

GRITTY LEADERS PROMOTING EMPLOYEES' THRIVING AT WORK¹

Rego, A., Cavazotte, F., Cunha, M. P., Valverde, C., Meyer, M., and Giustiniano, L. (2021). Gritty leaders promoting employees' thriving at work'. *Journal of Management*, 47(5), 1155-1184.

Abstract

Four studies (a vignette-based experiment conducted in Portugal and Brazil; a two-wave multi-source field study in Portugal; a three-wave field study in the US; a multi-source field study in Portugal, in which conscientiousness, a “rival” of grit, was controlled for) provide theoretical and empirical evidence for a model testing *what* (e.g., grit in leaders), *why* (e.g., employee self-attributed grit), and *when* (e.g., leader support) grit supports thriving at work. First, gritty employees are more likely to thrive. Second, conveyed leader grit (i.e., grit as perceived by employees) predicts employee grit. Third, conveyed leader grit and leader self-attributed grit are conceptually different, and although the two relate positively with employee self-attributed grit, the former being is a better predictor of employee self-attributed grit. Fourth, leader support operates as a boundary condition, in that the indirect association of conveyed leader grit with employee thriving is stronger when the leader is perceived as supportive. Our research also indicates that the concept of grit is more textured than habitually considered, and that more attention must be paid to the boundary conditions of its development and impact.

Keywords: conveyed leader grit; leadership; perceived leader support; self-attributed grit; thriving at work

¹We are grateful to Bradley Owens, Dustin Bluhm, and Kai Chi Yam for having helped us in framing theoretically our hypothesized model. We also thank you Susana Leal for having helped us in data collection. We also thank you the anonymous reviewers and the editor, Christopher C. Rosen, for their helpful comments and recommendations

Gritty Leaders Promoting Employees' Thriving at Work

A recent SHRM Foundation report (Porath, 2016: 1) emphatically declared that “many organizations fail to thrive because their employees are not thriving.” Thriving, an emerging concept in the management literature (Russo, Buonocore, Carmeli, & Guo, 2018), describes the experience of vitality and learning. Vitality denotes positive feelings associated with energy and zest. Learning represents the acquisition and application of new knowledge and skills. These two components work in tandem to nurture feelings of personal growth, to build healthy work organizations (Spreitzer & Hwang, 2019) and “sustainable performance” (Spreitzer & Porath, 2012). Thriving at work predicts important employee outcomes (Kleine, Rudolph, & Zacher, 2019), including health-related outcomes (e.g., burnout), attitudinal outcomes (e.g., commitment), and performance-related outcomes (e.g., task performance, creativity).

Understanding the antecedents of employee thriving is thus a valuable endeavor. We resort to the social embeddedness theory of thriving at work (Spreitzer, Sutcliffe, Dutton, Sonenshein, & Grant, 2005) to suggest that a leader who conveys high grit (a non-cognitive trait defined as “perseverance and passion for long-term goals”; Duckworth, Peterson, Matthews, & Kelly, 2007: 1087) toward employees and provides them social support stimulates the employees’ grit and, in this way, their thriving. The social embeddedness theory of thriving suggests that “vitality and learning are deeply rooted in social systems” (Spreitzer et al., 2005: 539), and that the work environment (e.g., available resources) boosts employees’ thriving through their agentic work behaviors. Leadership is a key, although understudied, enabler and shaper of such an environment (Spreitzer & Hwang, 2019). We posit that a leader who conveys high grit toward employees and supports them shapes a favorable (i.e., challenging *and* supportive) context that provides motivational, relational, emotional, and informational resources (Hobfoll, Halbesleben, Neveu, & Westman, 2018) to employees that

help them develop their own grit, and this agentic stance supports their thriving at work (Niessen, Mäder, Stride, & Jimmieson, 2017; Paterson, Luthans, & Jeung, 2014).

In this way, we not only expand the social embeddedness theory of thriving, but also contribute to the literature about grit. Considering the relational nature of leadership (Uhl-Bien, 2006), we posit that within the social embeddedness framework of thriving: (1) conveyed leader grit (i.e., grit as perceived by employees) vs. leader self-attributed grit is the construct of most interest to understand the impact of leaders on employees; (2) leader support is a boundary condition that affects the relationship between conveyed leader grit and employees' thriving through their self-attributed grit. Distinguishing conveyed leader grit from self-attributed leader grit (we show that the two are *not* reliable measures of the *same* construct, contrary to what has been assumed) and including leader support as a boundary condition (Credé, Tyan, & Harm, 2017) also brings clarity and disambiguation to the theory of grit.

In fact, grit has caused much controversy. While authors such as Credé et al. (2017) have suggested that the construct validity of grit is questionable, and that grit may be redundant with conscientiousness and has, at best, weak effects on performance and success, other authors have presented it as a crucial ingredient for success and psychological well-being (Duckworth, 2016). Even Credé et al. (2017: 502) acknowledged that findings emerging from their meta-analysis “do hold some promise for proponents of grit as a predictor of success and as a potential focus of interventions”. They also suggested that the study of grit may advance by considering its boundary conditions. We thus defend that it is not yet time to consider grit as “dispensable” (Ion, Mindu, & Gorbanescu, 2017: 167). We believe that, if it is approached appropriately (i.e., as conveyed grit rather than as self-attributed grit), grit in leaders may energize employees' thriving through employees' self-attributed grit, provided that the leader is also supportive. Our conceptual model thus proposes that employees who perceive their

leaders as both gritty and supportive develop their own grit (left side of our model; Figure 1) and thus potentially thrive more at work (right side).

Figure 1 about here

The left side of the model is supported by the notion that grit evolves from interactions with environments, including the leader (Duckworth, 2016). We theorize that conveyed leader grit may be transferred to employees via behavioral modeling (Morgenroth, Ryan, & Peters, 2015) and social contagion (Chartrand & Lakin, 2013). We also theorize that, for persevering toward long-term goals in spite of obstacles and failures, employees need to develop and replenish relational, emotional, informational, and motivational resources (Hobfoll et al., 2018), and that those resources are available when the leader conveys high grit (thus being demanding/challenging) *and* supportive. A leader who conveys high grit but is unsupportive may lead the employees to deplete or lose resources necessary to pursue gritty endeavors.

Our rationale for the right side of the model is as follows. Through searching for and experiencing vitality and learning, gritty employees are more able to carry out proactive adaptive efforts in pursuit of their long-term goals (Jordan et al., 2019; Strauss, Griffin, & Parker, 2012). Such a self-adaptive stance is facilitated by supportive leaders who provide unique avenues of resource access. Such a stance also broadens resource inventory when the employee faces unexpected threats or opportunities while pursuing long-term goals (Feeney & Collins, 2015; Wu & Parker, 2017). A supportive leader helps gritty employees to obtain emotional, relational, and informational resources that help them to turn their agentic stance into experiences of thriving aimed at adaptively pursuing long-term goals (Jordan et al., 2019).

To support our hypotheses, we advance some conceptual-methodological nuances that depart from the current research about grit. First, drawing from the literature (Oh, Wang, & Mount, 2011) that defends that personality may be viewed from two perspectives (self and others), we suggest that self-attributed grit and conveyed grit are conceptually distinct (Rego

et al., 2019a). Second, we posit that such a distinction is especially important to study how leaders *transfer* their grit to employees.

To substantiate such a transference, we consider that it is grit conveyed by the leader that matters most when it comes to influencing employees, because several dynamics may urge the leader to *convey* a level of grit that does not necessarily correspond to his/her self-attributed grit. Conversely, although conveyed employee grit may affect relevant outcomes (e.g., an employee who *conveys* more grit energizes team members), the thriving experienced by an employee is probably more influenced by his/her self-attributed grit (provided that it is supported by a supportive leader) than by the grit he/she conveys to others. Third, we advance that grit conveyed by leaders is not enough to grant the transference of conveyed leader grit to employees; rather it is the combination of leader's grit and support that makes employees develop their own grit and thereby thrive at work.

We conducted a four-study research (a vignette-based experiment, a two-wave multi-source field study, a three-wave field study, and a multisource field study) which offers important contributions. First, we respond to calls for more research (e.g., Niessen et al., 2017; Paterson et al., 2014) on the role of leaders in promoting employees' thriving, and we expand the socially embedded model of thriving. We observe that thriving at work may be boosted by gritty and supportive leaders. Second, we enrich the literature on grit by confirming its relevance in the workplace. We suggest that self-attributed grit and conveyed grit are different constructs, and that the latter matters more than self-attributed grit regarding the effect of leaders on employees. We thus show that self-reported grit and informant-reported grit are *not* reliable measures of the *same* construct (e.g., Duckworth & Quinn, 2009), but instead represent different constructs. In short, we identify *what* (e.g., grit in leaders), *why* (e.g., employee self-attributed grit), and *when* (e.g., perceived leader support) grit supports thriving at work.

Theory and Hypotheses

Grit and related constructs

Gritty individuals are proactive in pursuing long-term goals and persevere in the face of obstacles and setbacks. They persist even when facing tedious and frustrating tasks as long as these tasks are perceived as relevant to long-term goals (Duckworth, 2016). Thus, it is not surprising that grit has been extolled as crucial for success in several life domains. However, the construct is not exempt from criticisms, one of the most pertinent being its lack of construct, discriminant, and predictive validity regarding related constructs such as resilience, need for achievement, and, above all, conscientiousness. While several authors (e.g., Duckworth & Gross, 2014; Duckworth et al., 2007; Jordan et al., 2019) have argued that grit should be treated as a distinct construct, other authors are more skeptical.

