The Power of Reflection for Would-Be Leaders: Investigating Individual Work Reflection

and Its Impact on Leadership in Teams

Abstract

This paper examines the key role that individual work reflection plays in facilitating individuals' leadership in teams. Consistent with the functional perspective on leadership, we argue that individual work reflection allows individuals to better understand their team's needs, and therefore enact higher levels of task-, relational-, and change-oriented leadership behaviors and be more effective leaders in their teams. We first conducted a series of measure development studies to validate a measure of individual work reflection comprising four dimensions of reflection at work: goals-, methods-, relationships-, and self-focused reflection. Then, across two independent studies assessing individuals in self-managing teams over time, we found support for our theoretical model linking individual work reflection to peer-rated leadership behaviors (Main Studies 1 and 2) as well as leadership effectiveness (Main Study 2). In further support of our theorizing, Main Study 2 also indicates that individual work reflection shapes leadership behaviors and effectiveness via understanding the team's needs, beyond a wide range of related constructs (e.g., feedback seeking, mindfulness, and rumination), as well as commonly studied predictors of leadership behaviors (i.e., the Big Five). Our theory and empirical findings help advance insights on the role of individual work reflection in improving leadership outcomes in organizations.

Keywords: Individual work reflection, Reflexivity, Leadership behaviors, Self-managing teams, Functional leadership theory

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"Leadership demands periods of restraint and consideration. Leaders must regularly turn off the noise and ask themselves what they stand for and what kind of an example they want to set." (Harry Kraemer, past CEO of Baxter International, 2016)

Over 30 years ago, Mintzberg (1989) observed that individuals often "work at an unrelenting pace….they are strongly oriented to action, and dislike reflective activities," a characterization that is popular and enduring (e.g., Porter, 2017; Seibert, 1999). Although individuals may not necessarily appreciate reflection as a valuable work activity, some scholars suggest the important role it can play in leadership and personal development (e.g., Ashford & DeRue, 2012). Multiple practice-oriented leadership books and articles similarly highlight the importance of individual reflection for effective leadership (Brown, 2006; Smith & Shaw, 2011; Talbot-Zorn & Marz, 2017), and business leaders, such as the former CEO of Baxter International quoted above, emphatically advocate for the value of reflection. Mirroring this enthusiasm in practice-oriented work, scholars have suggested individual reflection may be critical to leadership development (Nesbit, 2012; Reichard & Johnson, 2011) and effective leadership (Alvesson et al., 2016). However, although empirical evidence has connected reflection-related processes to relevant outcomes in organizations, such as increased well-being and both individual and team performance (e.g., Carter & West, 1998; Lanaj et al., 2019; Otte et al., 2017), we still lack more in-depth theorizing, as well as empirical evidence, on the relationship between individual reflection and leadership outcomes.

In this research, we advance and test an overarching framework tying individual work reflection to leadership, based on functional leadership theory (Hackman & Walton, 1986). This theory proposes that leadership is established when individuals are able to understand the needs of the team and alter their behavior to satisfy those needs (McGrath, 1962; Zaccaro et al., 2001).

We use this theory to propose that individual work reflection will be important for functional leadership, especially in the context of self-managing teams (i.e., teams in which there is no formally appointed leader). Research indicates that more and more work is being done in self-managing teams (DeRue et al., 2015; Roberson & Williamson, 2012), where guides for appropriate action for would-be leaders are ambiguous and norms regarding leadership are unclear (DeRue & Ashford, 2010). In such settings, we propose that team members who engage in individual work reflection will be able to assess what leadership behaviors are required in their team and, in turn, enact more of those behaviors and do so more effectively.

The primary goal of the current research is to propose and test a theoretical framework linking individual work reflection to leadership outcomes, specifically leadership behaviors (i.e., the quantity of leadership) and leadership effectiveness (i.e., the quality of leadership). We define individual work reflection as one's self-initiated engagement in a set of cognitive activities that include considering and examining various dimensions that make up one's work and affect one's ability to achieve positive work outcomes. Based on functional leadership theory, we predict that individual work reflection allows individuals to understand their team's needs, which, in turn, prompts both more leadership behaviors and more effective leadership. To test these relationships, we develop a new measure of individual work reflection and consider this measure-development work the secondary goal of our current research.

