

My Leader is Gritty – Me too?

Track: *Human Resource Management*

Abstract

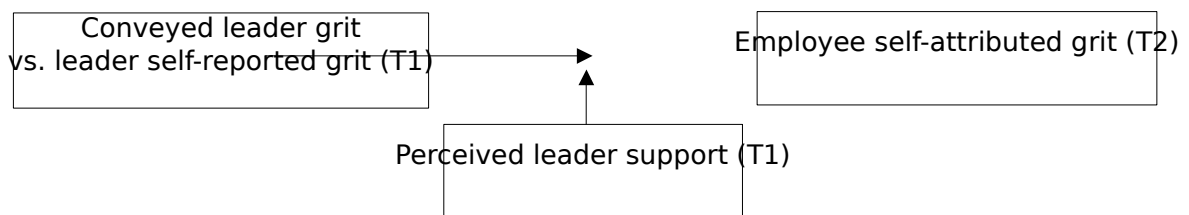
Grit has been extolled as being crucial for individual’s success. However, empirical research regarding grit at work is scarce. This research (a vignette-based experiment conducted in Portugal and Brazil; a two-wave multi-source field study in Portugal) suggests that grit in employees may be developed by leaders who convey a high level of grit *and* provide social support to employees. We also suggest that conveyed leader grit and leader self-attributed grit are conceptually different, and that it is the former that matters most for the influence of leaders on employees.

Keywords: conveyed leader grit; self-attributed grit; perceived leader support

Introduction

Grit, defined as “perseverance and passion for long-term goals” (Duckworth, Peterson, Matthews, & Kelly, 2007, p. 1087) has been considered a crucial ingredient for success and psychological well-being (e.g., Von Duckworth, 2016; Duckworth & Gross, 2014; Duckworth et al., 2007; Von Culin et al., 2014). Studies at the workplace are however scarce. In this paper, we defend the need to conceptually differentiate *conveyed* grit and *self-attributed* grit, and show empirically that a leader who conveys a high level of grit toward employees develops their self-attributed grit. By approaching leadership as a relational phenomenon (Uhl-Bien, 2006), we theorize that conveyed leader grit may be transferred to employees through social learning (Bandura, 1977) and social contagion (Chartrand & Lakin, 2013). We also consider that the effect of conveyed leader grit on employees’ self-attributed grit is stronger when the leader is supportive (hypothesized model on Figure 1): employee perceptions of high leader support reinforce the contagion and social learning processes that convert conveyed leader grit into employee self-attributed grit. Thus, we argue that the agentic orientation expressed by employees’ grit (Kwon, 2017) is encouraged by leaders who convey a paradoxical combination of “agency” and “communion” (Abele & Wojciszke, 2007).

Figure 1. Hypothesized model



We do so via (a) a vignette-based experiment conducted in Brazil and Portugal, and (b) a two-wave multi-source field study carried out in Portugal. By including data from two contexts, our research helps to deal with the dearth of

research on the cross-cultural effects of grit and makes some important contributions. First, we enrich the literature on employees' grit by studying its antecedents and boundary conditions. Second, we show that self-attributed grit and conveyed grit are different constructs, and that the latter matters the most. A post-hoc analysis also shows that the interplay between leader self-attributed grit and conveyed leader grit matters for the employee's self-attributed grit development. In this way our study also contributes to the discussion on the nature of self- vs. other-reports of leadership traits and behaviors (i.e., self-other agreement; Lee & Carpenter, 2018).

Theory and Hypotheses

Conveyed Grit and Self-Attributed Grit

Grit is a higher-order, non-cognitive individual characteristic including two components (Duckworth et al., 2007): consistency of interests and perseverance. Even though grit shares similarities with conscientiousness, resilience, need for achievement, and self-control, it constitutes a distinct construct (Duckworth & Gross, 2014; Duckworth & Quinn, 2009; Duckworth et al., 2007). Gritty individuals are diligent and proactive in the pursuit of long-term goals and persevere in the face of obstacles and failures. They invest more efforts in their work and persist even when facing tedious and frustrating behaviors as long as these behaviors are perceived as relevant to long-term goals. It is thus not surprising that grit has been extolled as crucial for success in several life domains (Credé, Tynan, & Harms, 2017; Duckworth, 2016; Duckworth et al., 2007; Duckworth, Quinn, & Seligman, 2009; Mueller, Wolfe & Syed, 2017). To understand how leaders may foster employees' grit, it is however necessary to distinguish between self-attributed grit and conveyed grit.

At the least, three interrelated reasons support the distinction between these two facets of grit. First, leaders adopt impression management tactics to deal with different aspects of their jobs (Bolino, Long, & Turnley, 2016). For example, to inspire the team during tough times, a leader may express a passion for a long-term goal that he/she does not actually espouse. Conversely, a leader motivated by a persevering pursuit of a long-term goal may hide such tenacity from employees because he/she anticipates that the changes necessary to pursue such a goal may trigger resistance. Second, leaders often operate within strong situations (Meyer, Dalal, & Hermida, 2010) that put psychological pressure on the leader to engage in, or refrain from, particular courses of action. Situational strength may invite the leader to *convey* a level of grit that does not fully reflect his/her self-attributed grit. Third, consistent with research on differentiated leadership (Wu, Tsui, & Kinicki, 2010; Zhang, Li, & Ullrich, 2015), a leader may express varying levels of grit to different employees. Moreover, considering that each employee has unique perceptual biases, attentional processes and epistemic motivations (Van Kleef et al., 2009), each employee develops unique perceptions and interpretations of the behavioral manifestations of the leader's grit. Therefore, the same leader behavior may be perceived differently by different employees.

Self-attributed grit and conveyed grit may thus be considered to be conceptually distinct. Considering the relational nature of leadership (Uhl-Bien, 2006), the extent to which the leader conveys his/her grit to employees matters more than self-attributed grit. The behavioral manifestations of the leader's grit reflect only partially what he/she feels, believes, thinks, and experiences (i.e., the grit that he/she attributes to him/herself). From the perspective of social learning theory (Bandura, 1977) and considering social contagion effects (Chartrand & Lakin, 2013), conveyed leader grit matters more for how the employee reacts to the leader than the leader self-attributed grit does (Rego et al., 2017a). We test such a hypothesis by studying how conveyed leader grit (versus leader self-attributed grit) predicts employee self-attributed grit.