This skepticism rests mainly on the redundancy between grit and conscientiousness, which are strongly correlated ($r > .80$; Credé et al.'s meta-analysis). Redundancy comes mainly from similarities between the two constructs (although common method bias may also be at play; more on this below). For example, grit shares similarities with the self-discipline and the achievement striving components of conscientiousness (Credé et al., 2017). However, the two constructs also differ in several ways. For example, grit “differs in its emphasis on long-term stamina rather than short-term intensity”, and the gritty individual “not only finishes tasks at hand but pursues a given aim over years” (Duckworth et al. (2007: 1089). This explains why the component of consistency of interest vs. the component of perseverance is less strongly related to conscientiousness (Duckworth & Quinn, 2009; Fite, Lindeman, Rogers, Voyles, & Durik, 2017). We distinguish grit from conscientiousness as follows: (a) while the perseverance component of grit shares similarities with the *proactive* aspects of conscientiousness (Schmidt, Nagy, Fleckenstein, Möller, & Retelsdorf, 2018), (b) the component of consistency of interests is only modestly represented in conscientiousness, and (c) the *dependability* or *inhibitive* aspects of conscientiousness are weakly present in grit.

It is possible, however, that these differences are hidden in the high correlations found in the literature (Credé et al., 2007) because of common method bias. While this bias has been considered problematic for studying the predictors-outcomes relationship, the same criticism has not been applied to the relationships among predictors. Although it is difficult to find procedural remedies (Podsakoff, Mackenzie, & Podsakoff, 2012) to reduce the bias for the relationship between *self-attributed* grit and *self-attributed* conscientiousness, the obstacle may be overcome for *conveyed* grit and *conveyed* conscientiousness. We not only posit that the conceptual difference between self-attributed grit and conveyed grit (discussed in the next section) helps to understand the impact of gritty leaders on employees – we also show (Study 4) that when different raters are used to measure conveyed leader grit vs. conveyed leader conscientiousness, the correlation between the two constructs is significantly lower.

Conveyed Leader Grit versus Leader Self-Attributed Grit

Most researchers measure grit through self-reports or consider that both self-reported grit and informant-reported grit are reliable measures of the same construct (e.g., Duckworth & Quinn, 2009). We adopt a different perspective by theorizing that self-attributed grit and conveyed grit differ conceptually, and that leadership constitutes a preferred field in which to study this conceptual clarification, as the distinction will clearly emerge in such a context. We borrow mainly from research (Rego et al., 2019a) that has distinguished self-attributed from conveyed psychological capital both conceptually and empirically. At 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, during tough times a leader may conceal hesitations and self-doubts and express focused perseverance to motivate employees to persist in spite of obstacles and failures. Second, leaders often operate within “strong situations” and situational strength results in “psychological pressure” on the leader “to engage in and/or

refrain from particular courses of action” (Meyer, Dalal, & Hermida, 2010: 212). Thus, situational strength may invite the leader to *convey* a level of grit that may not fully reflect his/her self-attributed grit. Third, consistent with research on differentiated leadership (Wu, Tsui, & Kinicki, 2010), 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.

Self-attributed grit and conveyed grit may thus be conceptually distinct. While the former may be considered a personality trait *inwardly* experienced (or a facet of the individual’s identity; Oh et al., 2011), the latter refers to behavioral manifestations of grit that do not necessarily mirror the “true” self-attributed grit (Rego et al., 2019a). As Lee and Carpenter (2018: 263) point out, “perhaps, self-ratings and observer ratings of work behaviors are actually tapping into different constructs and should be viewed as nonequivalent measures”. When interacting with employees, leaders *convey* their affective states, as well as cognitive information, intentionally or unintentionally, both verbally and non-verbally (Visser, van Knippenberg, van Kleef, & Wisse, 2013). Conveyed leader grit manifests via displays that are persevering, goal-directed, and energized. The behavioral manifestations of the leader’s grit reflect only partially what he/she feels, believes, and experiences (i.e., the grit that he/she attributes to him/herself). However, as discussed above, conveyed grit is not necessarily consistent with self-attributed grit. Considering the relational nature of leadership (Uhl-Bien, 2006), and from the perspectives of role modeling and social contagion theories, conveyed leader grit matters more for how the employee reacts to the leader than does the leader’s self-attributed grit. We test this hypothesis by studying how conveyed leader grit (vs. leader self-attributed grit, Study 2) predicts employee self-attributed grit.

The Conditional Effect of Conveyed Leader Grit on Employee Self-Attributed Grit

A “person’s grit enhances the grit of others” (Duckworth, 2016: 263) through social contagion and role modeling. First, conveyed leader grit affects employees’ self-attributed grit through social contagion (Aarts, Gollwitzer, & Hassin, 2004; Chartrand & Lakin, 2013): over time, employees develop the array of agentic behaviors, attitudes, and emotions that characterize the grit conveyed by their leaders. An important facet of social contagion is goal contagion: employees may automatically infer and pursue goals perceived in the leader’s behaviors. By grasping the long-term goals pursued by the leader, the employee is more able to pursue his/her own needs and goals (Dik & Aarts, 2007), and to reap the benefits of more positive leader-member exchanges (e.g., career advancement). For that employee, the value and desirability of the long-term goals pursued by the leader increases, leading him/her to embrace those goals (Morgenroth et al., 2015).

Second, employees may develop self-attributed grit without pursuing (or without the contagion of) the *specific* long-term goals pursued by the leader. Through role modeling (Morgenroth et al., 2015), employees led by someone who perseveres toward long-term goals in spite of difficulties and setbacks also learn to persevere toward *their own* self-generated long-term goals. Leaders conveying high grit are more likely to be considered as prototypical (Epitropaki & Martin, 2004), which increases their attractiveness as role models and reinforces their role modeling influence (Morgenroth et al., 2015). According to the motivational theory of role modeling (Morgenroth et al., 2015), role models perform three functions: acting as behavioral model, representing the possible, and being inspirational. A leader who conveys high grit fosters employee self-attributed grit in those three ways.

First, employees emulate the particular behaviors conveyed by the gritty leader, as well as his/her cognitive and emotional strategies aimed at enhancing goal attainment. Second, a leader who conveys high grit demonstrates to employees that challenging and long-term goals are attainable and that barriers are not insurmountable, and provides a “template” of the

behaviors and strategies necessary to attain those goals (McIntyre, Paulson, Taylor, Morin, & Lord, 2011). The conveyed message is “I can do this, so you can do this too” (Morgenroth et al., 2015: 3). Considering that grit may be grounded in self-efficacy beliefs (Duckworth et al., 2007), a leader who conveys high grit encourages the employees’ self-attributed grit. Third, a leader who conveys high grit inspires the employees to become more like the role model, leading them to set long-term goals and persevere toward those goals accordingly. Both the role modeling and social contagion processes are more affected by what the leader *conveys* during his/her interactions with the employees (i.e., conveyed leader grit) than by what the leader feels or believes inwardly (i.e., self-attributed grit). Hence:

Hypothesis 1. Conveyed leader grit is positively related to employee self-attributed grit.

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

By borrowing from Credé et al. (2017) the idea that the study of grit may advance by considering its boundary conditions, we also posit that the relationship between conveyed leader grit and employee self-attributed grit is stronger when perceived leader support is high. In that context, employees perceive that they are embedded in a social environment rich in resources (Hobfoll et al., 2018) that are important to persevere toward long-term goals. Resources may be defined “as anything perceived by the individual to help attain his or her goals” (Halbesleben, Neveu, Paustian-Underdahl, & Westman, 2014: 1138), and what matters most is the fit between the resource and the idiosyncrasies of the challenge the employees face. Since the time-scale for a gritty employee’s goal pursuit is long, and grit involves proactive adaptive efforts to deal with unexpected opportunities and setbacks, high perceived leader support works in tandem with conveyed leader grit to broaden or replenish the employee’s (motivational, relational, emotional, and informational) resources necessary to persevere toward long-term goals (Jordan et al., 2019; Russo et al., 2018).

We thus consider that a leader who conveys high grit toward employees *and* is perceived as supportive provides employees with the resources that make them able to persevere toward long-term goals in spite of obstacles and failures (Hobfoll et al., 2018; Jordan et al., 2019). On the other hand, low perceived leader support narrows (or at least does not increase) the employee's resources, and the employee may even appraise the demanding behaviors of a gritty leader as a threat rather than as an opportunity (Niessen et al., 2017), with negative consequences for employee self-attributed grit. When working for a gritty and unsupportive leader, the employees may experience difficulties in gaining access to the resources necessary to persevere toward long-term goals. As a consequence, the employees' expectancies of being successful in persevering toward long-term goals (even if those goals are strongly valued and desired) decrease, the consequence being that their agentic stance suffers (Jordan et al., 2019; Morgenroth et al., 2015; Nagengast et al., 2011). 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.

The Conditional Effect of Employees' Self-Attributed Grit on their Thriving at Work

According to the social embeddedness framework of thriving, the work environment (approached here in light of how gritty and supportive the leader is) influences thriving at work through facilitating agentic work behaviors ("the engine of the thriving process"; Spreitzer et al., 2005: 538). Acting agentially means being active and purposeful at work (Bandura, 2001). In this paper we focus on grit as one of the main behavioral facets of agency (Little, Snyder, & Wehmeyer, 2006) and posit that employee self-attributed grit is a source of proactive, purposeful, and adaptive behaviors that result in stronger employee thriving (Jordan et al., 2019; Paterson et al., 2014; Spreitzer et al., 2005).

The agentic and adaptive stance of gritty employees leads to feelings of vitality because employees focus on their tasks and goals, feel less threatened by challenging and problematic situations, and are less likely to procrastinate (Spreitzer et al., 2005). As a consequence, they become more absorbed in their work and thus feel energetic (Csikszentmihalyi, 1990; Von Culin, Tsukayama, & Duckworth, 2014). Gritty employees also explore solutions for problems and opportunities in the pursuit of long-term goals (Jordan et al., 2019), and this exploration fosters the sense of vitality because “as individuals explore new ways of working, they are likely to pique their curiosity and feel energetic. Exploration makes it possible for employees to encounter novel ideas, information, and strategies for doing work; this exposure to novelty can provide and restore energy” (Spreitzer et al., 2005: 541).