Our research makes several contributions to the organizational literature. The first contribution is to the literature on leadership. Building on important practitioner-oriented (e.g., Brown, 2006; Smith & Shaw, 2011; Talbot-Zorn & Marz, 2017) and initial theoretical (e.g., Alvesson et al., 2016; Nesbit, 2012; Reichard & Johnson, 2011) work suggesting the value of individual reflection for leadership in organizations, we develop an overarching framework

linking individual work reflection to leadership behaviors and leadership effectiveness in self-

managing teams and empirically test the proposed links. This contribution builds on prior

findings indicating that external, researcher-initiated reflection interventions may amplify

individuals' influence as leaders (Lanaj et al., 2019) and contribute to their longer-term

leadership development (DeRue et al., 2012). Our theorizing, in contrast, focuses on the

reflection that individuals engage in of their own volition as they make in-situ decisions about

how much leadership to offer during the course of ongoing teamwork within a group and how to

offer it effectively. Such self-initiated reflection may be particularly important in organizational

contexts where reflection interventions are not widely available to organizational members in

non-leadership positions. For these individuals, self-initiated individual work reflection may be

particularly beneficial if they wish to lead effectively. This focus on individual work reflection as

a specific practice that allows individuals to improve their leadership is in line with recent calls

for more research on the specific practices that help individuals establish and enact their

leadership, instead of the individual differences or "gestalt" leadership styles that shape their

leadership (Day & Antonakis, 2012; Van Quaquebeke & Felps, 2018).

　　　Second, our current research contributes to insights on functional leadership theory

(Hackman & Walton, 1986; McGrath, 1962; Zaccaro et al., 2001). The functional approach to

leadership argues that the leader's job is to "do, or get done, whatever is not being adequately

handled for group needs" (McGrath, 1962, p. 5). Previous research has focused on investigating

the impact of functional leadership on outcomes such as team performance (see Burke et al.,

2006, for meta-analytic evidence). Our research, in contrast, shifts the focus to examining what

enables individuals to understand the needs of their team in the first place and how they use that

understanding to better lead in their teams. As such, our current research adds a consideration of

the antecedents that allow individuals to engage in functional leadership. Specifically, we argue that individual work reflection enables individuals to better understand their team's needs and therefore improve the quantity and quality of their leadership.

Third, our research advances existing theory and evidence on reflection at work. Prior research has documented the positive outcomes stemming from team reflexivity (i.e., reflection that occurs on a team level; Carter & West, 1998), after-event reviews (i.e., structured group-based learning interventions promoting reflection following specific events; Ellis & Davidi, 2005), discrete reflection interventions promoting daily reflection done individually (e.g., Bono et al., 2013; Lanaj et al., 2019), and positive work reflection during non-work hours (e.g., Fritz & Sonnentag, 2005). Despite this important work, we still know little about what individuals focus on during individual reflection (as opposed to collective reflection as a team) that occurs at their own initiative (as opposed to in response to an external intervention), in their day-to-day lives (as opposed to only outside of their work), and on any aspects of their work (as opposed to only positive aspects of work). Further, we lack insights about the impact this reflection might have on their leadership at work (as opposed to their overall work performance). Our conceptualization of individual work reflection proposes that individuals may engage in reflection on their own at any time and place. In advancing insights on the construct of individual work reflection, we also explore *what* issues will be important for individuals to focus on as they reflect on their work. This emphasis complements Otte et al.'s (2017) emphasis on *how* individuals engage in reflexive processes. Finally, our research contributes by establishing and validating a measure of individual work reflection, as it naturally occurs within individuals, that can be used as a basis for future research to broaden our understanding of the unique contribution of individual work reflection to both leadership and organizational outcomes, more generally.

A Framework of Individual Work Reflection and Leadership

Both management practitioners and scholars have suggested a connection between reflection and leadership. For instance, Brown's (2006) *A Leader's Guide to Reflective Practice* offers practical suggestions for how individuals may enhance their leadership effectiveness through reflection. Similarly, Smith and Shaw (2011), as well as Shepherd and Smyth (2012), suggest that a leader's ability to reflect is key to effective leadership. In addition, scholars such as Alvesson and colleagues (2016) present a theoretical case for a reflexive approach to leadership, arguing that individuals' ability to scrutinize, challenge, or reconsider their ideas and actions offers them a path to leadership. Nesbit (2012) theorizes that considerable leadership development occurs outside of structured and organization-sponsored training or workshops, through reflection. Likewise, Reichard and Johnson (2011) propose that reflection is essential for self-directed, long-term leadership development. Despite these suggestions, theory linking self-initiated reflection to leadership behaviors and leadership effectiveness in specific situations, rather than to leadership development over time, as well as empirical investigations examining these links, is scant. Although we know reflection helps one grow as a leader over the long term, we still know little about its link to one's enactment of discrete leadership behaviors and the effectiveness of one's leadership at any one moment, in the course of ongoing work.

The existing research also focuses on researcher-initiated, structured reflection interventions. For example, Lanaj and colleagues (2019) show that an intervention prompting formally appointed leaders to reflect on personal characteristics that made them good leaders led them to experience less depletion and more engagement, as well as to perceive that they had greater influence at work. Similarly, research by DeRue et al. (2012) show that an after-event review had a positive impact on individuals' leadership development over multiple months.