Conveyed Leader Grit Predicting Employee Self-Attributed Grit

The notion of grit as malleable and developable has been advanced by several researchers (Duckworth & Gross, 2004; Hill, Burrow, & Bronk, 2016; Mueller et al, 2017). Considering that one "person's grit enhances the grit of others" (Duckworth, 2016, p. 263), and that the "message" an employee receives is more important than the "message" the leader aims to deliver (Duckworth, 2016), it is likely that conveyed leader grit predicts employee self-attributed grit. Two main processes explain this influence: social learning and social contagion.

The social contagion literature (Aarts, Gollwitzer, & Hassin, 2004; Chartrand & Lakin, 2013) suggests that employees display behaviors, attitudes, emotions and beliefs that are similar to those observed in their leaders. It is possible that, over time, employees develop the array of behaviors, attitudes, emotions, and beliefs that characterize and are associated with the grit conveyed by their leaders. Considering that persevering *goal*-directed activities are at the core of grit, one important facet of social contagion is goal contagion. Literature on goal contagion (Aarts et al., 2004; Dik & Aarts, 2007) indicates that behavior implies information, and that people may automatically infer, adopt, and pursue goals perceived in others' behaviors. One possible reason is that "grasping the goals of others aids the pursuit of one's own needs, desires and goals" (Dik & Aarts, 2007, p. 727). This is especially relevant for employees, who depend significantly on their leader to satisfy needs, desires, and goals.

Social learning theory also suggests that employees' behaviors, beliefs, and attitudes are learned from the environment via the process of vicarious learning (Bandura, 1977). Considering that grit may be grounded in self-efficacy beliefs (Duckworth et al., 2007), these beliefs are conveyed to, or caught by, their employees; therefore employees develop their own grit via role modeling. Therefore, employees led by someone who persists in tasks that are tedious or frustrating, and who perseveres toward long-term goals in spite of failures, difficulties, and setbacks (Duckworth et al., 2007; Duckworth, Kirby, Tsukayama, Berstein, & Ericsson, 2011) also learn to develop perseverance toward their own self-generated long-term goals. Hence:

Hypothesis 1. Conveyed leader grit is positively associated with employee self-attributed grit.

Hypothesis 2. Conveyed leader grit, rather than leader self-attributed grit, is a better predictor of employee self-attributed grit.

Perceived Leader Support as a Moderator

We posit that the relationship between conveyed leader grit and employee self-attributed grit is stronger when perceived leader support is high. An employee who perceives his/her leader as supportive develops better leader-member exchanges and experiences more opportunities for social contact with the leader, which increases the likelihood of social contagion and social learning. It is thus theoretically plausible that a leader who conveys grit is more likely to act as a role model and affect the employee (thus fostering the employee self-attributed grit) if that leader is perceived as more supportive. Duckworth (2016) has also suggested that individual grit is strengthened by both demanding and supportive relationships with authority figures. It would be reasonable to expect that a leader who is perceived as gritty *and* supportive is more likely to boost employee self-attributed grit than a leader who is only gritty. Since the time-scale for a gritty employee's goal pursuit is long, the employee needs a sense of support from his/her leader and to feel that there are (material, emotional, informational, relational) resources available in pursuit of that goal (Vainio & Daukantaite, 2016). High perceived leader support may convince employees that enough resources are available to pursue long-term goals, while low perceived leader support will perhaps create doubts. In some instances of low perceived leader support, the employee may even consider the challenging and demanding behaviors of a gritty leader as a threat rather than an opportunity (Niessen, Mäder, Stride, & Jimmieson, 2017), with negative consequences for employee self-attributed grit. Hence:

Hypothesis 3. Perceived leader support moderates the relationship between conveyed leader grit and employee self-attributed grit, the relationship being stronger when perceived leader support is high

Research Overview

Study 1 is a vignette-based experiment (Van Kleef, De Dreu, & Manstead, 2004) designed to establish causal inferences and examine the effects of conveyed leader grit on employee self-attributed grit (H1) and the moderating effect of perceived leader support on this relationship (H3). Aguinis and Bradley (2014, p. 352) explained that such a methodology “enhances experimental realism and also allows researchers to manipulate and control independent variables, thereby simultaneously enhancing both internal and external validity.” To reinforce the cross-cultural validity, the study was conducted in Portugal and Brazil. Study 2 is a multisource two-wave field study carried out in Portugal, testing the three hypotheses. In T1,

employees reported the conveyed leader grit and the perceived leader support, and the leaders self-reported their own grit. In T2, two-three weeks later, employees reported their own grit.

Study 1 Methods

Participants and Procedures

A total of 900 Portuguese employees, and a total of 800 Brazilian employees, from two authors' professional networks, were contacted by email. The participants were asked to complete an online survey. A total of 177 Portuguese participants (51.4% male; $M_{\text{age}} = 39.14$, $SD: 10.19$; $M_{\text{work-experience}} = 15.38$ years, $SD: 9.99$) and 103 Brazilian participants (45.6% male; $M_{\text{age}} = 33.54$, $SD: 9.70$; $M_{\text{work-experience}} = 12.21$ years, $SD: 8.82$) completed the study. In terms of schooling, 33.9% (38.8%) of Portuguese (Brazilian) participants had an undergraduate degree (4.0% of Portuguese participants did not have; 1.9% of Brazilians), and 62.2% (59.2%) had a master's degree or higher. The participants from both samples performed a wide range of jobs (e.g., salesperson, bank clerk, social worker, financial consultant, marketing consultant, HR technician, IT technician, and administrative clerk).

Manipulations

A 3x2 design was adopted: three conditions of conveyed leader grit (low grit, control condition, high grit) and two conditions of leader support (low and high). Participants were asked to read a vignette carefully and imagine themselves working with the described fictitious leader (name: Miguel). Participants were randomly ascribed to one of six scenarios (the six vignettes available upon request): LCG-LSS (low conveyed grit-low social support), LCG-HSS (low conveyed grit-high social support), control-LSS, control-HSS, HCG-LSS, and HCG-HSS.

To manipulate conveyed leader grit, we described the leader with items adapted from Duckworth and Quinn (2009). For example, in the high conveyed grit condition, we told participants that “whenever the leader sets goals, he keeps focused and doesn't lose interest in pursuing them” (consistency of interest) and “setbacks and obstacles do not discourage him” (perseverance of effort). In the low conveyed leader grit condition, we told participants that “the leader often sets a goal, but later chooses to pursue a different one or loses interest in pursuing it”, and “setbacks and obstacles often discourage him”. We used transactional leadership in the control condition, because transactional leadership is neutral in terms of grit (Rego et al., 2017a, 2017b).