The agentic and adaptive behavior of gritty employees also promotes their learning because, by being focused on their tasks aimed at persevering in the pursuit of long-term goals, they are more open to new knowledge, and identify more efficient ways of doing things, developing relevant new skills for successfully accomplishing tasks (Jordan et al., 2019; Niessen, Sonnentag, & Sach, 2012; Paterson et al. 2014). As Spreitzer et al. (2005: 541) explained, “when individuals focus on their tasks, they are more likely to develop and refine routines and repertoires for doing their work efficiently and effectively, which contributes to learning.” The exploratory behaviors of gritty employees also increase their learning because, as they explore and recover from mistakes they encounter in that exploration, “the new ideas and strategies that they encounter increase the knowledge and skills that they possess and can apply” (Spreitzer et al., 2005: 541). A growth mindset, which is associated with grit (Wang et al., 2018), also encourages individuals to focus on learning goals, to perceive difficulties and setbacks as opportunities to learn and grow, and to continuously develop themselves (Caniëls, Semeijn, & Renders 2018). Hence, our next hypothesis:

Hypothesis 4. Employees’ self-attributed grit relates positively with their thriving.

We posit that perceived leader support moderates the relationship between employee self-attributed grit and employee thriving. First, in times of adversity, leader support provides employees with safety, emotional comfort, and new knowledge, and encourages them to avoid desistance and implement new adaptive approaches in the pursuit of long-term goals (Feeney & Collins, 2015; Jordan et al., 2019; Wu & Parker, 2017). Therefore, when a gritty employee feels supported by the leader, he/she maintains a growth mindset, and develops the vitality necessary to adaptively pursue long-term goals. The employee also experiences learning because he/she feels that it is safe to identify more efficient ways of doing things, to explore innovative solutions for problems, and to develop new skills aimed at pursuing long-term goals (Wu & Parker, 2017). Persevering in the face of adversity may be energy-depleting if gritty employees feel unsupported by leaders. Such employees may feel that this is unsafe and be afraid of the consequences of failing when trying new solutions. As a consequence, vitality and learning suffer. In summary, gritty employees continue to see opportunities for agency if the leader is supportive, but their adaptive agentic energy weakens if the leader is unsupportive, thus hindering their goal pursuit (Jordan et al., 2019; Little et al., 2006).

Second, under normal circumstances, leader support operates as a relational catalyst (or a nurturing resource; Caniëls et al., 2018) that enhances the positive effect of employees' self-attributed grit on their thriving (Feeney & Collins, 2015). Leader support helps gritty employees to thrive by encouraging their pursuit of long-term interests, promoting their engagement with opportunities that enable them to broaden and build resources (Fredrickson, 2001), and to experience vitality and learning. Leader support is also a source of emotional, motivational, and informational resources from which gritty employees may benefit to keep and develop vitality and the unwavering pursuit of learning and long-term goals (Jordan et al., 2019). Perceived leader support also provides a sense of a safe climate in which exploration (e.g., autonomous goal strivings) is accepted and even promoted (Feeney & Collins, 2015),

which reinforces the desire of a gritty employee to learn and discover new ways to reach goals. In contrast, when leader support is low, the employee may feel that he/she is denied important resources that would otherwise make him/her more able to recognize opportunities to thrive, and to appraise such opportunities as positive challenges rather than as threats. Hence:

Hypothesis 5: Perceived leader support moderates the positive relationship between employees' self-attributed grit and their thriving, with this relationship being stronger when the perceived leader support is high.

Conditional Indirect Effects

Considering that conveyed leader grit relates positively with employees' self-attributed grit, and that employees' self-attributed grit relates positively with their thriving at work, we hypothesize that conveyed leader grit predicts employees' thriving at work via their self-attributed grit. Considering these moderating effects and the mediating effect discussed above, the following hypotheses are derived:

Hypothesis 6: Conveyed leader grit predicts employees' thriving at work through their self-attributed grit.

Hypothesis 7: The indirect effect of conveyed leader grit on employee thriving through employee self-attributed grit is moderated by perceived leader support, the mediating relationship being stronger versus weaker when perceived leader support is high.

Research Overview

Study 1 (conducted in Portugal and Brazil) is a vignette-based experiment (Aguinis & Bradley, 2014) 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). Study 2 is a multisource two-wave field study (Portugal), testing how conveyed leader grit vs. leader self-attributed grit (H1 and H2) predicts employee self-attributed grit, and how this relationship is moderated by perceived leader support (H3).

After having established the conditional effect of conveyed leader grit on employee self-attributed grit, a three-wave study (US) tested how conveyed leader grit predicts employee thriving via employee self-attributed grit, and how this relationship is moderated by perceived leader support (H4 to H7). Considering that our previous studies collected all data from the same source, and conscientiousness was not controlled, Study 4 (Portugal) controlled for this variable and tested the hypothesized model through data collected from three sources. By triangulating Study 1, which has modest external validity, with three other studies that do have strong external validity, and adopting procedural remedies to reduce common method bias, this combination of studies provides compelling evidence to test our proposed relationships.

Study 1 Methods

Participants and Procedures

A total of 900 Portuguese employees (from at least 241 organizations) and 800 Brazilian employees (from at least 110 organizations), from two authors' professional (non-academic) 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. The participants in each country performed a wide range of jobs (e.g., salesperson, bank clerk, social worker, financial consultant, marketing consultant, HR technician, IT technician, head accountant, project manager). As the findings were similar in both samples, these were merged.

Manipulations

A 3x2 design (the six vignettes in the online Appendix) was adopted: three conditions of conveyed leader grit (low, control condition, high) and two conditions of leader support (low and high). Participants (randomly ascribed to one of the six scenarios) were asked to read a vignette carefully and imagine themselves working with the described leader (whose name is

Miguel, a male). To manipulate conveyed leader grit we described the leader with items adapted from Duckworth and Quinn (2009). We used transactional leadership in the control condition (van Dierendonck, Stam, Boersma, de Windt, & Alkema, 2014), because such a style (a) predicts several employees' attitudinal and behavioral reactions, and (b) is neutral in terms of grit. This procedure is therefore empirically more conservative than if we had adopted a scenario in which "information" about the leader's grit was not included. Similar manipulations have been used in other studies (Rego et al., 2019a, 2019b). To manipulate leader social support we described the leader using items adapted from Tsui, Pearce, Porter, and Tripoli (1997).

Measures

Following the manipulations, individuals completed the Short Grit Scale (Grit-S; Duckworth & Quinn, 2009; eight items) for measuring their self-attributed grit ($\alpha = .83$), responding on a seven-point scale. We asked participants to imagine how they would feel and behave if they were to work for the leader described. 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).

Manipulation checks. At the end of the study we asked participants about the extent to which they thought Miguel is (1) perseverant in pursuing long-term goals (i.e., gritty), and (2) supportive. Participants in the high conveyed leader grit condition reported that the leader has a higher level of grit ($M = 6.29$, $SD = .97$) compared to participants in the control condition ($M = 5.06$, $SD = 1.52$: $t(178) = 6.49$, $p < .01$; $d_{Cohen} = .97$, Confidence Interval = .53 – 1.39) and the low conveyed leader grit condition ($M = 1.49$, $SD = 1.02$: $t(189) = 33.23$, $p < .01$; $d_{Cohen} = 4.82$, CI = 4.02 – 5.63). Participants in the high social support condition reported the leader as being more supportive ($M = 5.91$, $SD = 1.18$) compared to participants in the low social support condition ($M = 1.81$, $SD = 1.02$: $t(278) = 31.13$, $p < .01$; $d_{Cohen} = 3.71$, CI = 3.17 – 4.26).

Study 1 Findings

Participants in the high conveyed leader grit condition reported higher self-attributed grit ($M = 5.55$, $SD = .88$) compared to participants in the low conveyed leader grit condition ($M = 4.64$, $SD = 1.02$, $t(189) = 6.60$, $p < .01$; $d_{Cohen} = .96$, $CI = .53 - 1.38$) and participants in the control condition ($M = 5.08$, $SD = .92$, $t(178) = 3.52$, $p < .01$; $d_{Cohen} = .52$, $CI = .11 - .94$). This result supports H1. H3 predicted an interactive effect of conveyed leader grit and leader support on employee self-attributed grit. The interaction term (PROCESS macro, model #1; Hayes, 2013) is significant ($B = .51$; $SE: .13$; $p < .01$; $LLCI: .25$, $ULCI: .77$) and predicts more variance compared to a base model without the interaction term ($R^2 = .22$; $\Delta R^2 = .04$, $p < .01$).

Simple slopes analysis (Figure 2) further confirms that the effect of conveyed leader grit on employee self-attributed grit is greater when leader social support is high ($t = 7.45$, $p < .01$) vs. low ($t = 1.67$, $p = .10$). When leader social support is high, participants in the high conveyed leader grit condition reported higher levels of self-attributed grit ($M = 5.90$, $SD = .70$) compared to participants in the low conveyed leader grit condition ($M = 4.55$, $SD = .85$, $t(98) = 8.75$, $p < .01$; $d_{Cohen} = 1.73$, $CI = 1.06 - 2.40$) and those in the control condition ($M = 5.40$, $SD = .80$, $t(94) = 3.29$, $p < .01$; $d_{Cohen} = .67$, $CI = .08 - 1.25$). When leader social support is low, participants in the high conveyed leader grit condition did not report significantly higher levels of self-attributed grit ($M = 5.04$, $SD = .88$) compared to participants in the low conveyed leader grit condition ($M = 4.71$, $SD = 1.16$, $t(89) = 1.47$, $p = .15$; $d_{Cohen} = .32$, $CI = -.26 - .90$), nor compared to those in the control condition ($M = 4.80$, $SD = .93$, $t(82) = 1.23$, $p = .22$; $d_{Cohen} = .27$, $CI = -.31 - .84$). Thus, conveyed leader grit predicts employee self-attributed grit when leader social support is high but not when leader social support is low (H3 supported).