While this initial research shows that reflection might matter for leadership, organizational

adoption rates for such interventions will likely vary and they may not be made available to all

individuals. For example, structured reflection interventions may be less likely in settings where

individuals are not explicitly expected to engage in leadership, such as in self-managing teams.

In such settings, those who wish to lead may need to engage in reflection on their own initiative;

thus, we focus on the link between self-initiated individual work reflection and leadership.

Conceptualizing Individual Work Reflection

Reflection is "serious thought or consideration," and to reflect is "to think deeply and

carefully about" something (Oxford Dictionaries, 2022). It is a set of cognitive activities that

include considering and examining the various dimensions that make up an individual's work

(Boud et al., 2006), allowing individuals to make sense of it (Ellström, 2006) and enhancing their

ability to achieve positive outcomes (Argyris & Schön, 1978; Schön, 1983). Individuals typically

engage in reflection by thinking or in expressive writing (Lanaj et al., 2019; Pennebaker, 1997).

Although some research has studied reflection as a trait-like tendency (e.g., Van Seggelen-

Damen, 2013), the literature has predominantly treated it as a state-like activity that may be

meaningfully prompted and influenced by structured interventions or various contextual factors

(e.g., Bono et al., 2013; Ellis & Davidi, 2005). In this research, we similarly conceptualize

individual work reflection as an intentional cognitive activity that any individual may potentially

choose to engage in at any given time, rather than as a stable individual difference.

We draw from and integrate two distinct literatures to conceptualize individual work

reflection as comprising four dimensions that capture the different types of issues upon which

individuals might reflect at work. First, the self-management literature (Manz & Sims, 1980;

Uhl-Bien & Graen, 1998) proposes that individuals typically have goals that they are trying to

achieve in specific situations, and they attempt to control and manage the methods by which they

achieve them. Second, the team reflexivity literature places a similar emphasis on goals and

methods, under the heading of "task reflection" (Carter & West, 1998). Based on this existing

literature, we propose two key dimensions of individual work reflection relating to the task itself:

goals-focused reflection, whereby individuals examine the objectives adopted for their work and

their progress toward those objectives; and *methods-focused reflection*, whereby they consider

the appropriateness of the strategies or methods used to achieve their goals. A second general

focus of reflection is the social context. Research on team reflexivity suggests the importance of

teams reflecting together on the social relationships within the team and how a team is

functioning (Swift & West, 1998; West, 2000). In addition, research on self-management

emphasizes a consideration of oneself and the appropriateness of one's own behavior for one's

work (e.g., Ashford & Cummings, 1983). Therefore, we propose two additional social

dimensions of individual work reflection. In *relationships-focused reflection*, individuals reflect

on how they are interacting with other people at work, and in *self-focused reflection*, they reflect

on themselves, how they function as individuals, and how their personal characteristics influence

their work.

　　　We argue that individual work reflection is meaningfully distinct from and offers

advantages over other forms of reflection for advancing our understanding of leadership in self-

managing teams. First, in contrast to the structured reflection interventions studied previously

(e.g., DeRue et al., 2012; Lanaj et al., 2019), individual work reflection is self-initiated such that

individuals engage in it on their own, without formal instructions from management. It is thus

particularly beneficial in contexts where organizations may not make structured reflection

interventions available to all organizational members. A self-initiated individual work reflection

construct allows us to capture the reflection that individuals engage in without prompting. Second, team reflexivity is a collective endeavor that involves overt reflection through conversation among team members as they jointly evaluate how they are completing their tasks and supporting one another (Carter & West, 1998). Individual work reflection, in contrast, is driven by individuals' personal choices to engage in reflection on their own as they work, independent of their team members. Indeed, individual work reflection may be the first step that a would-be leader might take to begin considering leading within self-managing teams. Because it is done alone, individual work reflection is also more accessible to would-be leaders than team-level reflection, since the latter requires additional communication and coordination with others in the team who may not have the desire to lead and therefore less desire to engage in reflection to understand the team's needs.

Further, some research suggests that reflecting about the positive aspects of one's work during weekends (Fritz & Sonnentag, 2005), vacations (Fritz & Sonnentag, 2006), or after work hours (Sonnentag & Grant, 2012) benefits individuals' well-being, work motivation, and work-to-life enrichment. In contrast, individual work reflection is an activity readily available to individuals anytime and anywhere. Individual work reflection thus more comprehensively incorporates reflection processes that may occur as individuals go about their day-to-day lives, instead of an exclusive focus on non-work time. Further, although reflecting on positive aspects of one's work experiences may benefit work and life satisfaction, in line with related evidence on learning from negative feedback and failure (Cianci et al., 2010; Sitkin, 1992), we propose individuals who wish to be leaders in self-managing teams will gain more from a holistic consideration of the positive, neutral, and negative aspects of their experiences via individual work reflection.