To manipulate leader social support, we described the leader using items adapted from Tsui, Pearce, Porter, and Tripoli (1997). In the high leader support condition, we told participants that the leader is “approachable and friendly”, and that he “listens to the subordinates' problems and is considerate of their feelings”. In the low leader support condition, we

told participants that the leader is “rather distant, unapproachable, and unfriendly”, and that “he doesn’t listen to the subordinates’ problems nor is he considerate of their feelings”.

Measures and manipulations checks

Disabato, Goodman, and Kashdan (2018) recommended that researchers should consider the Short Grit Scale (Grit-S; Duckworth & Quinn, 2009) to obtain more reliable scores for *overall* grit. Therefore, following the manipulations, individuals completed the Grit-S for measuring their self-attributed grit ($\alpha = .84$ and $.82$, for the Portuguese and the Brazilian participants, respectively). The eight items of Grit-S were translated and back-translated (a 7-point scale, from 1: *not at all like me*, to 7: *very much like me*, was used). We asked participants to imagine how they would feel and behave if they were to work for the described leader. Sample items are (1) “If Miguel were my leader, I would finish whatever I had begun” (perseverance), and (2) “I often would set a goal but maybe choose to pursue a different one later” (consistency of interests; reverse-coded).

At the end of the study we asked participants about the extent to which they thought Miguel is (1) persevering in pursuing long-term goals (i.e., gritty), and (2) supportive, as manipulation checks. As expected, participants in the high conveyed leader grit condition reported that Miguel has a higher level of grit (Portugal: $M = 6.35$, $SD = .80$; Brazil: $M = 6.19$, $SD = 1.19$) compared to participants in the control condition (Portugal: $M = 5.33$, $SD = 1.48$: $t(113) = 5.50$, $p < .01$; Brazil: $M = 4.48$, $SD = 1.46$: $t(63) = 5.21$, $p < .01$) and the low conveyed leader grit condition (Portugal: $M = 1.66$, $SD = 1.23$: $t(115) = 24.13$, $p < .001$; Brazil: $M = 1.21$, $SD = .41$: $t(72) = 24.31$, $p < .01$). Participants in the high social support condition reported Miguel as more supportive (Portugal: $M = 5.99$, $SD = 1.17$; Brazil: $M = 5.75$, $SD = 1.19$) compared to participants in the low social support condition (Portugal: $M = 1.78$, $SD = .96$: $t(175) = 25.92$, $p < .01$; Brazil: $M = 1.85$, $SD = 1.10$: $t(101) = 17.26$, $p < .01$). These findings suggest that our manipulations were successful.

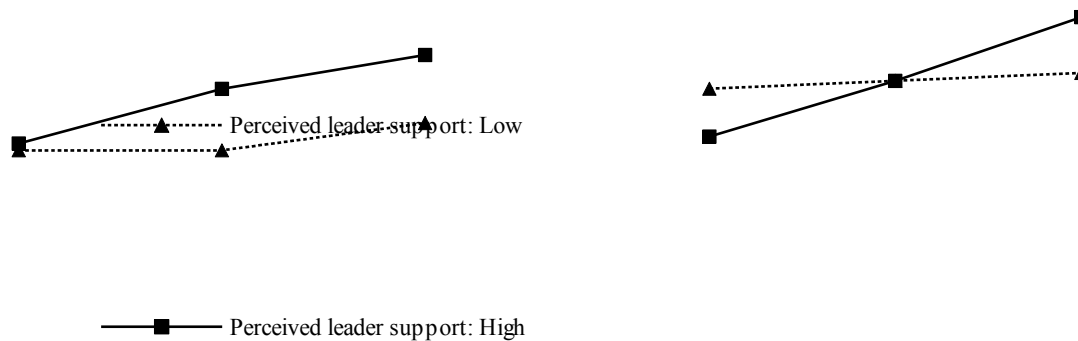
Study 1 Findings

Participants in the high conveyed leader grit condition report higher self-attributed grit (Portugal: $M = 5.66$, $SD = .86$; Brazil: $M = 5.38$, $SD = .90$) compared to participants in the low conveyed leader grit condition (Portugal: $M = 4.72$, $SD = 1.01$, $t(115) = 5.42$, $p < .01$; Brazil: $M = 4.51$, $SD = 1.04$, $t(72) = 3.87$, $p < .01$) and participants in the control condition (Portugal: $M = 5.15$, $SD = .97$, $t(113) = 3.01$, $p < .01$; Brazil: $M = 4.94$, $SD = .81$, $t(63) = 2.08$, $p < .05$). This result supports H1. H3 predicted an interactive effect of conveyed leader grit and leader social support on employee self-attributed grit. Results suggest that the interaction term (PROCESS macro, model #1; Hayes, 2013) is significant (Portugal: $B = .43$; SE: $.17$; $p < .05$; LLCI: $.10$, ULCI: $.76$; Brazil: $B = .64$; SE: $.21$; $p < .01$; LLCI: $.22$, ULCI: 1.05) and significantly predicts

more variance compared to a base model without the interaction term ($R^2 = .26$; $\Delta R^2 = .03$, $p < .05$; Brazil: $R^2 = .22$; $\Delta R^2 = .07$, $p < .01$).

Simple slopes analysis (Figures 2a and 2b) further confirms that the effect of conveyed leader grit on employee self-attributed grit is significantly higher when leader social support is high (Portugal: $t = 5.44$, $p < .01$; Brazil: $t = 5.13$, $p < .01$) versus low (Portugal: $t = 1.48$, $p = .14$; Brazil: $t = .79$, $p = .43$). When leader social support is high, participants in the high conveyed leader grit condition reported higher levels of self-attributed grit (Portugal: $M = 6.10$, $SD = .62$; Brazil: $M = 5.72$, $SD = .81$) compared to participants in the low conveyed leader grit condition (Portugal: $M = 4.76$, $SD = .83$, $t(61) = 6.66$, $p < .01$; Brazil: $M = 3.22$, $SD = .78$, $t(35) = 5.73$, $p < .01$) and participants in the control condition (Portugal: $M = 5.56$, $SD = .80$, $t(64) = 2.50$, $p < .05$; Brazil: $M = 4.93$, $SD = .64$, $t(28) = 2.77$, $p < .01$). When leader social support is low, participants in the high conveyed leader grit condition did not report significantly higher levels of self-attributed grit (Portugal: $M = 5.08$, $SD = .92$; Brazil: $M = 5.00$, $SD = .85$) compared to participants in the low conveyed leader grit condition (Portugal: $M = 4.68$, $SD = 1.15$, $t(52) = 1.32$, $p = .19$; Brazil: $M = 4.77$, $SD = 1.18$, $t(35) = .67$, $p = .51$), nor compared to participants in the control condition (Portugal: $M = 4.71$, $SD = .94$, $t(47) = 1.36$, $p = .18$; Brazil: $M = 4.94$, $SD = .92$, $t(33) = .21$, $p = .84$). In summary: conveyed leader grit predicts employee self-attributed grit when perceived leader social support is high but not when perceived leader social support is low. The results support H3.