Figure 2 about here

Study 1 Discussion

Study 1 suggests, as hypothesized, that conveyed leader grit boosts employee self-attributed grit when perceived leader social support is high, but not when perceived leader

social support is low. A limitation of Study 1 is its modest external validity: what participants *say they would do* in a hypothetical scenario may differ from what they *would do* in a real context. Moreover, the method may have primed the participants to give biased answers. Thus, we conducted a field study in real settings. As does Study 1, Study 2 tests the conditional effect of conveyed leader grit on employee self-attributed grit (H1 and H3). These two studies differ in that Study 2 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 (89 organizations) from the authors' professional (non-academic) networks were invited to participate. Whenever the employee accepted the invitation ($n = 168$), we also invited his/her (formal) leader to participate. From this process, 168 dyads were composed (each leader described a single employee). In T1 the employee reported the conveyed grit of his/her leader and the perceived leader support, as well as his/her own sense of meaningful work (for control; see below). The leader self-reported his/her own grit. In T2 (2-3 weeks later) the employee reported his/her own grit. A six-point scale was used for all measures. A total of 156 dyads participated in the two moments. Employees (53.8% female; $M_{\text{age}} = 31.19$, $SD: 7.71$; $M_{\text{length of supervisor-employee working relationship}} = 4.04$, $SD: 4.68$) performed a wide range of jobs (e.g., accountant, IT technician, receptionist, administrative officer, HR expert, sales, food safety technician). Leaders (52.6% female; $M_{\text{age}} = 39.96$, $SD: 8.84$; $M_{\text{job-tenure}} = 12.26$, $SD: 9.22$) performed diverse supervising roles (e.g., sales manager, product manager, financial director, marketing manager, R&D manager).

Measures

The Grit-S was used to measure leader grit (conveyed leader grit: $\alpha = .83$; leader self-attributed grit: $\alpha = .76$; employee self-attributed grit: $\alpha = .75$). Seven items proposed by Tsui

et al. (1997) measured perceived leader support ($\alpha = .91$) on T1. A 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 and shape how the employee describes the leader. Employees having a longer relationship with the leader are also potentially more accurate in rating the leader behavior and enjoy more opportunities for role modeling and social contagion. The sense of meaningful work (T1; three items, Spreitzer, 1995; $\alpha = .92$), was included because gritty individuals are more energized by the pursuit of meaning (Niessen et al., 2017). A sample item is “The work I do is meaningful to me”.

Discriminant validity. Confirmatory factor analysis (CFA; maximum likelihood estimation) supported considering conveyed leader grit and leader self-attributed grit as different constructs. For each construct we first created two first-order factors (i.e., consistency of interest; perseverance). 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; 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.

Then, CFA tested if the data measuring the sense of meaningful work (three items), perceived leader support (two parcels; Little, Cunningham, Shahar, & Widaman, 2002) conveyed leader grit (two parcels), leader self-attributed grit (two parcels), and employee self-attributed grit (two parcels) represent different constructs. The five-factor model (RMSEA: .06; GFI: .94; CFI and IFI: .97) fits the data better than the following models: (1) perceived leader

support and conveyed leader grit are merged ($\Delta\chi^2_{(4)} = 12.21$; $p < .05$; RMSEA: .07; GFI: .92; CFI and IFI: .96); (2) conveyed leader grit and leader self-attributed grit are merged ($\Delta\chi^2_{(4)} = 11.28$; $p < .05$; RMSEA: .07; GFI: .93; CFI and IFI: .96); (3) all indicators of grit (conveyed leader grit, leader self-attributed grit, and employee self-attributed grit) are merged ($\Delta\chi^2_{(7)} = 19.37$; $p < .01$; RMSEA: .07; GFI: .92; CFI and IFI: .95); and (4) all items/indicators are merged ($\Delta\chi^2_{(10)} = 314.00$; $p < .01$; RMSEA: .22; GFI: .66; CFI: .53; IFI: .54).

Study 2 Results

Perceived leader support correlates with conveyed leader grit and employee self-reported grit (Table 1). Conveyed leader grit correlates modestly ($r = .18$) 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 stronger ($z = 3.05$, $p < .01$).

Table 1 about here

Bias-corrected bootstrap regression analyses (Table 2) 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 higher ($\beta = .15$, $p < .05$ vs. $\beta = .42$, $p < .01$; $z = 2.08$, $p < .05$). When the interaction terms enter, 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 leader social support) predicts employee self-attributed grit ($B = .14$, $p < .05$). Thus, perceived leader support reinforces the association of conveyed leader grit with employee self-attributed grit. These findings support H1, H2, and H3. Overall, this empirical pattern does not change when the sense of meaningful work is removed from the analysis, although the predictive value of leader support becomes significant ($B = .14$, $p < .05$).

Table 2 about here

For a better understanding of the conditional association between conveyed leader grit and employee self-attributed grit, we conducted bias-corrected bootstrap analyses (5000

samples) with the PROCESS macro (model #1; controls included). The findings (Figure 3) show that the relationship between conveyed leader grit and self-attributed grit increases as leader support also increases: (a) low leader support ($B: .24, p < .01$; $SE: .08$; $LLCI: .07$, $ULCI: .40$); (b) middle leader support ($B: .37, p < .01$; $SE: .08$; $LLCI: .21$, $ULCI: .53$); (c) high leader support ($B: .51, p < .01$; $SE: .10$; $LLCI: .30$, $ULCI: .71$).

Figure 3 about here

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 also following the literature on self-other agreement of leadership (Lee & Carpenter, 2018), we explored the issue of whether or not the (in)congruence between leader self-attributed grit and conveyed leader grit predicts employee self-attributed grit. We found that 74.0% of leaders have a level of self-attributed grit that is discrepant (Fleenor, McCauley, & Brutus, 1996) from the level of conveyed grit, a finding corroborating that the two variables are conceptually different. We then used polynomial regression with a response surface analysis (Edwards & Parry, 1993; Shanock, Baran, Gentry, Pattison, & Heggstad, 2010) to explore whether the (in)congruence is related to the employee's self-attributed grit.

The findings (see also Figure 4) provide some support for our arguments. 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, indicating that employee self-attributed grit is greater when conveyed leader grit *or* leader self-attributed grit are high. Overall,

employee self-attributed grit increases as conveyed leader grit and/or leader self-reported grit increases, although the former relationship is stronger. The lowest level of self-attributed grit emerges when both conveyed leader grit and leader self-attributed grit are low.

Figure 4 about here

Study 2 Discussion

Four main findings are worthy of consideration. First, conveyed leader grit and leader self-attributed grit emerge as different factors in CFA and inter-correlate modestly, and more than two-thirds of leaders present discrepant scores in both. Second, our evidence indicates that leaders' grit associates with employees' grit (Duckworth, 2016). Third, conveyed leader grit is a better predictor of employee self-attributed grit than is leader self-attributed grit, the findings supporting the notion that more important than what the leader "is" (as reflected in self-attributed grit) is what he/she conveys to employees. One cannot disregard, however, that a possible explanation is the single subject response consistency error. Moreover, leader self-attributed grit is not irrelevant for employee self-attributed grit. On the contrary, as suggested by our post-hoc analysis (Figure 4), the highest (vs. lowest) level of employee self-attributed grit emerges when conveyed leader grit *and/or* leader self-reported grit are high (vs. low). Considering that employees' self-reported grit predicts their thriving (next studies), our findings suggest that both leader self-attributed grit and conveyed leader grit relate indirectly with employees' thriving. Fourth, the relationship between conveyed leader grit and employee self-attributed grit is stronger when perceived leader support is high. It is thus possible that perceived leader social support works as a source of relational resource, helping the employee to persevere toward long-term goals, and reinforces the role modeling and social contagion processes that convert conveyed leader grit into employee self-attributed grit.

Study 2 (possibly biased by the self-selection participants who chose to nominate their leaders, as well as those leaders who agreed to participate) tests only the conditional association

between conveyed leader grit versus leader self-attributed grit with employee self-attributed grit. Study 3 was then carried out to test the conditional indirect association of conveyed leader grit with employee thriving via employee self-attributed grit.

Study 3 Methods

Sample and Procedures

We contacted 450 US employees from a wide range of industries to participate through Qualtrics. They were invited to report their perceptions of leader grit and leader support (T1). Two weeks later those who participated in T1 were asked to report their own self-attributed grit (T2). Two weeks later those who participated in T2 reported their thriving (T3). The final sample comprises 168 individuals who participated in the three waves (57.1% female; 42.9% working for a female supervisor; $M_{\text{length of leader-employee working relationship}} = 6.71$ years, SD: 6.78). In terms of age, 6.6% were at least 30 years old, 29.7% were between 31 and 45 years old, 43.0% were between 46 and 60 years old, and 16.7% were more than 60 years old.

Measures

Conveyed leader grit ($\alpha = .88$), leader support ($\alpha = .91$), and employee self-attributed grit ($\alpha = .83$) were measured with the same items used in Study 1. Thriving ($\alpha = .93$) was measured with ten items (Porath, Spreitzer, Gibson, & Garnett, 2012). Sample items are “I continue to learn more as time goes by” (learning), and “I feel alive and vital” (vitality). The length of leader-employee working relationship was included for control (as explained for Study 1).