Individual work reflection also differs from other awareness-oriented constructs that have been examined in the context of leadership. First, some evidence links a leader's negative feedback seeking with leadership effectiveness (Ashford & Tsui, 1994; Chun et al., 2018). This is because feedback seeking gives the leader better information on which to tailor their leadership behaviors and because the seeking itself creates a positive impression on subordinates (Ashford & Tsui, 1994; Chun et al., 2018). These explanations suggest key differences between feedback seeking and individual work reflection as a means of gaining self-insight. Feedback seeking is a more outward-orientated, social means of obtaining knowledge to better understand constituents' views (Tsui & Ashford, 1994). As such, it is governed by various social motivations. For example, Chun and colleagues (2018) find leaders' negative feedback seeking occurs more frequently in the context of positive supervisor-subordinate relationships and is governed by impression-management concerns that further affect their willingness to seek feedback. Such concerns do not arise with individual work reflection done on one's own and without the awareness of others. Further, this research suggests that feedback seeking is a means of getting information, much along the lines of Otte et al.'s (2017) reflexive practices, one of which is information seeking. As such, although feedback seeking might help individuals obtain material upon which to reflect, it does not constitute reflection itself. Our aim is to establish the role of individual work reflection itself for beneficial leadership outcomes.

Second, there has been recent interest in the role that mindfulness (Brown & Ryan, 2003) might play in leadership flexibility (Baron et al., 2018), authentic leadership (Nübold et al., 2020), and transformational leadership (Carleton et al., 2018; Decuypere et al., 2018). Mindfulness involves paying non-evaluative attention to present experiences (Kabat-Zinn, 1994). For example, mindfulness interventions (e.g., Nübold et al., 2020, p. 475) ask individuals to

"hone in on their breath, bodily sensations, thoughts, or feelings and then simply observe rather than evaluate what they experience." The essence of mindfulness is that this awareness is receptive and non-judgmental (Carleton et al., 2018). In contrast, individual work reflection often involves making judgments, such as evaluating whether a situation was successful or not, and what factors led to that outcome (Ashford & DeRue, 2012). It also involves thinking about past experiences or future situations (Daudelin, 1996; Schön, 1983), not only the present. In fact, we argue that the judgments individuals make during individual work reflection are what allow them to assess team needs and forecast the impact of their potential leadership behaviors.

The Relationship between Individual Work Reflection and Leadership

Drawing on functional leadership theory (Hackman & Walton, 1986; McGrath, 1962), we propose that individual work reflection will be positively related to leadership behaviors (i.e., quantity of leadership) and leadership effectiveness (i.e., quality of leadership). Functional leadership theory has become the dominant theoretical framework for understanding leadership in teams operating without a formally appointed leader (Morgeson et al., 2010). According to this theory, leadership is successful to the extent that all the functions critical to a team are adequately handled (Burke et al., 2006; Hackman & Walton, 1986).

As teams complete their tasks and face various challenges, three types of leadership behaviors provide functional value for them: task-, relational-, and change-oriented leadership behaviors (Gerpott et al., 2019). Specifically, teams need someone on the team (or many team members) to engage in these three types of leadership behaviors to be successful (Morgeson et al., 2010). Task- and relational-oriented leadership behaviors, in particular, have a long-standing history in the leadership literature (Halpin, 1957; Hemphill & Coons, 1957; Stogdill, 1963). The former includes actions aimed at clarifying objectives, defining task roles, and coordinating team

members' actions. The latter captures actions such as showing concern for team members and encouraging them to focus on the welfare of the team. More recently, DeRue et al. (2011) also identified change-oriented leadership behavior as a third, central category of functional leadership behavior. These behaviors include actions such as developing and communicating a vision for change, fostering innovative thinking, and taking risks to promote necessary changes (Yukl et al., 2002). In addition, beyond a consideration of the different types of leadership behaviors (i.e., the quantity of leadership) that will be functional for a team, it is also important to consider the effectiveness of engaging in leadership (i.e., the quality of leadership). Leadership effectiveness refers to an individual's ability to influence the activities of the team toward achievement of its goals (Judge et al., 2002) in a manner considered effective by others who work closely with that individual (Ashford & Tsui, 1994; Lanaj & Hollenbeck, 2015).