Figure 2a (Portugal, left) and 2b (Brazil). How conveyed leader grit interacts with perceived leader support in predicting employee grit – Study 1



Study 1 Discussion

Study 1 suggests that conveyed leader grit promotes employee self-attributed grit when leader social support is high, but not when it is low. This finding (consistent across both samples) suggests that perceived leader support facilitates the social learning and social contagion processes that make leaders who convey high grit more able to develop employees' self-attributed grit.

A small difference between the Portuguese and the Brazilian samples was found for participants in the low conveyed leader grit condition (Figure 2a versus Figure 2b): while in the Portuguese sample, self-attributed grit of participants in the low (4.7) versus those in the high (4.8) leader social support condition does not differ significantly, in the Brazilian sample, participants in the low versus the high leader social support condition report higher self-attributed grit (4.8 vs. 4.2, $p < .10$). A possible explanation lies in the cultural differences: while Portugal is a feminine culture, Brazil is moderately masculine (Hofstede, Hostede, & Zinkov, 2010; Hofstede, 2018a, 2018b).

A limitation of Study 1 is its modest external validity. Thus, we conducted a field study in real settings benefitting from external validity. As does Study 1, Study 2 tests the conditional effect of conveyed leader grit on employee self-attributed grit (H1 and H3). Study 2 differs from Study 1 in that the former also tests if conveyed leader grit versus leader self-attributed grit is a better predictor of employee self-attributed grit (H2).

Study 2 Methods

Sample and Procedures

A total of 200 employees (from 89 organizations operating in several sectors) from the authors' professional networks were invited to participate. Whenever the employee accepted the invitation, we also invited his/her leader to participate. From this process, 168 dyads emerged (each leader described a single employee). In T1 the employee reported the conveyed grit of his/her leader and the perceived leader support. The employee also reported his/her own sense of meaningful work (for control; see below). The leader self-reported his/her own grit. In T2 the employee reported own grit. A total of 156 supervisor-employee dyads participated in the two moments. Employees (53.8% female; $M_{\text{age}} = 31.19$, $SD: 7.71$; $M_{\text{job-tenure}} = 6.69$ years, $SD: 7.72$; $M_{\text{length of supervisor-employee working relationship}} = 4.04$, $SD: 4.68$; 31.4% with less than an undergraduate degree, 51.9% with an undergraduate degree, 16.7% with a master degree or higher) performed a wide range of jobs (e.g., accountant, financial controller, IT technician, receptionist, administrative officer, HR expert, food safety technician). Leaders (52.6% female; $M_{\text{age}} = 39.96$, $SD: 8.84$; $M_{\text{job-tenure}} = 12.26$, $SD: 9.22$; 19.9% with less than an undergraduate degree, 46.8% with an undergraduate degree, 33.3% with a master degree or higher) performed diverse supervising roles (e.g., sales manager, product manager, financial director, store manager, marketing manager, IT manager).

Measures

For all measures, a six-point scale was used (from 1: “this statement does not apply to me/to my supervisor at all” to 6: “... applies to me/to my supervisor completely”).

Grit. The Grit-S (Duckworth & Quinn, 2009), after translation and back-translation, was used to measure leader grit (conveyed leader grit: $\alpha = .83$; leader self-attributed grit: $\alpha = .76$; employee self-attributed grit: $\alpha = .75$). Items were adapted for the other-reported (i.e., conveyed) version (e.g., “I have been obsessed with a certain idea or project for a short time but later lost interest” [self-attributed] \square “My supervisor has been obsessed with a certain idea or project for a short time but later lost interest” [conveyed]).

Perceived leader support. Seven items (Tsui et al., 1997), after translation and back-translation, measured perceived leader support ($\alpha = .91$) on T1. Sample item is “My supervisor seems willing to listen to my problems”.

Control variables. The length of leader-employee working relationship was included for control because it can influence, or reflect, the leader-member exchange process (Uhl-Bien, Riggio, Lowe, & Carsten, 2014) and influence how the employee describes the leader. Employees with short relationship with their leaders are also potentially less accurate in rating the leader behavior (Wu & Parker, 2017). A longer leader-employee working relationship may also create more opportunities for social learning and social contagion. The sense of meaningful work was included because gritty individuals are potentially more energized by the pursuit of meaningful goals (Disabato et al., 2018; Vainio & Daukantaite, 2016). The employee’s sense of meaningful work was measured in T1 by three items ($\alpha = .92$) suggested by Spreitzer (1995). A sample item is “The work I do is meaningful to me”.

Discriminant validity. Confirmatory factor analysis (CFA; maximum likelihood estimation) tested if conveyed leader grit and leader self-attributed grit represent different constructs. For each construct, we first created two first-order factors (i.e., consistency of interest formed with the respective four items; perseverance formed with the respective four items). For each construct, these two first-order factors were then used as indicators of the second-order factor. The emerging two second-order factor model (conveyed leader grit, and leader self-attributed grit, each formed with two first-order factors) fits the data satisfactorily (e.g., RMSEA: .08; GFI: .87; CFI: .93 and IFI: .94). This model fits the data better ($\Delta\chi^2_{(3)} = 637.78$; $p < .01$) than a single second-order factor model (e.g., RMSEA: .22; GFI: .56; CFI: .47 and IFI: .48) that includes two first-order factor models: (1) all items measuring consistency of interest (both self-attributed and conveyed) load on the consistency of interest factor; (2) all items measuring perseverance load on the perseverance factor. This evidence suggests that leader self-attributed grit and conveyed leader grit are different constructs.