Discriminant validity. CFA tested if conveyed leader grit, perceived leader support, employee self-attributed grit, and employee thriving represent different constructs (two parcels/indicators for each construct). Although RMSEA of this model is somewhat higher (.086) than the cutoff value of .08, other fit indices are satisfactory (e.g., GFI: .96; CFI and IFI: .97). The four-factor model fits the data better than the following models: (1) perceived leader support and conveyed leader grit merged ($\Delta\chi^2_{(3)} = 12.34$; $p < .01$; RMSEA: .10; GFI: .94; CFI

and IFI: .95); (2) conveyed leader grit and employee self-attributed grit merged ($\Delta\chi^2_{(3)} = 16.57$; $p < .01$; RMSEA: .10; GFI: .93; CFI and IFI: .95); (3) employee self-attributed grit and thriving at work merged ($\Delta\chi^2_{(3)} = 14.96$; $p < .01$; RMSEA: .10; GFI: .94; CFI and IFI: .95); (4) all indicators merged ($\Delta\chi^2_{(6)} = 198.56$; $p < .01$; RMSEA: .25; GFI: .79; CFI: .63; IFI: .94).

Study 3 Results

Perceived leader support correlates with conveyed leader grit and employee thriving (Table 3). Conveyed leader grit correlates with employee self-attributed grit and employee thriving at work. Employee self-attributed grit correlates with employee thriving. Bias-corrected bootstrap regression analyses (Table 4) suggested that both conveyed leader grit ($B: .22$, $p < .01$; SE: .07; LLCI: .09, ULCI: .36) and the interaction between conveyed leader grit and leader support ($B: .14$, $p < .05$; SE: .06; LLCI: .02, ULCI: .25) predict employee self-attributed grit (H1 and H5 supported). Both leader support ($B: .35$, $p < .01$; SE: .09; LLCI: .15, ULCI: .56) and the interaction between employee self-attributed grit and leader support ($B: .30$, $p < .01$; SE: .09; LLCI: .05, ULCI: .54) predict employee thriving.

Tables 3 and 4 about here

A bias-corrected bootstrap analysis (5000 samples) with the PROCESS macro (model #58) also showed that while the direct association between conveyed leader grit and employee thriving is not significant ($B: -.06$, $p = .49$; SE: .09; LLCI: -.23, ULCI: .11), the conditional indirect relationships are as follows: (a) low leader support ($B: -.01$; SE: .03; LLCI: -.15, ULCI: .01); (b) medium leader support ($B: .03$; SE: .03; LLCI: -.01, ULCI: .10); (c) high leader support ($B: .14$; SE: .06; LLCI: .04, ULCI: .29). Therefore, the indirect association is significant only when leader support is high. Figure 5a depicts the conditional association between conveyed leader grit and employee self-attributed grit, and Figure 5b depicts the conditional association of employee self-attributed grit with employee thriving. The associations are stronger when leader support is high. The findings support all hypotheses except H2, which was not tested.

Figures 5a and 5b about here

Study 3 Discussion

The findings support Study 1 and Study 2 in that conveyed leader grit predicts employee self-attributed grit, and the relationship is stronger when leader support is high. In the three studies, the highest level of employee self-attributed grit emerges when both conveyed leader grit and leader support are high. Another noteworthy finding of Study 3 is that employee self-attributed grit predicts employee thriving, although only when perceived leader support is high. It is possible that leader support works as a social source of relational, emotional, motivational, and informational resources that facilitates the transference of conveyed leader grit to employees' thriving through their self-attributed grit (Feeney & Collins, 2015; Jordan et al., 2019). This study suffers from two main weaknesses: conscientiousness was not controlled, and all data were collected from the same source. Study 4 tackles these two limitations.

Study 4 Methods

Participants and Procedures

We contacted 178 (focal) employees (almost half by email, the others through personal contact) from our professional (non-academic) network and invited them to (a) answer a questionnaire measuring their own grit and conscientiousness, (2) ask their peers (members of their teams) to answer a questionnaire measuring their perceptions of leader grit, leader conscientiousness, and leader support, and (3) ask their team leader to answer a questionnaire measuring the thriving of the focal employee. Responses were delivered online or directly to the first author in sealed envelopes. We also asked 65 team leaders from several organizations and industries to provide access to their teams. In each team, after randomly selecting a member as the focal employee, this selected employee, the other team members, and the team leader were invited to answer the questionnaires. For 46 teams, participation was carried out online; for the other 19 teams, responses were sent in sealed envelope addressed to the first author.

Overall, 178 focal employees, 435 peers, and 119 team leaders participated. From these, 87 triads (i.e., 87 focal employees, 87 leaders, and 293 peers from 62 organizations) for which at least two peers participated were selected. Among the 87 leaders, 59.8% were female ($M_{\text{age}} = 43.00$ years, SD: 10.91). They performed diverse roles (e.g., bank branch manager, chief operations officer, hotel manager, quality manager, sales manager). Among the 293 peers, 56.0% were female ($M_{\text{age}} = 37.08$ years, SD: 10.41). For 29 teams, two peers participated; for 30, three; for 13, four; and for 15, at least five. The focal employees (43.7% female; $M_{\text{length of leader-employee working relationship}} = 6.27$ years, SD: 7.28; $M_{\text{age}} = 36.83$ years, SD: 11.06) performed a wide range of jobs (e.g., accountant, product engineer, retail manager, quality specialist, bank clerk, HR expert, sales account manager, developer, traffic manager).

Measures

We tested the hypothesized model with data from three sources: peers (conveyed leader grit; conveyed leader conscientiousness; leader support), the focal employee (self-attributed grit; self-attributed conscientiousness), and the leader (thriving of the focal employee). Considering the abundant concerns about the redundancy between grit and conscientiousness, we randomly split the sample of peers (in each team) into two halves, and used one half to measure conveyed leader conscientiousness, and the other half to measure conveyed leader grit and leader support. The procedure revealed to be appropriate: the correlation between conveyed leader conscientiousness and conveyed leader grit is .78 ($p < .01$) versus .56 ($p < .01$) when the same (vs. different) peers are used to measure each variable ($z = 2.67$, $p < .01$).

Self-reported focal employee grit ($\alpha = .73$), conveyed leader grit ($\alpha = .88$), leader support ($\alpha = .96$), and thriving ($\alpha = .88$) were measured through the items (six-point scales) used in (or adopted from) the previous studies. Self-attributed employee conscientiousness ($\alpha = .81$), and conveyed leader conscientiousness ($\alpha = .94$) were measured through twelve items from the NEO-PI-R (Costa & McCrae, 1992), assessing competence, order, dutifulness, achievement

striving, self-discipline, and deliberation. Sample items are “I keep my [the leader keeps his/her] belongings clean and neat”, and “Sometimes, I’m not [the leader is not] as dependable and reliable as I [he/she] should be” (reverse coded). The length of leader-employee relationship was included for control (see above).

Aggregating data. Aggregation indices supported aggregating data from peers at the leader/team level. ICC(1) is .34 for conveyed leader conscientiousness, and .33 for conveyed leader grit and leader support, representing a larger effect (LeBreton & Senter, 2008). ICC(2) is .64 for conveyed leader conscientiousness, and .63 for conveyed leader grit and leader support. Although these values are somewhat lower than the cutoff values ranging from 0.70 to 0.85 suggested by LeBreton and Senter (2008), they are higher than the cutoff value of .60 suggested by other researchers (e.g., Glick, 1985). r_{WG} values (uniform distribution) are .93 (.87, slightly skewed distribution), .91 (.84) and .85 (.77), for the three variables respectively, representing strong or very strong interrater agreement (LeBreton & Senter, 2008).

Discriminant validity. CFA suggested that conveyed leader grit (two parcels), and conveyed leader conscientiousness (three parcels) represent different constructs: the two-factor model (RMSEA: 0.01; GFI, CFI and IFI: .99) fits the data better than the single-factor model ($\Delta\chi^2_{(1)} = 71.12; p < .01$; RMSEA: .39; GFI: .80; CFI: .77; IFI: .78). CFA also showed that conveyed leader grit, conveyed leader conscientiousness, and leader support (two parcels) represent different constructs: the model (RMSEA: .05; GFI: .95; CFI and IFI: .99) fits the data better than a two-factor model merging grit and conscientiousness ($\Delta\chi^2_{(2)} = 104.88; p < .01$; RMSEA: .31; GFI: .70; CFI and IFI: .80) and the single factor model ($\Delta\chi^2_{(3)} = 163.05; p < .01$; RMSEA: .37; GFI: .66; CFI: .69; IFI: .70). CFA also supported considering self-reported focal employee grit and self-reported focal employee conscientiousness as different constructs: the two-factor model (RMSEA: 0.01; GFI, CFI and IFI: .99) fits the data better than the single-factor model ($\Delta\chi^2_{(1)} = 11.46; p < .01$; RMSEA: .13; GFI and IFI: .95; IFI: .96).

CFA also showed that the six-factor model representing the six variables of the study (two parcels for thriving) fits the data better (RMSEA: .095; GFI: .86; CFI: .94; IFI: .95) than (a) a two factor model merging variables measured by peers and the focal employee ($\Delta\chi^2_{(14)} = 340.38$; $p < .01$; RMSEA: .24; GFI: .54; CFI: .55; IFI: .56), (b) a four factor model merging variables measured by the focal employee and the leader ($\Delta\chi^2_{(9)} = 107.51$; $p < .01$; RMSEA: .15; GFI: .77; CFI and IFI: .83), (c) a three factor model merging variables measured by peers and the leader ($\Delta\chi^2_{(12)} = 250.23$; $p < .01$; RMSEA: .21; GFI: .65; CFI: .66; IFI: .67), and (d) the single factor model ($\Delta\chi^2_{(15)} = 418.45$; $p < .01$; RMSEA: .26; GFI: .52; CFI: .46; IFI: .47).

Study 4 Results

Conveyed leader conscientiousness correlates positively (Table 5) with conveyed leader grit, leader support, employee self-attributed conscientiousness, and employee self-attributed grit. Conveyed leader grit correlates positively with leader support, employee self-attributed grit, and employee thriving. Leader support correlates positively with employee thriving. Employee self-attributed conscientiousness correlates positively with employee self-attributed grit. Employee self-attributed grit correlates positively with employee thriving.