In a team setting, individual work reflection will allow individuals to gain a better cognitive understanding of what they can do to bring functional value to their team, such as helping the team attain or meet its goals, maintain a supportive team climate, and support changes or new initiatives in the team, and how they can do so effectively. Specifically, through reflection, individuals may critically evaluate their own behaviors and their experiences in the team (Busby, 1999; DeRue et al., 2012; Ellis & Davidi, 2005) and develop an enhanced perspective on the specific actions they need to take to provide task-oriented, relational-oriented, and change-oriented leadership for the team, and to be effective as a leader. Furthermore, individual work reflection may enable individuals to regulate their emotions more effectively (Kross & Ayduk, 2017; Martin & Delgado, 2011). Individuals often find engaging in leadership behaviors a risky endeavor (Lee Cunningham et al., in press; Zhang et al., 2020). The ability to regulate their feelings will allow them to feel less anxious about engaging in a greater quantity of

task-oriented, relational-oriented, and change-oriented leadership behaviors that will be functional in the team. Individuals who are able to regulate their emotions also build better relationships (Humphrey, 2002; John & Gross, 2004) and thus may be able to exert more influence over others in the team and be more effective leaders. Thus, we propose that individual work reflection is positively associated with engagement in task-, relational-, and change-oriented leadership behaviors (i.e., quantity of leadership), as well as with leadership effectiveness (i.e., quality of leadership).

Hypothesis 1: *Individual work reflection is positively associated with (a) task-, (b) relational-, and (c) change-oriented leadership behaviors.*

Hypothesis 2: *Individual work reflection is positively associated with leadership effectiveness.*

Functional leadership theory (Hackman & Walton, 1986; McGrath, 1962) may also explain the key mechanism underlying the relationships proposed in our earlier hypotheses. According to functional leadership theory, an important element of leadership consists of taking time and effort to assess the team's needs and to engage in leadership behaviors that satisfy those needs (Burke et al., 2006; Homan et al., 2020; McGrath, 1962; Zaccaro et al., 2001). Thus, a leader's role is to monitor any needs their team might have and to take actions to address those needs and maintain team performance (Santos et al., 2015). From a functional perspective, leadership does not rest with any one person (Burke et al., 2006), but rather with any member of the team who understands the team's needs and acts to satisfy those needs by engaging in leadership behaviors that are functional for the team.

A large number of empirical studies have investigated the types of leadership behaviors that are functional in a team (i.e., help produce beneficial team performance; see Burke et al., 2006 for meta-analysis). But we know less about how individuals in a team come to recognize

and understand what their team might need in the first place, and therefore know what behaviors to engage in to lead their team in functional ways. We build on functional leadership theory to propose that when individuals engage in individual work reflection, they are likely to arrive at an improved understanding of what their team needs and thus will be more likely to engage in task-, relational-, and change-oriented leadership behaviors that bring functional value to their team.

Specifically, we argue that individual work reflection will help individuals gain a better understanding of their team's needs because reflection involves temporarily distancing themselves from the busyness of their immediate work activities. Some describe reflection as a way of "creating a space" (Cressey et al., 2006, p. 23) or distance for focusing on problems and slowly deliberating on them. Boud and colleagues (2013) theorize that this distance can help individuals gain perspective and understand their situations more comprehensively. Likewise, empirical research suggests that distancing from one's experiences, especially one's negative experiences, allows individuals to see the bigger picture (Kross & Ayduk, 2017). In a team setting, this distance may allow individuals to achieve a more complete understanding of their team's needs. In addition, with this distance, individual work reflection facilitates a more rational decision-making process about the team and its needs. Because individual work reflection is primarily a cognitive activity, it relies on what Kahneman (2011) labels System 2 decision-making, which is slow and deliberative, enabling individuals to make sound decisions. Indeed, empirical research indicates that gaining distance from one's experiences allows individuals to reason more objectively (Kross & Ayduk, 2017), implying improved decision-making quality. In turn, we argue that individual work reflection prompts a more comprehensive decision-making process about the team, facilitating greater understanding of the team's needs with a view toward engaging in leadership behaviors that are functional for the team.

We next argue that when individuals have a greater understanding of their team's needs, they will be more likely to engage in the task-, relational-, and change-oriented leadership behaviors needed to address those needs. First, gaining a better understanding of the team's needs through individual work reflection may help strengthen individuals' self-confidence that their proactive leadership behaviors will be received more positively by their team and effectively fulfill the team's needs, instead of posing a risk to themselves and the team. In initial support of our arguments, findings suggest that a greater sense of leadership-related self-efficacy is linked to greater engagement in leadership (Anderson et al., 2008; Chemers et al., 2000; Paglis & Green, 2002). Further, an understanding of the team's needs may lead to more of what Chan and Drasgow (2001) call the socio-normative motivation to lead, a motivation based on an internal sense of duty or obligation to engage in leadership behaviors. This motivation to lead has been associated with leadership behaviors across multiple studies (see Badura et al., 2020 for a meta-analysis). Indeed, functional leadership theory suggests individuals may worry that if their team's needs are not met, their team's performance may be harmed, and thus they will proactively engage in leadership behaviors to address those needs (Hackman & Walton, 1986; McGrath, 1962). In sum, when individuals have a heightened understanding of their team's needs via their individual work reflection, they feel more confident and obligated to address those needs, leading to more engagement in leadership behaviors. Thus, we propose that the positive links between individual work reflection and task-, relational-, and change-oriented leadership behaviors will be explained by our mediator—understanding team needs:

