004)
Gender <sup>b</sup>	-.100***	-.101***	.106***	.106***	.104***
	(.025)	(.025)	(.014)	(.014)	(.014)
Age	-.006***	-.006***	.002***	.002***	.002***
	(.001)	(.001)	(.000)	(.000)	(.000)
Political Conservatism	-.065***	-.066***	-.006	-.006	-.008*
	(.006)	(.006)	(.003)	(.003)	(.003)
Social Class <sup>c</sup>	.108***	.108***	-.071***	-.071***	-.068***
	(.014)	(.014)	(.009)	(.009)	(.009)
Unemployment	-.016*	-.018*	.030**	.052***	.052***
	(.008)	(.008)	(.012)	(.008)	(.008)
Power Distance	.018	.019	.014*	.008*	.009*
	(.011)	(.012)	(.006)	(.004)	(.004)
Individualism	.015	.019*	.010*	.002	.003
	(.008)	(.009)	(.005)	(.003)	(.003)
Masculinity	.001	-.001	-.010***	-.008***	-.008***
	(.006)	(.006)	(.003)	(.002)	(.002)
Uncertainty Avoidance	-.007	-.004	.002	-.004*	-.004*
	(.006)	(.006)	(.003)	(.002)	(.002)
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes
Constant	4.081***	3.728***	3.372***	4.194***	4.275***
	(.988)	(1.057)	(.591)	(.394)	(.385)
<i>AIC</i>	202612.6	202608.2	66770.6	66751.4	66690.2
<i>BIC</i>	202786.1	202790.3	66891.0	66879.8	66826.6
Log Likelihood	-101286.3	-101283.1	-33370.3	-33359.7	-33328.1
<i>N (Level 1)</i>	43,127	43,127	22,534	22,534	22,534
<i>N (Level 2)</i>	27	27	22	22	22
<i>ICC</i>	.034	.038	.046	.017	.016

Note. Standard errors in parentheses; \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ ; <sup>a</sup> Categorical variable: 1= Dominant; 0 = Otherwise; <sup>b</sup> Categorical variable: 1= Male; 2 = Female; <sup>c</sup> Increasing value imply lower social class

**Table S2: Descriptive Statistics by leader gender and conditions in Study 2**

	Male Leader			Female Leader		
	Dominance (n = 103)	Prestige (n = 97)	Control (n = 96)	Dominance (n = 102)	Prestige (n = 100)	Control (n = 96)
Zero-sum Mindset	4.69 (1.34)	4.10 (1.25)	3.77 (1.16)	4.67 (1.08)	4.01 (1.28)	3.39 (1.10)
Person-focused Helping	4.73 (1.77)	5.17 (1.31)	5.29 (1.05)	4.45 (1.72)	5.48 (1.11)	5.74 (.79)
Task-focused Helping	4.50 (1.74)	4.89 (1.24)	5.07 (1.07)	4.22 (1.56)	5.14 (1.17)	5.39 (.87)

Note. Parentheses denote standard deviations

**Table S3: Results of Logit Regression on the binary choice to help in Study 3**

	<b>CHOOSING TO HELP</b>				
	<i>Model 1</i>	<i>Model 2</i>	<i>Model 3</i>	<i>Model 4</i>	<i>Model 5</i>
Leader Condition <sup>a</sup>	-.542** (.206)	-.579** (.212)		-.526* (.208)	-.568** (.213)
Zero-sum Mindset		.057 (.071)			.065 (.074)
Women <sup>b</sup>			.214 (.205)	.196 (.207)	.214 (.209)
Age			.038* (.018)	.037* (.018)	.037* (.018)
Work Experience			-.034† (.018)	-.034† (.019)	-.032† (.019)
Constant	.807*** (.153)	.609* (.288)	-.467 (.456)	-.164 (.476)	-.416 (.555)
<i>N</i>	413	413	413	413	413
<i>AIC</i>	542.6	543.9	547.3	542.8	544.0
<i>BIC</i>	550.6	556.0	563.4	562.9	568.1
Log Likelihood	-269.3	-269.0	-269.6	-266.4	-266.0

*Note.* <sup>a</sup> Leader condition: 1 = Dominance, 0 = Prestige; <sup>b</sup> Gender categorical variable with men as the base case, women category also includes non-binary as there was only participant in this category and not enough variance on the dv to justify as a separate covariate; Standard errors in parentheses; † $p < .10$ , \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

**Table S4: One-way ANOVA and comparison of means across conditions in Study S1**

	<b>Variables</b>	<b>F-statistic</b>	<b><math>\eta^2</math></b>	<b>Dominance (D)<sup>a</sup></b>	<b>Prestige (P)<sup>a</sup></b>	<b>Control (C)<sup>a</sup></b>	<b>D-P<sup>b</sup></b>	<b>D-C<sup>b</sup></b>	<b>P-C<sup>b</sup></b>
1	Zero-sum Mindset	F(2,587) = 10.14***	.03	4.14 (1.24)	3.73 (1.48)	3.52 (1.46)	.41**(30)	.62***(.46)	.21
2	Person-focused Helping	F(2,587) = 28.47***	.09	5.01 (1.52)	5.87 (.88)	5.69 (1.08)	-.86***(.69)	-.68***(.51)	.18
3	Task-focused helping	F(2,587) = 42.18***	.13	4.80 (1.52)	5.84 (.80)	5.60 (1.10)	-1.04***(.85)	-.8***(.60)	.24*(.25)
4	Autonomy	F(2,587) = 147.49***	.34	3.23 (1.49)	5.39 (1.08)	4.89 (1.31)	-2.16***(1.65)	-1.66***(1.18)	.5***(.42)
5	In-role perceptions	F(2,587) = 44.99***	.13	4.23 (1.36)	5.24 (1.03)	5.09 (1.01)	-1.01***(.83)	-.86***(.72)	.15
6	Dominance	F(2,587) = 207.49***	.41	6.03 (1.03)	3.39 (1.59)	3.69 (1.57)	2.64***(1.99)	2.34***(1.77)	-.30
7	Prestige	F(2,587) = 112.90***	.28	4.77 (1.24)	6.19 (.71)	5.82 (.90)	-1.42***(1.39)	-1.05***(.97)	.37***(.46)