Bias-corrected bootstrap regression analyses (Table 6) suggested that conveyed leader grit predicts employee self-attributed grit ($B: .27$, $p < .05$; SE: .11; LLCI: .07, ULCI: .51; H1 supported). The interaction between conveyed leader grit and leader support ($B: .23$, $p < .05$; SE: .09; LLCI: .05, ULCI: .42) also predicts employee self-attributed grit (H5 supported). Both self-attributed grit ($B: .42$, $p < .01$; SE: .15; LLCI: .15, ULCI: .73) and the interaction between employee self-attributed grit and leader support ($B: .44$, $p < .01$; SE: .15; LLCI: .10, ULCI: .70) predict employee thriving. A bias-corrected bootstrap analysis (5000 samples) with the PROCESS macro (model #58) also showed that while the direct association of conveyed leader grit with employee thriving is not significant ($B: .01$, $p = .95$; SE: .15; LLCI: -.29, ULCI: .31), the conditional indirect associations are as follows: (a) low leader support ($B: .01$; SE: .04;

LLCI: -.06, ULCI: .11); (b) medium leader support (B : .09; SE: .06; LLCI: .01, ULCI: .23); (c) high leader support (B : .23; SE: .12; LLCI: .04, ULCI: .54).

Tables 5 and 6 about here

Therefore, the indirect association is significant only when perceived leader support is medium or high. The empirical pattern is similar to the one represented in Figures 5a and 5b. When perceived leader support is low, medium, and high (PROCESS macro, model #1), (a) the association of conveyed leader grit (length of leader-employee working relationship and conveyed leader conscientiousness controlled) with self-attributed grit is .08 ($p = .63$; SE: .17; LLCI: -.25, ULCI: .41), .27 ($p = .04$; SE: .13; LLCI: .01, ULCI: .54), and .47 ($p < .01$; SE: .15; LLCI: .16, ULCI: .77), respectively; (b) the association of employee self-attributed grit (length of leader-employee working relationship and self-attributed conscientiousness controlled) with employee thriving is .07 ($p = .70$; SE: .19; LLCI: -.30, ULCI: .45), .45 ($p < .01$; SE: .15; LLCI: .16, ULCI: .74), and .83 ($p < .01$; SE: .19; LLCI: .46, ULCI: 1.20), also respectively.

Study 4 Discussion

The findings corroborate that conveyed leader grit associates with employee thriving through employee self-attributed grit, and that such a relationship is stronger when perceived leader support is high. This empirical pattern is robust in that different raters were used to measure different variables, and both conveyed leader conscientiousness and employee self-attributed conscientiousness were controlled for. Both the correlation ($r = .61$) between employee self-attributed grit and employee self-attributed conscientiousness, and the correlation between conveyed leader grit and conveyed leader conscientiousness (.56 with data from different raters) are lower than .80 as emerged in Credé et al.'s (2017) meta-analysis. There are reasons to believe that although grit and conscientiousness share similarities, they are not redundant. Because of reasons discussed above regarding common method bias, future studies should test the unique predictive value of grit, after controlling for conscientiousness,

through measuring the two variables with data from different sources (conveyed grit/conscientiousness) or at different times (self-attributed grit/conscientiousness).

It is important to note that although employee self-attributed conscientiousness does not correlate with employee thriving (Table 5), the predictive value of the former for the latter is negatively significant when both self-attributed conscientiousness and self-attributed grit are included in the regression (Table 6, last column). Future studies may thus explore possible suppressor effects. Future research may also (a) adopt a more randomized approach to collect the sample (ours may be biased by self-selection), (b) include a larger sample, and (c) collect data from a greater number of peers in each team to allow the measurement of conveyed leader grit and conveyed leader conscientiousness with three raters at least.

Overall Discussion

Overall, our findings are consistent with and expand the social embeddedness theory of thriving, which suggests that the social work environment shapes the employees' experience of thriving through boosting their agentic behaviors (Spreitzer et al., 2005). Specifically, our empirical evidence suggests that the interaction between conveyed leader grit and perceived leader support leads employees to become more agentic (i.e., grittier) and thus more likely to thrive. Although we do not study the social environment directly, we show that perceptions of a salient facet of the social environment (i.e., the leader) may stimulate employee thriving by developing their self-attributed grit. Together with this overall pattern, other important findings (including those related to the theory of grit) should be highlighted.

First, self-attributed grit and conveyed grit are conceptually and empirically distinct. Most leaders in our sample of Study 2 have a level of self-attributed grit that is discrepant from their conveyed grit. The low correlation between the two constructs also corroborates that “the convergence of self-reports and observer ratings of personality and other phenomena has never been as high as one would hope” (Roberts, Harms, Smith, Wood, & Webb, 2006: 325).

Therefore, conveyed leader grit does not necessarily represent either the self-attributed grit or the level of grit the leader actually possesses. This distinction is especially important for studying leadership as a relational phenomenon. Study 2 supports such an interpretation, although leader self-attributed grit also emerged as a predictor of employee self-attributed grit. Moreover, the lowest level of employee self-attributed grit emerges when both conveyed leader grit and self-attributed leader grit are low (post-hoc examination; Figure 4). These findings corroborate self-other agreement literature that suggests that leaders who are in agreement with their observers at the high (low) level of positive leader qualities are more (less) effective and beget better (worse) individual and organizational outcomes (Lee & Carpenter, 2017).

Therefore, we do not underestimate the importance of leader self-attributed grit. It is possible that leader self-attributed grit influences the amount of grit a leader conveys to employees. It is also possible that leader self-attributed grit influences leader behaviors with consequences for how employees react to the leader. Leader self-attributed grit might also affect several leaders' own tasks that do not manifest in the leader-follower relationships. On the other hand, although we have considered employee self-attributed grit rather than conveyed employee grit to predict employee thriving, we do not underestimate the relevance of conveyed employee grit. When the dependent variable involves some kind of impact of the employee upon others (e.g., helping behaviors), conveyed employee grit must be considered. Therefore, what our study suggests is that the two constructs deserve theoretical consideration and may be influential for different outcomes.

Second, as mentioned, conveyed leader grit (even after controlling for conveyed leader conscientiousness, Study 4) predicts employee self-attributed grit. Gritty leaders act as role models and sources of social contagion that ignite the employees' self-attributed grit and nurture their thriving, perceived leader support being a boundary condition. Perceived leader support reinforces the positive association of conveyed leader grit with employee self-

attributed grit. It is possible that leader support reinforces the role modeling and social contagion processes that explain why conveyed leader grit fosters employee self-attributed grit. It is also possible that a high (low) leader support signals to the employee that material, emotional, informational, and relational resources necessary to proactively and adaptively pursue long-term goals are available (unavailable) (Jordan et al., 2019; Russo et al., 2018).

Third, evidence (Studies 3 and 4) suggests that employees with higher self-attributed grit (even after controlling for employee self-attributed conscientiousness, Study 4) are more likely to thrive, and perceived leader support also operates as a boundary condition. It is possible that high leader support makes the gritty employee feel safer to enact his/her agentic and proactive adaptive stance, thereby feeling more vigorous and more inclined to explore opportunities and routes that lead to learning. In contrast, the sense of low leader support may make the employee feel threatened by the consequences of failures, thus decreasing employee thriving. The finding suggests that a propitious context is necessary for grit to be impactful, and leader support may help to nurture such a context. We thus respond to Niessen et al. (2017), who argued that boundary conditions in the promotion of thriving at work should be considered. Our research may help to explain, in part, why the empirical evidence about the relevance of grit for success is inconsistent, and why several researchers have failed to find strong relationships between grit and indicators of success. Another reason for such inconsistent empirical evidence may be the researchers' use of self-attributed instead of conveyed grit.

Limitations and Future Studies

This research has limitations. First, our measure of perceived leader support, being unidimensional, may suffer from limited content validity, and future studies could profitably include a multidimensional measure (Wu & Parker, 2017). Future studies may also consider grit as domain-specific and adopt a measure of grit that better represents its passion component (Jordan et al., 2019). Second, future studies should include other moderators (e.g., affiliation

motive and need for caring; Russo et al., 2018). They may also pay attention to moderators that inhibit the transfer of grit to employees (e.g., destructive leadership). Third, future research may consider other predictors of employee thriving through employee grit (e.g., do servant leaders promote employee grit and thriving via an increased sense of meaningful work?). Fourth, other forms of causality are possible. Considering that leadership and followership are co-constructed, that followers and leaders influence each other, and that grit is contagious (Duckworth, 2016), employee grit may influence leader grit. Employees who have conditions to thrive are more likely to develop their own grit (Niessen et al., 2012; Spreitzer et al, 2005; Spreitzer & Porath, 2014). Finally, our research includes a single dependent variable, and thus future studies may include other dependent variables (e.g., individual and team performance).

Conclusion

Our research answers the call for more research on how leaders may promote thriving at work (Spreitzer & Hwang, 2019) and suggests that leaders may have such a positive impact if they are gritty and supportive. By conveying grit (i.e. by demonstrating perseverance toward long-term goals) and support (i.e., by listening to employees, being attentive, and developing a trustful relationship with them), leaders develop employees' self-attributed grit and, therefore, their thriving. The study also indicates that the concept of grit is more textured than normally considered, a theme that needs to be further investigated.