Hypothesis 3: *Understanding team needs mediates the relationships between individual work reflection and (a) task-, (b) relational-, and (c) change-oriented leadership behaviors.*

As we argued earlier, individual work reflection will likely provide individuals with a better understanding of their team's needs. Team members who understand the needs of their team know what is holding the team back and what the team needs to do to improve and achieve its targets (Zaccaro et al., 2000). In turn, other team members will perceive these individuals as knowledgeable about the team and view their actions as relevant to team success. The literature on social influence suggests these perceptions will prompt their readinesss to be influenced by this individual (French & Raven, 1959; Yukl & Falbe, 1990), and thus their perception of him or her as an effective leader. Furthermore, team members who develop a better understanding of the team's needs through individual work reflection may be perceived as group-oriented and having the team's best interest at heart. Empirical findings suggest that these perceptions lead others to see such individuals as effective leaders (De Cremer & Van Vugt, 2002; Van Knippenberg & Hogg, 2003). In sum, we propose that our mediator—understanding team needs—also explains the relationship between individual work reflection and leadership effectiveness

Hypothesis 4: *Understanding team needs mediates the relationships between individual work reflection and leadership effectiveness.*

Our theoretical model is displayed in Figure 1. To test our model, we first developed a measure of individual work reflection across a series of measure development studies. We then investigated the relationships between individual work reflection and leadership outcomes in our main studies involving self-managing teams. Main Study 1 examined the relationships between individual work reflection and leadership behaviors (Hypothesis 1). Main Study 2 expanded the investigation to the relationship between individual work reflection and leadership effectiveness (Hypothesis 2), as well as the mediating role of understanding team needs in the relationships between individual work reflection and leadership behaviors (Hypothesis 3) and between

individual work reflection and leadership effectiveness (Hypothesis 4). To evaluate the

robustness of these relationships, in Main Study 2, we also examined how individual work

reflection compared with other awareness-oriented constructs and commonly studied predictors

of leadership outcomes.

Measure Development Studies

To develop our new measure of individual work reflection, we conducted three

independent studies. We followed advice by Hinkin (1998; 2005) that a deductive, theory-driven

approach is appropriate for developing items where initial theorizing and evidence on the

phenomenon already exists. In Measure Development Study 1, we first conducted a review of the

reflection literature (e.g., Bono et al., 2013; Lanaj et al., 2019), including relevant measure

development work (e.g., on an existing measure of team-level reflexivity, Carter & West, 1998),

and the self-management literature (e.g., Manz & Sims, 1980; Uhl-Bien & Graen, 1998). Next,

as subject matter experts, we developed 24 initial items based on this literature review. We then

conducted exploratory factor analysis (EFA) to determine a more parsimonious 16-item scale. In

Measure Development Study 2, we examined the content validity of our 16-item measure by

asking participants to assess the extent to which our items corresponded to each of the four

reflection dimensions. In Measure Development Study 3, we tested the hypothesized structure of

our new 16-item measure using confirmatory factor analysis (CFA), and established its

distinctiveness from related constructs in the literature.

Measure Development Study 1

Procedure

In this study, we set out to develop items for our measure of individual work reflection

and to conduct EFA to derive a more parsimonious scale. Based on our earlier theorizing, we

conceptualized individual work reflection as a multidimensional construct consisting of four

content-related dimensions (goals-, methods-, relationships-, and self-focused reflection) that

aggregate to an overall indication of engagement in individual work reflection (Law et al.,

1998).[1] We generated six initial items to represent each of these four dimensions of individual

work reflection. We directly adapted items from Carter and West's (1998) team reflexivity scale

(e.g., replacing the words "the team" with "I"), and also developed new items to better capture

reflection as an individual-level, rather than as a team-level, process.[2] For each item, respondents

were asked how much time and effort they typically invest in reflecting on different aspects of

their work while engaged in projects and activities at work (1 = *not at all*, 5 = *a great deal*).

Sample

        We tested our initial 24-item measure in a sample of working employees (*N* = 303) across

a wide variety of occupations through Amazon Mechanical Turk (MTurk) via TurkPrime, which

enables greater assurance of data quality than MTurk alone (Litman et al., 2017). Participants

were 53.7% male, and their mean age was 32.99 years (*SD* = 10.28).