Then, CFA tested if the data measuring the sense of meaningful work, perceived leader support, conveyed leader grit, leader self-attributed grit, and employee self-attributed grit, represent different constructs. Three items measuring the sense

of meaningful work, two parcels measuring perceived leader support (Little, Cunningham, Shahar, & Widaman, 2002), two indicators/factors loading on conveyed leader grit, two indicators/factors loading on leader self-attributed grit, and two indicators/factors loading on employee self-attributed grit were considered. The five-factor model fits the data satisfactorily (e.g., RMSEA: .07; GFI: .94; CFI and IFI: .97) and significantly better than the following models: (1) perceived leader support and conveyed leader grit are merged into a single factor ($\Delta\chi^2_{(4)} = 12.21; p < .05$); (2) conveyed leader grit and leader self-attributed grit are merged ($\Delta\chi^2_{(4)} = 11.28; p < .05$); (3) all indicators of grit (conveyed leader grit, leader self-attributed grit, and employee self-attributed grit) are merged ($\Delta\chi^2_{(7)} = 19.37; p < .01$); and (4) all items/indicators are merged ($\Delta\chi^2_{(10)} = 314.00; p < .01$).

Study 2 Results

Table 1 presents means, standard deviations, and correlations. The sense of meaningful work correlates positively with perceived leader support, conveyed leader grit, and employee self-attributed grit. Perceived leader support correlates positively with conveyed leader grit and employee self-reported grit. Conveyed leader grit correlates modestly ($r = .18, p < .05$) with leader self-attributed grit. Both the conveyed leader grit and leader self-attributed grit correlate with employee self-attributed grit, the correlation involving conveyed leader grit being significantly stronger ($t = 3.16, p < .01$).

Table 1. Means, standard deviations, and correlations – Study 2

	<i>M</i>	<i>SD</i>	1	2	3	4	5
1. Length of leader-employee working relationship (years)	4.04	4.68	-				
2. Sense of meaningful work (T1)	4.14	1.21	.09	-			
3. Perceived leader support (T1)	4.70	1.01	.08	.76*	-		
4. Conveyed leader grit (T1)	4.69	.79	.03	.52**	.62**	-	
5. Leader self-attributed grit (T1)	4.75	.65	.07	.04	.06	.18*	-
6. Employee self-attributed grit (T2)	4.48	.69	.05	.35**	.41**	.50**	.22**

* $p < .05$, ** $p < .01$

To test H1 and H2 (conveyed leader grit vs. leader self-attributed grit in predicting employee self-attributed grit) and H3 (perceived leader support as a moderator), we conducted bias-corrected bootstrap regression analyses (5000 samples; Table 2). In step 1 the control variables entered, in step 2 both the conveyed leader grit and leader self-attributed grit entered, in step 3 the moderator entered, and in step 4 two interaction terms (conveyed leader grit x leader support; leader self-attributed grit x leader support) were included.

The findings (Table 2; step 1 omitted) suggest that both leader self-attributed grit and conveyed leader grit predict employee self-attributed grit, although the predictive value of conveyed leader grit is significantly higher ($\beta = .15, p < .05$).

versus $\beta = .42, p < .01; z = 2.08, p < .05$). When the interaction terms are entered, there is an R^2 change of .03. The interaction between conveyed leader grit and perceived leader social support (but not the interaction between leader self-attributed grit and perceived leader social support) predicts employee self-attributed grit ($B = .14, p < .05$). Thus, perceived leader support reinforces the effect of conveyed leader grit on employee self-attributed grit, thus supporting the hypothesized model.

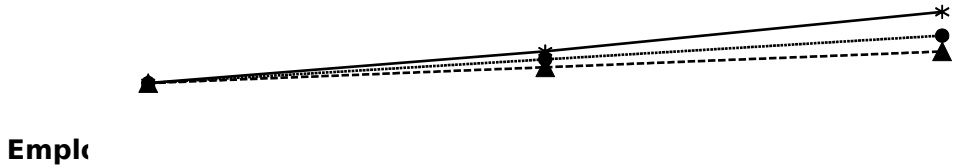
Table 2. Bootstrap regression analysis to predict employee self-attributed grit (T2) – Study 2

	B	SE	Bias corrected 95% CI	B	SE	Bias corrected 95% CI	B	SE	Bias corrected 95% CI
Leader self-attributed grit (T1)	.15	.08	[-.00, .31]	.16	.08	[-.00, .31]	.15*	.07	[.01, .30]
Conveyed leader grit (T1)	.36**	.09	[-.19, .54]	.32**	.10	[-.14, .52]	.37**	.09	[-.20, .57]
Perceived leader support (T1)				.09	.09	[-.11, .26]	.13	.09	[-.06, .30]
Leader self-attributed grit x perceived leader support							.00	.08	[-.13, .17]
Conveyed leader grit x perceived leader support							.14*	.06	[.002, .22]
F	14.81**			12.11**			9.95**		
R ²	.28			.29			.32		
R ² change	.16			.01			.03		

* $p < .05$, ** $p < .01$

For a better understanding of the conditional effect of conveyed leader grit on employee self-attributed grit, we conducted bias-corrected bootstrap analyses (5000 samples) with the PROCESS macro developed by Hayes (2013; model #1). The findings (Figure 3) show that the effect of conveyed leader grit on employee self-attributed grit increases as perceived leader support also increases: (a) low perceived leader support ($B: .24, p < .01; SE: .08; LLCI: .07, ULCI: .40$); (b) middle perceived leader support ($B: .37, p < .01; SE: .08; LLCI: .21, ULCI: .53$); (c) high perceived leader support ($B: .51, p < .01; SE: .10; LLCI: .30, ULCI: .71$). Figure 3 depicts such an empirical pattern.

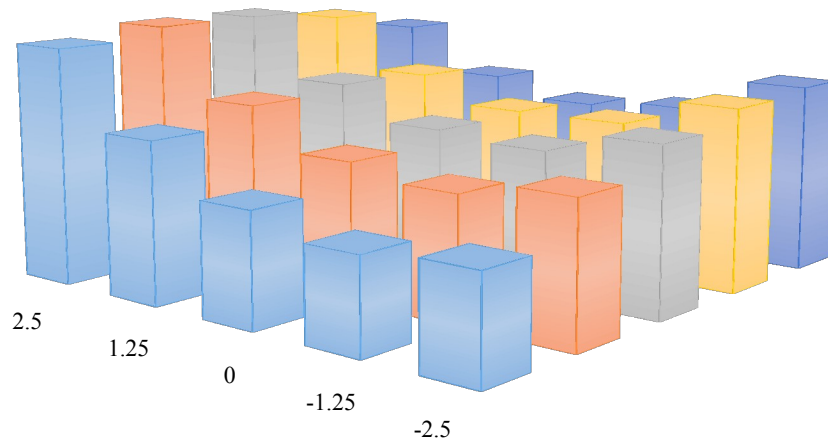
Figure 3. How conveyed leader grit interacts with perceived leader support in predicting employee grit – Study 2