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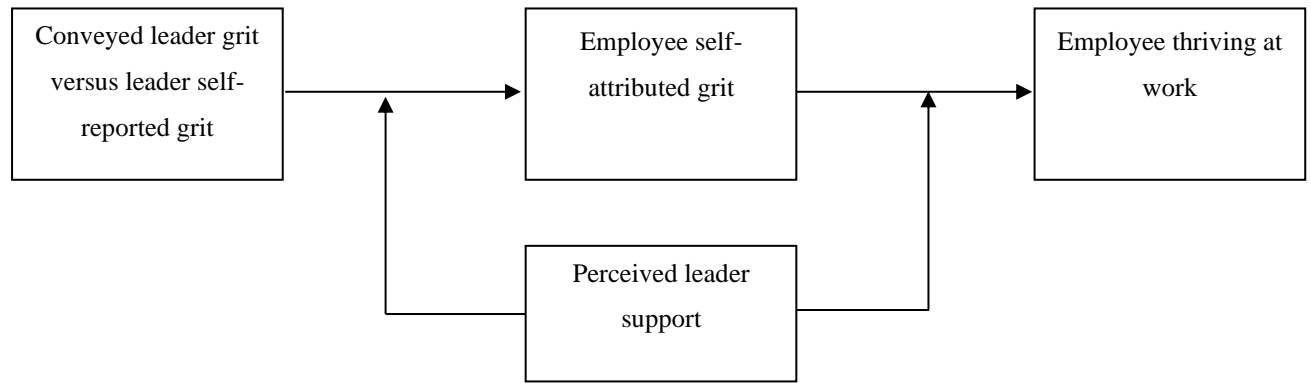


Figure 1. Conceptual model

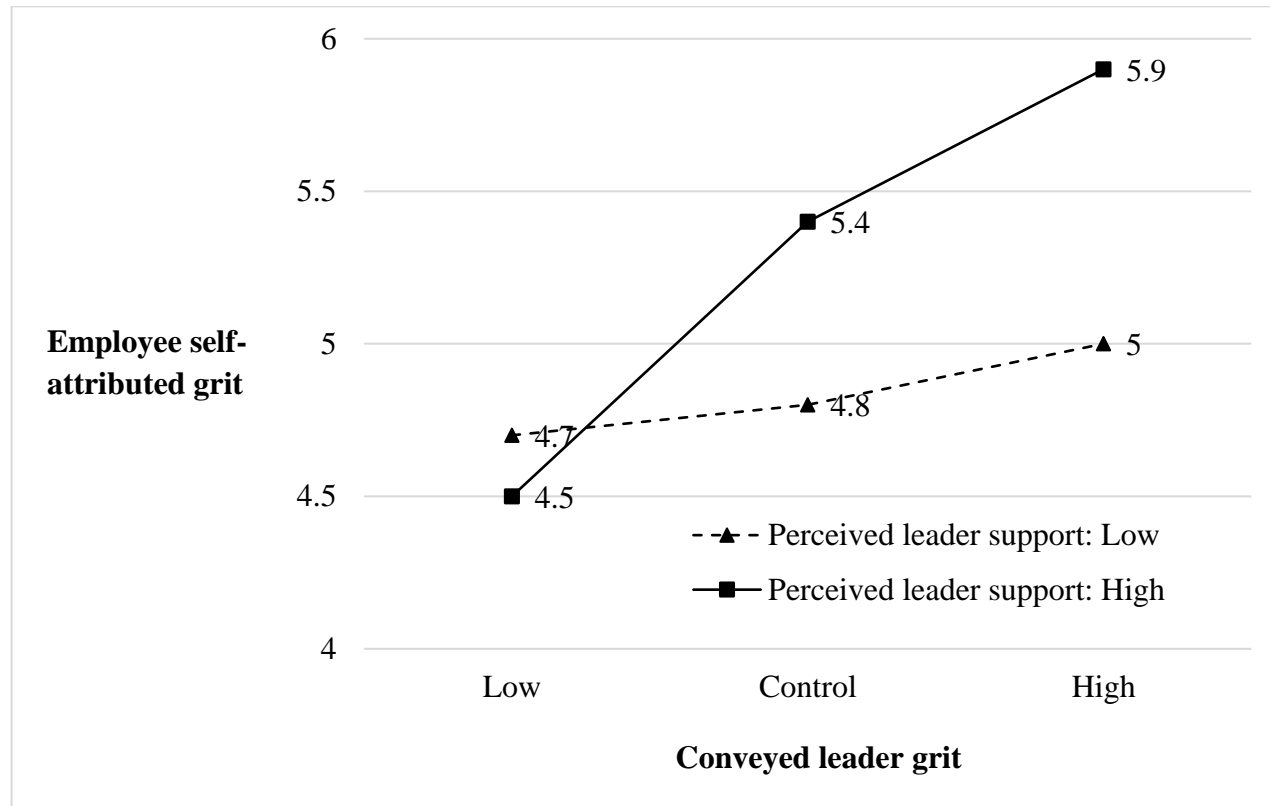


Figure 2. How conveyed leader grit interacts with perceived leader support in predicting employee grit – Study 1

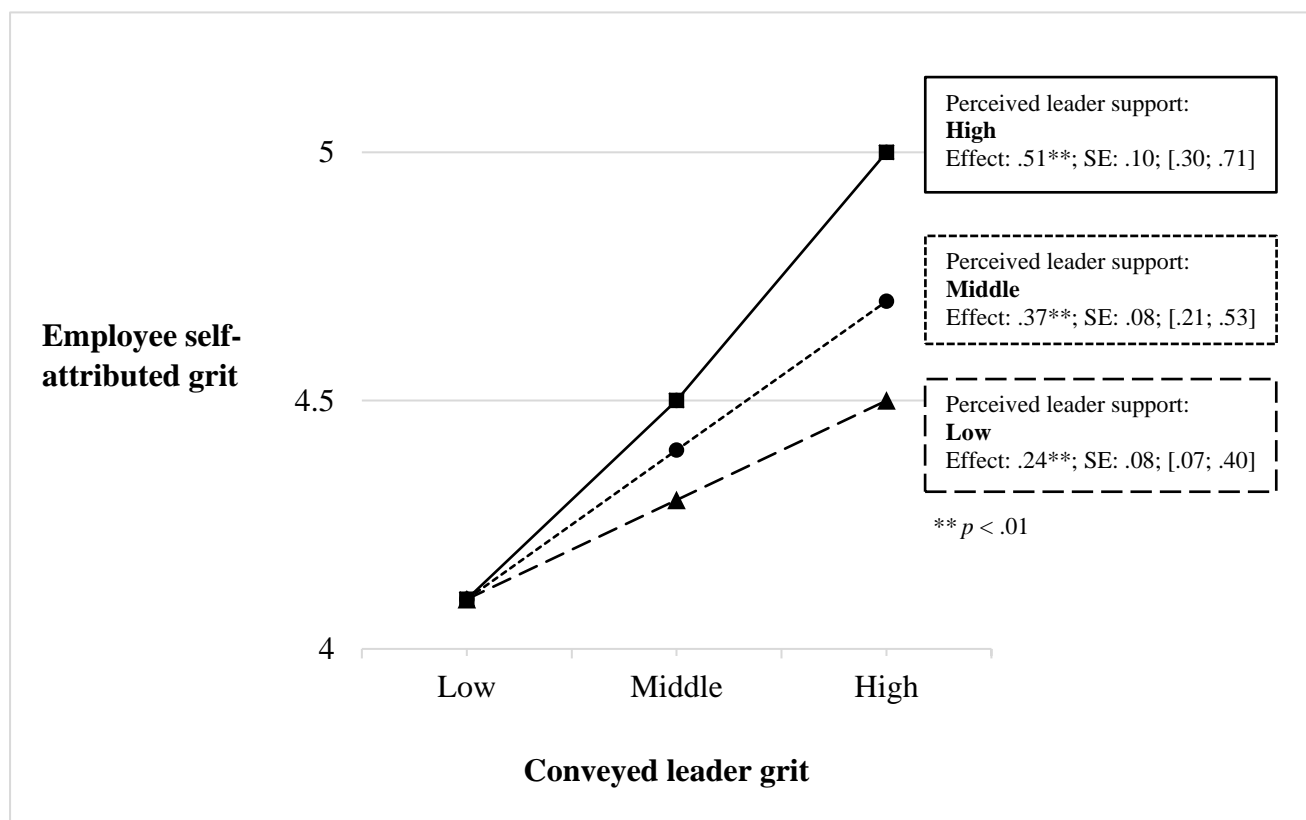
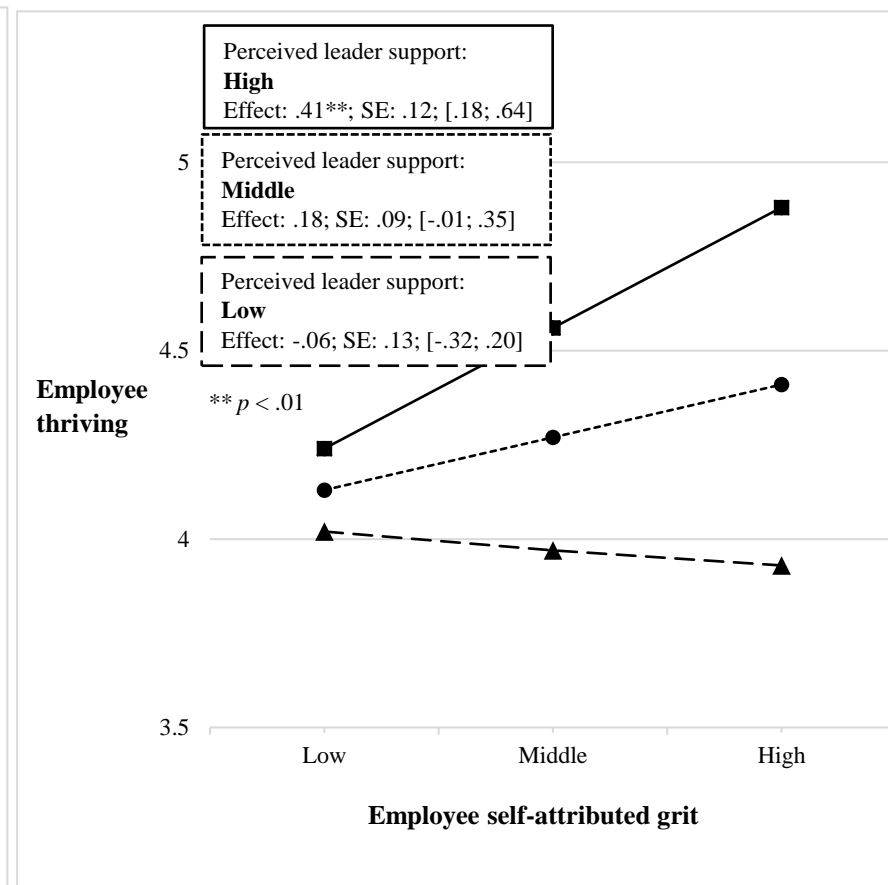
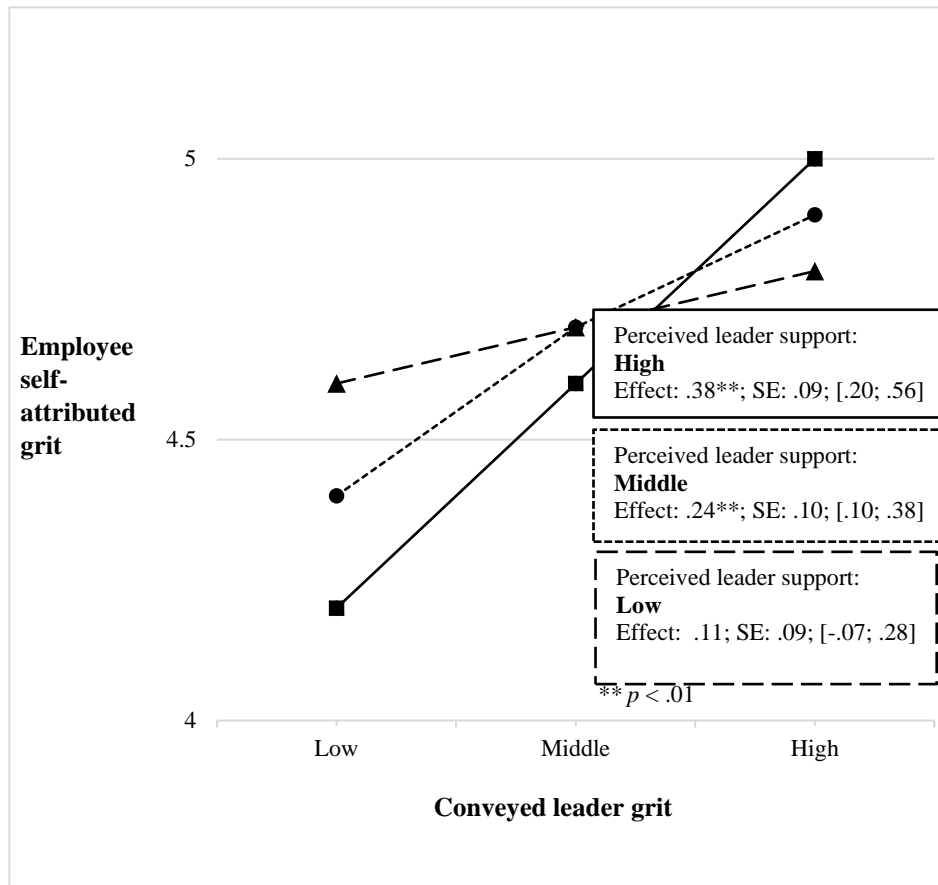