Results

        Following Hinkin (1998), we conducted a principal components analysis using promax

rotation to determine the number of factors to retain. In initial support of the hypothesized

dimensionality of individual work reflection, results indicated a four-factor solution as the

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[1] Following Law et al.'s (1998) terminology, we conceptualize individual work reflection as an *aggregate* model because we believe individuals can vary in terms of their engagement in the different dimensions of reflection at any given point in time. For example, an individual may have high levels of one dimension of reflection but low levels of other dimensions, depending on their personal proclivities or the situational demands at that time. In contrast, the *latent* model (Law et al., 1998) would suggest that a high level of reflection in one dimension signifies high levels of reflection in all other dimensions (i.e., the dimensions are manifestations of overall individual work reflection).
[2] While we recognize West's (2000) earlier work on a scale of individual task reflexivity, which was adapted from Carter and West's (1998) team-level scale, we believe our new measure of individual work reflection offers distinct advantages over it in the context of our current theorizing. In particular, our current measure captures reflection on both task and social issues at work, which the West (2000) scale does not. It also distinguishes between goals- and methods-focused reflection.

cleanest factor structure (Osborne & Costello, 2009). All four factors had eigenvalues bigger

than one, and together they accounted for 58.42% of the total variance in the individual work

reflection construct.[3] To further enhance discriminatory power between the dimensions of

individual work reflection, we reduced each dimension from six to four items, based on factor

loadings and theoretical considerations (see Table 1). Using Ford et al.'s (1986) recommended

criterion, none of the final items cross-loaded greater than .4 on different factors. In this reduced

16-item measure, the four-factor model accounted for 63.89% of the total variance in the

individual work reflection construct, indicating an improvement in variance explained by our

final measure of individual work reflection. In sum, this first study provided initial support for

our final, 16-item measure of individual work reflection comprising four distinct dimensions:

goals-focused, methods- focused, relationships-focused, and self-focused reflection.

Measure Development Study 2

Procedure and Sample

Next, we sought to test the content validity of our new measure. We used an independent

sample of MTurk workers recruited via TurkPrime (*N* = 150). They were 57.9% male, and their

mean age was 34.27 years (*SD* = 9.25).

Following previous research assessing content validity (e.g., Hinkin & Tracey, 1999;

Schriesheim & Hinkin, 1990), we asked participants to assess the correspondence between each

of the 16 items from our measure with the conceptual definitions of the four dimensions of

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[3] In response to a helpful reviewer suggestion, we also examined the data using parallel analysis, which suggested a two-factor solution even though the eigenvalue > 1 criterion suggested a four-factor solution. Given concerns that parallel analysis may result in underextraction, depending on factors such as sample size, number of items, and structure pattern of items (e.g., Turner, 1998), we followed recommendations by Fabrigar et al. (1999) for situations in which different procedures suggest different numbers of factors. We examined and compared several different models, setting the number of factors to be extracted to two, three, and four. We concluded that the four-factor model produces the most easily interpretable and theoretically sensible pattern of results. In further support of our hypothesized, four-factor model, our CFA in Measure Development Study 3 suggests the four-factor solution fit the data significantly better than the two-factor solution.

individual work reflection provided by assigning each item to only one of the four dimensions of

individual work reflection (i.e., using the forced-choice method).

Results

We conducted a one-way ANOVA, as well as Duncan's multiple comparison tests, to

compare mean item ratings across the four dimensions of our individual work reflection measure

to assess whether items were categorized by respondents in accordance with our hypothesized

categories. The results from these analyses revealed that all 16 items were rated statistically

significantly higher on their corresponding theorized dimension of individual work reflection (*p*

< .001) than on any of the other three dimensions. In addition, the average agreement rate across

the 16 items averaged 83.29% (with a range of 72.2% to 96.0% for individual items), exceeding

the recommended cutoff value of 70% used in previous research (Schriesheim & Hinkin, 1990).

In sum, the results from this study provided additional support for the content validity of our

final 16-item individual work reflection measure, including each of its four dimensions.