Post-Hoc Examination of Leader Self-Attributed and Conveyed Leader Grit

Considering that both leader self-attributed grit and conveyed leader grit predict employee self-attributed grit and following the literature on self-other agreement of leadership (Lee & Carpenter, 2018), we explored if the (in)congruence between leader self-attributed grit and conveyed leader grit predicts the employee self-attributed grit. We found that 74.0% of leaders have a level of self-attributed grit that is discrepant from the level of conveyed grit (discrepancy computed according to Fleenor, Smither, Atwater, Braddy, & Sturm, 2010), a finding consistent with our view that the two variables are conceptually different. We then used polynomial regression with a response surface analysis (Shanock, Baran, Gentry, Pattison, & Heggstad, 2010) to explore whether a (in)congruence in leader self-attributed vs. conveyed leader grit will affect the employee’s self-attributed grit. The findings (Figure 4) provide some support for our arguments.

Figure 4. Employee self-attributed grit as predicted by the conveyed leader grit and the leader self-reported grit (in)congruence – Study 2



The positive slope ($a1: B = .57, p < .01; SE = .12$) along the line of congruence ($x = y$) indicates that employee self-reported grit increases as both conveyed leader grit and leader self-reported grit increase. The negative slope ($a3: B = -.24, p < .05; SE = .12$) along the line of incongruence ($x = -y$) indicates that employee self-reported grit decreases as conveyed leader grit decreases *and* leader self-reported grit increases. The positive curvature along the line of incongruence ($a4: B = .25, p = .07; SE = .14$) is marginally significant, thus indicating that employee self-attributed grit is higher when conveyed leader grit *or* leader self-attributed grit are high. Overall, the empirical pattern corroborates that employee self-attributed grit increases as conveyed leader grit and/or leader self-reported grit increases, although the former produces a stronger effect. The lowest level of self-attributed grit emerges when both conveyed leader grit and leader self-attributed grit are low.

Study 2 Discussion

Four main findings are worthy of consideration. First, as theorized, conveyed leader grit and leader self-attributed grit are different constructs. More importantly, the interplay between them (see next discussion about the post-hoc analysis) improves our understanding of how employee self-attributed grit develops. Second, our empirical evidence supports the notion advanced by several authors (e.g., Duckworth, 2016; Vainio, & Daukantaite, 2016) that grit is developable: we found that the grit conveyed by leaders enhances the grit of employees. Third, our findings support the notion that more important than what the leader “is” (as reflected in self-attributed grit) is what he/she conveys to employees (Duckworth, 2016; Rego et al., 2017a). This does not mean that leader self-attributed grit is irrelevant for employee self-attributed grit. On the contrary, the interplay between conveyed leader grit and leader self-reported grit must be considered: the highest level of employee self-attributed grit emerges when conveyed leader grit *and/or* leader self-reported grit are high, and the lowest

level of employee self-attributed grit emerges when both conveyed leader grit and leader self-reported grit are low (Figure 4).

Fourth, perceived leader support moderates the relationship between conveyed leader grit and employee self-attributed grit, the relationship being stronger when perceived leader support is high. It is thus possible that perceived leader social support reinforces the social learning and social contagion processes that convert conveyed leader grit into employee self-attributed grit. It should be noted that, consistently with the findings emerging from the Portuguese sample of Study 1, the lowest level of employee self-attributed grit emerges when conveyed leader grit is low, regardless of the level of perceived leader social support. As mentioned above, this pattern is different (a) from the findings in the Brazilian sample of Study 1. A possible explanation is that the Portuguese culture is more feminine than the Brazilian culture.

Overall Discussion

Several findings should be highlighted. First, self-attributed grit and conveyed grit are conceptually distinct. This distinction is especially relevant for studying leadership as a relational phenomenon, because conveyed leader grit probably affects employees more than leader self-attributed grit does. Study 2 supports such an interpretation, although leader self-attributed grit also emerged as a predictor of employee self-attributed grit. Moreover, as suggested by the post-hoc examination of the interplay between leader conveyed leader grit and self-attributed grit, the lowest level of employee self-attributed grit emerges when both leader conveyed leader grit and self-attributed grit are low (Figure 4). These findings corroborate self-other agreement literature that suggests that leaders who agree with their observers at the high (low) level of positive leader qualities are more (less) effective and beget better (worse) individual and organizational outcomes (Fleenor et al., 2010; Lee & Carpenter, 2017). Therefore, we do not want to underestimate the importance of leader self-attributed grit. It is possible that self-attributed grit influences the amount of grit a leader conveys to employees. It is also possible that self-attributed grit influences leader decisions and behaviors with consequences for how employees react to the leader. It is even possible that, regardless of the level of grit that a leader conveys to employees, employees may be affected, even in an automatic and unconscious way, by the *inner* grit of the leader and thus develop their own self-attributed grit.

Second, our findings indicate that employee self-attributed grit is developable and that leaders have an important contribution in this regard. Gritty leaders act as role models and sources of social contagion that ignite the employees' self-attributed grit. Third, our empirical evidence suggests that perceived leader support reinforces the positive effect of conveyed leader grit on employee self-attributed grit. This is consistent with Duckworth (2006), who suggested that individual grit grows because of both demanding *and* supportive relationships with authority figures, such as leaders. It is

possible that a high (low) perceived leader support signals to the employee that material, emotional, informational, and relational resources necessary to pursue long-term goals are available (unavailable) (Vainio & Daukantaite, 2016).

It is important to reiterate that a difference was found between the findings emerging from the two studies: (a) Brazilian employees, but not the Portuguese ones, react in a particularly negative way when the leader conveys *low* grit and is perceived as *highly* supportive; (b) perceived leader social support predicts employee self-attributed grit in the Portuguese samples (although only marginally in Study 2) but not in the Brazilian sample. A possible explanation is that while Portugal is a feminine culture, Brazil is moderately masculine (Hofstede, 2018a, 2018b). Considering that in feminine cultures cooperation and social support are strongly valued (“an effective manager is a supportive one”; Hofstede, 2018a), it is possible that Portuguese employees perceive a supportive leader as consistent with their own implicit theories of leadership (Den Hartog, House, Hanges, Ruiz-Quintanilla, & Dorfman, 1999) and thus respond more favorably in terms of the sense of agency associated with grit. It is also possible that individuals from a feminine culture are more likely to develop a relational self-construal and thus more likely to process social information and to respond positively to relationship-oriented terms (Cross, 2009). Because of the concordance between the leader behavior and the employee relational self-construal, the employee sense of agency increases (Cross, Hardin, & Gercek-Swing, 2011) and has positive consequences for the development of employee self-attributed grit (Wu & Parker, 2017).