*Note.* Total  $N = 590$ ,  $N$  (Dominance) = 204,  $N$  (Prestige) = 189,  $N$  (Control) = 197; \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ ; <sup>a</sup> Standard deviation in parentheses; <sup>b</sup> Parentheses report Cohen's  $d$  for significant mean differences

**Table S5: One-way ANOVA and comparison of means across conditions for pretest reported in Study S3**

Variables	F-statistic	$\eta^2$	Dominance (Do) <sup>a</sup>	Directive (Di) <sup>a</sup>	Prestige (Pr) <sup>a</sup>	Participative (Pa) <sup>a</sup>	Do-Di <sup>b</sup>	Do-Pr <sup>b</sup>	Do-Pa <sup>b</sup>	Di-Pr <sup>b</sup>	Di-Pa <sup>b</sup>	Pr-Pa <sup>b</sup>
1 Dominance	F(3,222)=134.50 <sup>***</sup>	.65	6.48 (.75)	4.41 (1.67)	2.62 (1.35)	2.22 (1.09)	2.07 <sup>***</sup> (1.6)	3.86 <sup>***</sup> (3.58)	4.26 <sup>***</sup> (4.57)	1.79 <sup>***</sup> (1.17)	2.19 <sup>***</sup> (1.55)	.4 <sup>†</sup> (.33)
2 Directive	F(3,222)=112.97 <sup>***</sup>	.61	6.18 (.92)	6.09 (.97)	4.21 (1.03)	3.29 (1.13)	.09	1.96 <sup>***</sup> (2.02)	2.89 <sup>***</sup> (2.81)	1.88 <sup>***</sup> (1.86)	2.80 <sup>***</sup> (2.64)	.93 <sup>***</sup> (.85)
3 Prestige	F(3,222)=39.65 <sup>***</sup>	.35	4.23 (1.34)	5.63 (1.01)	6.22 (.76)	5.81 (.89)	-1.39 <sup>***</sup> (1.18)	-1.99 <sup>***</sup> (1.81)	-1.58 <sup>***</sup> (1.38)	-.60 <sup>**</sup> (.66)	-.18	.41 <sup>*</sup> (.49)
4 Participative	F(3,222)=73.01 <sup>***</sup>	.50	2.83 (1.79)	4.14 (1.56)	5.75 (.97)	6.26 (.94)	-1.31 <sup>***</sup> (.78)	-2.92 <sup>***</sup> (2.00)	-3.43 <sup>***</sup> (2.34)	-1.61 <sup>***</sup> (1.23)	-2.12 <sup>***</sup> (1.63)	-.51 <sup>†</sup> (.53)

*Note.* Total  $N = 226$ ,  $N$  (Dominance) = 58,  $N$  (Directive) = 59,  $N$  (Prestige) = 53,  $N$  (Participative) = 56; \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ ; <sup>a</sup> Standard deviation in parentheses; <sup>b</sup> Parentheses report Cohen's  $d$  for significant mean differences

**Table S6: Confirmatory Factor Analysis of Alternative Models reported in Footnote 1**

Model	Description	$\chi^2$	df	CFI	TLI	RMSEA	Comparison with Model 1	
							$\Delta\chi^2$	$\Delta df$
Model 1 <sup>a</sup>	6 Factor Measurement Model	2889.44	1312	.94	.94	.063		
Model 2 <sup>b</sup>	4 Factor Model	3709.99	1321	.87	.86	.078	820.55***	9
Model 3 <sup>c</sup>	4 Factor Model	4265.84	1321	.84	.82	.086	1376.4***	9
Model 4 <sup>d</sup>	Two Factor Model	5006.03	1326	.80	.77	.096	2116.59***	14
Model 5 <sup>e</sup>	Single Factor Model	6238.13	1327	.73	.70	.111	3348.69***	15

Note. N = 352. CFI = comparative fit index; TLI = Tucker–Lewis index; RMSEA = Root-mean-square error of approximation.

<sup>a</sup> Six factor measurement model: Dominance, Prestige, Abusive Leadership, Ethical Leadership, Directive Leadership, Empowering Leadership

<sup>b</sup> Dominance and Directive Leadership as one factor, Prestige and Empowering Leadership as one factor, Abusive Leadership, Ethical Leadership

<sup>c</sup> Dominance and Abusive Leadership as one factor, Prestige and Ethical Leadership as one factor, Directive Leadership, Empowering Leadership

<sup>d</sup> Dominance, Abusive Leadership and Directive Leadership as one factor, Prestige, Ethical Leadership and Empowering Leadership as another factor

<sup>e</sup> All measures combined into one factor

\*p < .05, \*\*p < .01, \*\*\*p < .001