Figure 3. How conveyed leader grit interacts with perceived leader support in predicting employee grit – Study 2



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



Figures 5a and 5b. How perceived leader support operates as a moderator between conveyed leader grit and employee self-attributed grit (3a) and between employee self-attributed grit and employee thriving (3b) – PROCESS macro, model #1, Study 3

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	(.92)			
3. Perceived leader support (T1)	4.70	1.01	.08	.76*	(.91)		
4. Conveyed leader grit (T1)	4.69	.79	.03	.52**	.62**	(.83)	
5. Leader self-attributed grit (T1)	4.75	.65	.07	.04	.06	.18*	(.76)
6. Employee self-attributed grit (T2)	4.48	.69	.05	.35**	.41**	.50**	.22** (.75)

N = 156.

Alpha reliabilities in parentheses, main diagonal.

p* < .05*p* < .01

Table 2

Bootstrap regression analysis (5000 samples) 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	B	SE	Bias corrected 95% CI
Length of leader-employee working relationship	.00	.01	[-.02, .02]	.00	.01	[-.02, .02]	.00	.01	[-.02, .02]	.00	.01	[-.02, .02]
Sense of meaningful work (T1)	.20**	.05	[.10, .29]	.07	.05	[-.03, .19]	.03	.07	[-.10, .17]	.00	.07	[-.13, .13]
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	10.54**			14.81**			12.11**			9.95**		
F change	-			16.89**			1.21			3.54*		
R ²	.12			.28			.29			.32		
R ² change	-			.16			.01			.03		

N = 156.

**p* < .05

***p* < .01

Table 3

Means, standard deviations, and correlations – 1st(2nd) line: Study 3 (Study 4)

	<i>M</i>	<i>SD</i>	1	2	3	4
1. Length of leader-employee working relationship (years)	6.71	6.78	-			
2. Conveyed leader grit (T1)	4.49	1.02	.11	(.88)		
3. Perceived leader support (T1)	3.92	.91	.18	.60**	(.91)	
4. Employee self-attributed grit (T2)	4.73	.77	.27**	.24**	.07	(.83)
5. Employee thriving at work (T3)	4.28	.97	.21**	.21**	.33**	.19* (.93)

N = 168

Alpha reliabilities in parentheses, main diagonal.

**p* < .05

***p* < .01

Table 4

Bootstrap regression analysis (5000 samples): Testing the moderated mediation model to predict thriving – Study 3

	Employee self-attributed grit						Employee thriving					
	B	SE	[Bias corr. 95% CI]	B	SE	[Bias corr. 95% CI]	B	SE	[Bias corr. 95% CI]	B	SE	
Length of leader-employee working relationship	.03**	.01	[.01, .05]	.03**	.01	[.01, .04]	.02*	.01	[.003, .04]	.02*	.01	[.003, .04]
Conveyed leader grit	.22**	.07	[.06, .36]	.22**	.07	[.09, .36]	-.03	.09	[-.21, .13]	-.07	.09	[-.26, .11]
Perceived leader support	-.10	.08	[-.25, .06]	-.10	.08	[-.25, .05]	.35**	.10	[.14, .56]	.35**	.09	[.15, .56]
Conveyed leader grit x perceived leader support	-	-	-	.14*	.06	[.02, .25]	-.01	.08	[-.18, .19]	-.06	.07	[-.24, .14]
Employee self-attributed grit	-	-	-	-	-	-	.16	.10	[-.08, .38]	.15	.09	[-.08, .36]
Employee self-attributed grit x perc. leader support	-	-	-	-	-	-	-	-	-	.30**	.09	[.05, .54]
F	8.12**			7.65**			6.03**			6.88**		
F change	-			5.58*			-			9.52**		
R ²	.12			.16			.16			.20		
R ² change	-			.04			-			.04		

N = 168

**p* < .05

***p* < .01

Table 5

Means, standard deviations, and correlations – Study 4

	<i>M</i>	<i>SD</i>	1	2	3	4	5	6
1. Length of leader-employee working relationship (years)	6.27	7.28	-					
2. Conveyed leader conscientiousness	4.61	.70	-.09	(.94)				
3. Conveyed leader grit	4.80	.69	-.27**	.56**	(.88)			
4. Perceived leader support	4.97	.85	-.21	.54**	.72**	(.96)		
5. Employee self-attributed conscientiousness	4.80	.58	-.19	.22*	.17	.05	(.81)	
6. Employee self-attributed grit	4.61	.58	-.05	.22*	.29**	.13	.61**	(.73)
7. Employee thriving at work	4.55	.69	-.18	.20	.23*	.21*	-.03	.22* (.88)

N = 87

Alpha reliabilities in parentheses, main diagonal.

p* < .05*p* < .01

Table 6

Bootstrap regression analysis (5000 samples): Testing the moderated mediation model to predict thriving – Study 4

	Employee self-attributed grit						Employee thriving					
	B	SE	[Bias corr. 95% CI]	B	SE	[Bias corr. 95% CI]	B	SE	[Bias corr. 95% CI]	B	SE	
Length of leader-employee working relationship	.00	.01	[-.02, .02]	.00	.01	[-.02, .02]	-.02	.01	[-.04, .00]	-.02*	.01	[-.04, -.01]
Conveyed leader conscientiousness	.11	.09	[-.08, .29]	.17	.10	[-.03, .35]	.20	.13	[-.05, .48]	.21	.12	[-.01, .44]
Conveyed leader grit	.30**	.11	[.09, .55]	.27*	.11	[.07, .51]	.01	.17	[-.34, .33]	.00	.16	[-.33, .30]
Perceived leader support	-.13	.11	[-.33, .08]	-.09	.10	[-.27, .12]	.07	.16	[-.25, .38]	-.03	.14	[-.29, .26]
Conveyed leader grit x perceived leader support	-	-	-	.23*	.09	[.05, .42]	.21	.16	[-.13, .51]	.12	.15	[-.22, .37]
Employee self-attributed conscientiousness	-	-	-	-	-	-	-.44**	.15	[-.75, -.18]	-.32*	.15	[-.65, -.06]
Employee self-attributed grit	-	-	-	-	-	-	.42**	.15	[.15, .73]	.42**	.15	[.15, .73]
Employee self-attributed grit x perc. leader support	-	-	-	-	-	-	-	-	-	.44**	.15	[.10, .70]
F	2.40			2.92*			2.79*			3.84**		
F change	-			4.57*			-			9.19**		
R ²	.11			.15			.20			.28		
R ² change	-			.05			-			.08		

N = 87

**p* < .05

***p* < .01