In masculine cultures, decisiveness, competitiveness, and assertiveness are emphasized. Individuals are less likely to activate a relational self-construal (and more likely to activate an independent self-construal) and less likely to respond positively to relationship-oriented terms. In such cultures, the leader social support, *per se*, is not enough to promote employees’ self-attributed grit, as the latter depends on how gritty the leader is. The social support of a gritty leader facilitates the social learning and social contagion processes that make gritty leaders more able to develop employee self-attributed grit (see arguments supporting H3). In contrast, a supportive leader who conveys low grit collides with his/her employees’ implicit theories of leadership (Den Hartog et al., 1999; Javidan, Dorfman, De Luque, & House, 2006), is inconsistent with the employees’ independent self-construal, and thus decreases the employees’ sense of agency and has negative consequences for the development of their self-attributed grit (Wu & Parker, 2017). These findings must be read with caution because the effects are modest or only marginally significant. The empirical evidence does not suggest that perceived leader social support damages self-attributed grit in more masculine cultures, and perceived leader social support even reinforces the positive effect of conveyed leader grit on employee self-attributed grit in the two studies. What the empirical evidence suggests is that perceptions of *high* leader social support may lessen the employee self-attributed grit if

the leader conveys *low* grit. Future studies may explore this issue by including larger samples from a wider range of cultures.

Limitations and Future Studies

Our research is not exempt of limitations. First, our measure of perceived leader support is unidimensional and thus may suffer from limited content validity. Future studies may include a measure of leader availability, encouragement, and noninterference (Wu & Parker, 2017), and test the respective relevance. Second, future studies should include other moderators. For example, the relationship between conveyed leader grit and employee self-attributed grit may be conditionally affected by (a) other employee personality traits (e.g., sensitivity to leader grit; Uhl-Bien, Riggio, Lowe, & Carsten, 2014), and (b) team conditions (e.g., is conveyed leader grit more likely to foster employee self-attributed grit when the team is perceived as being psychologically safe?). Third, future studies may be carried out at the team level or adopt a multilevel approach. Such an approach would allow testing if a leader conveys different levels of grit to different team members. Fourth, other forms of causality are possible. Considering that leadership and followership are co-constructed by followers and leaders, that followers and leaders influence each other (Uhl-Bien et al., 2014), and that grit is contagious (Duckworth, 2016), employee grit may influence leader grit.

Conclusions

Our research answers the call for more research on how employees' grit is developed and suggests that leaders may have such a positive impact if they are gritty and, above all, if they convey a high level of grit toward their employees and are also perceived as supportive. Consider the possible effect of grit on employees' behaviors and performance, leaders are likely be more effective when they convey a paradoxical combination of "toughness" and "love" toward employees. As Sonenshein, Dutton, Grant, Spreitzer, and Sutcliffe (2013, p. 557) suggested, through adopting a "tough love" approach toward followers, a leader creates high expectations within a supportive context, thus helping them "achieving at high levels".

References

- Aarts, H., Gollwitzer P. M, & Hassin, R.R. (2004). Goal contagion: Perceiving is for pursuing. *Journal of Personality and Social Psychology*, 87, 23-37.
- Abele, A. E. & Wojciszke, B. (2007). Agency and communion from the perspective of self versus others. *Journal of Personality and Social Psychology*, 93(5), 751-763.
- Aguinis, H. & Bradley, K. (2014). Best practice recommendations for designing and implementing experimental vignette methodology studies. *Organizational Research Methods*, 17(4), 351-371.

- Bandura, A. (1977). *Social learning theory*. Oxford, England: Prentice-Hall.
- Bolino, M., Long, D., & Turnley, W. (2016). Impression management in organizations: Critical questions, answers, and areas for future research. *Annual Review of Organizational Psychology and Organizational Behavior*, 3, 377-406.
- Chartrand, T. L. & Lakin, J. L. (2013). The antecedents and consequences of human behavioral mimicry. *Annual Review of Psychology*, 64, 285-308.
- Credé, M., Tynan, M. C., & Harms, P. D. (2017). Much ado about grit: A meta-analytic synthesis of the grit literature. *Journal of Personality and Social Psychology*, 113(3), 492-511.
- Cross, S. E. (2009). Relational self-construal: Past and future. *Social and Personality Psychology Compass*, 3(6), 949-961.
- Cross, S. E., Hardin, E. E., & Gercek-Swing, B. (2011). The what, how, why, and where of self-construal. *Personality and Social Psychology Review*, 15(2), 142-179.
- Den Hartog, D., House, R. J., Hanges, P., Ruiz-Quintanilla, S. A., & Dorfman, P. W. (1999). Culture specific and cross-culturally generalizable implicit leadership theories: Are attributes of charismatic/transformational leadership universally endorsed? *The Leadership Quarterly*, 10(2), 219-256.
- Dik, G. & Aarts, H. (2007). Behavioral cues to others' motivation and goal-pursuit: The perception of effort facilitates goal inference and contagion. *Journal of Experimental Social Psychology*, 43(5), 727-737.
- Disabato, D. J., Goodman, F. R., & Kashdan, T. B. (2018). Is grit relevant to well-being and strengths? Evidence across the globe for separating perseverance of effort and consistency of interests. *Journal of Personality*.
<https://doi.org/10.1111/jopy.12382>
- Duckworth, A. L. (2016). *Grit: The power of passion and perseverance*. New York: Scribner.
- Duckworth, A. L. & Gross, J. J. (2014). Self-control and grit: Related but separable determinants of success. *Current Directions in Psychological Science*, 23, 319-325.
- Duckworth, A. L. & Quinn, P. D. (2009). Development and validation of the short grit scale. *Journal of Personality Assessment*, 91(2), 166-174.
- Duckworth, A.L., Quinn, P.D., & Seligman, M.E. (2009). Positive predictors of teacher effectiveness. *Journal of Positive Psychology*, 4, 540-547.
- Duckworth, A. L., Kirby, T. A., Tsukayama, E., Berstein, H., & Ericsson, K. A. (2011). Deliberate practice spells success: Why grittier competitors triumph at the National Spelling Bee. *Social Psychological and Personality Science*, 2(2), 174-181.

- Duckworth, A. L., Peterson, C., Matthews, M. D., & Kelly, D. R. (2007). Grit: Perseverance and passion for long-term goals. *Journal of Personality and Social Psychology*, 92(6), 1087-1101.
- Dweck, C.S. (2006). *Mindset: The new psychology of success*. New York: Random House.
- Fleenor, J. W., Smither, J. W., Atwater, L. E., Braddy, P. W., & Sturm, R. E. (2010). Self-other rating agreement in leadership: A review. *The Leadership Quarterly*, 21(6), 1005–1034.
- Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis*. New York: Guilford Press.
- Hill, P. L., Burrow, A. L., & Bronk, K. C. (2016). Persevering with positivity and purpose: An examination of purpose commitment and positive affect as predictors of grit. *Journal of Happiness Studies*, 17(1), 257-269.
- Hofstede (2018a). Compare countries: Portugal. Retrieved from <https://www.hofstede-insights.com/country-comparison/portugal/>
- Hofstede (2018b). Compare countries: Brazil. Retrieved from <https://www.hofstede-insights.com/country-comparison/brazil/>
- Hofstede, G., Hofstede, G. J., & Zinkov, M. (2010). *Cultures and organizations: Software of the mind*. New York: McGraw-Hill.
- Javidan, M., Dorfman, P. W., De Luque, M. S., & House, R. J. (2006). In the eye of the beholder: Cross cultural lessons in leadership from project GLOBE. *Academy of Management Perspectives*, 20(1), 67-90.
- Kwon, H. W. (2017). Expanding the notion of agency: Introducing grit as an additional facet of agency. In M. Goller & S. Paloniemi (Eds), *Agency at Work* (pp. 105-120) Cham: Springer.
- Lee, A. & Carpenter, N. C. (2018). Seeing eye to eye: A meta-analysis of self-other agreement of leadership. *The Leadership Quarterly*, 29(2), 253-275.
- Little, T. D., Cunningham, W. A., Shahar, G., & Widaman, K. F. (2002). To parcel or not to parcel: Exploring the question, weighing the merits. *Structural Equation Modeling*, 9(2), 151-173.
- Meyer, R. D., Dalal, R. S., & Hermida, R. (2010). A review and synthesis of situational strength in the organizational sciences. *Journal of Management*, 36(1), 121-140.
- Mueller, B. A., Wolfe, M. T., & Syed, I. (2017). Passion and grit: An exploration of the pathways leading to venture success. *Journal of Business Venturing*, 32(3), 260-279.
- Niessen, C., Mäder, I., Stride, C., & Jimmieson, N. L. (2017). Thriving when exhausted: The role of perceived transformational leadership. *Journal of Vocational Behavior*, 103, 41-51.

- Rego, A., Yam, K. C., Owens, B., Story, J. S., P, Cunha, M. P., Bluhm, D., & Lopes, M. P. (2017a). Conveyed leader PsyCap predicting leader effectiveness through positive energizing. *Journal of Management*. DOI, 10.1177/0149206317733510.
- Rego, A., Owens, B., Yam, K. C., Bluhm, D., Cunha, M. P., Silard, T., Gonçalves, L., Martins, M., Simpson, A. V., & Liu, W. (2017b). Leader humility and team performance: Exploring the mechanisms of team psychological capital and task allocation effectiveness. *Journal of Management*. DOI, 10.1177/0149206316688941.
- Shanock, L. R., Baran, B. E., Gentry, W. A., Pattison, S. C., & Heggestad, E. D. (2010). Polynomial regression with response surface analysis: A powerful approach for examining moderation and overcoming limitations of difference scores. *Journal of Business and Psychology*, 25(4), 543-554.
- Sonenshein, S., Dutton, J.M., Grant, A.M., Spreitzer, G. & Sutcliffe, K.M. (2013). Growing at work: Employees' interpretations of progressive self-change in organizations. *Organization Science*, 24(2), 552-570.
- Spreitzer, G. M. (1995). Psychological empowerment in the workplace: Dimensions, measurement, and validation. *Academy of Management Journal*, 38, 1442–1465
- Tsui, A. S., Pearce, J. L., Porter, L. W., & Tripoli, A. M. (1997). Alternative approaches to the employee-organization relationship: Does investment in employees pay off? *Academy of Management Journal*, 40(5), 1089-1121.
- Uhl-Bien, M. (2006). Relational leadership theory: Exploring the social processes of leadership and organizing. *The Leadership Quarterly*, 17(6), 654-676.
- Uhl-Bien, M., Riggio, R. E., Lowe, K. B., & Carsten, M. K. (2014). Followership theory: A review and research agenda. *The Leadership Quarterly*, 25(1), 83-104.
- Vainio, M. M. & Daukantaite, D. (2016). Grit and different aspects of well-being: Direct and indirect relationships via sense of coherence and authenticity. *Journal of Happiness Studies*, 17(5), 2119-2147.
- Van Kleef, G. A., De Dreu, C. K., & Manstead, A. S. (2004). The interpersonal effects of emotions in negotiations, a motivated information processing approach. *Journal of Personality and Social Psychology*, 87, 510-528.
- Van Kleef, G. A., Homan, A. C., Beersma, B., van Knippenberg, D., van Knippenberg, B., & Damen, F. (2009). Searing sentiment or cold calculation? The effects of leader emotional displays on team performance depend on follower epistemic motivation. *Academy of Management Journal*, 52, 562-580.
- Von Culin, K. R., Tsukayama, E., & Duckworth, A. L. (2014). Unpacking grit: Motivational correlates of perseverance and passion for long-term goals. *The Journal of Positive Psychology*, 9(4), 306-312.

- Wu, C. H. & Parker, S. K. (2017). The role of leader support in facilitating proactive work behavior. *Journal of Management*, 43(4), 1025-1049.
- Wu, J. B., Tsui, A. S., & Kinicki, A. J. (2010). Consequences of differentiated leadership in groups. *Academy of Management Journal*, 53(1), 90-106.
- Zhang, X.-A., Li, N., Ullrich, J., & van Dick, R. (2015). Getting everyone on board: The effect of differentiated transformational leadership by CEOs on top management team effectiveness and leader-rated firm performance. *Journal of Management*, 41(7), 1898-1933.