Measure Development Study 3

In this final measure development study, our goal was to test the factorial structure of our

final individual work reflection measure in an independent sample and assess whether individual

work reflection can be meaningfully distinguished from related constructs that capture ways of

gaining awareness (Hinkin, 1998, 2005). We included feedback seeking (Ashford & Cummings,

1983) and mindfulness (Brown & Ryan, 2003) because both have been shown to be related to

some aspects of leadership and pertain to expanding self-awareness, as discussed earlier. We also

were interested in differentiating individual work reflection from other related but distinct

awareness-oriented constructs that have not yet been considered in the leadership area. First,

rumination is largely oriented around understanding the reasons for one's depressed mood

(Miranda & Nolen-Hoeksema, 2007; Treynor et al., 2003), unlike individual work reflection, which is oriented around various work issues that may be positive, neutral, or negative in affective tone. Second, social awareness (Linderbaum & Levy, 2010; London & Smither, 2002) captures one's sensitivity to others' views of oneself, and the tendency to use feedback to understand these views. Individual work reflection, in contrast, has a significantly wider focus than just how one is seen by others. Third, psychological detachment, defined as "a sense of being away from the work situation" (Etzion et al., 1998) or to "disengage oneself mentally from work" (Sonnentag & Fritz, 2007, p. 205), differs from individual work reflection, which involves explicitly thinking about the different dimensions of one's work. Finally, reflexive processes, which have been linked to individual performance, represent the "*how*" of reflection by capturing individuals' engagement in information-seeking and information-evaluation processes at work (Otte et al., 2017). However, individual work reflection captures the different types of issues upon which individuals reflect (i.e., the content or the "*what*" of reflection).

Procedure and Sample

We recruited an independent sample of participants via Prolific, an online panel provider that offers a more diverse sample and higher data quality than other panel providers (Palan & Schitter, 2018; Peer et al., 2017). Participants consisted of full-time working professionals ($N = 150$). They were 36.0% male, and had a mean age of 34.27 years ($SD = 9.25$). They responded to our final 16-item measure of individual work reflection ($\alpha = .93$; 1= *not at all*, 5 = *a great deal*) and established measures of feedback seeking (VandeWalle et al., 2000; 5 items; $\alpha = .84$), mindfulness (Brown & Ryan, 2003; 15 items; $\alpha = .90$), and rumination (Treynor et al., 2003; 5 items; $\alpha = .81$; all assessed on a scale of 1 = *almost never* to 5 = *very frequently*), as well as social awareness (Linderbaum & Levy, 2010; 5 items; $\alpha = .79$), psychological detachment

(Sonnentag & Fritz, 2007; 4 items; α = .87), and reflexive processes (Otte et al., 2017; 16 items;

α = .94; all assessed on a scale of 1 = *strongly disagree* to 5 = *strongly agree*). We used original,

full measures to assess all the related constructs, and participants responded to items according to

the original response formats.

Results

      We first conducted CFA to examine the factorial structure of our final 16-item individual

work reflection measure (Table 2). We modeled each item as a manifest variable and did not

combine items into parcels. In Model 1, we tested our theorized model of individual work

reflection as comprising four distinct factors: goals-, methods-, relationships-, and self-focused

reflection. In Model 2, we specified the goals- and methods-focused reflection items to load onto

one factor, and the relationships- and self-focused reflection items to load onto a second factor.

Finally, in Model 3, we included all reflection items as a single factor, ignoring dimensionality.

Our theorized model, which specified four dimensions of individual work reflection (Model 1),

had an excellent fit to the data and a significantly better fit than the next-best-fitting model

(Model 2). These results provide additional support for our theorizing that four dimensions of

individual work reflection can be meaningfully distinguished: goals-, methods-, relationships-,

and self-focused reflection.

      We next examined if our construct of individual work reflection could be meaningfully

distinguished from established constructs that capture ways by which individuals might gain

awareness in the workplace, including feedback seeking, mindfulness, rumination, social

awareness, psychological detachment, and reflexive processes. To examine discriminant validity,

we conducted CFA with each item as a manifest variable and did not combine items into parcels.

Specifically, we performed chi-square difference tests to compare the fit indices for models in

which individual work reflection (comprising four distinct factors, as theorized) and a related construct were specified as separate factors to corresponding models in which the four distinct dimensions of individual work reflection and the related construct were loaded onto one higher-order factor.[4] In support of the distinctiveness of individual work reflection from other related constructs, all models in which the individual work reflection dimensions were specified as separate factors from feedback seeking ($CFI = .95$, $RMSEA = .06$, $SRMR = .05$, $\chi^2 = 259.89$, $df = 173$, $\chi^2/df = 1.50$, $\Delta\chi^2 = 47.57$, $\Delta df = 9$, $p < .001$), mindfulness ($CFI = .90$, $RMSEA = .06$, $SRMR = .08$, $\chi^2 = 644.49$, $df = 418$, $\chi^2/df = 1.54$, $\Delta\chi^2 = 114.45$, $\Delta df = 9$, $p < .001$),[5] rumination ($CFI = .95$, $RMSEA = .06$, $SRMR = .06$, $\chi^2 = 259.92$, $df = 173$, $\chi^2/df = 1.50$, $\Delta\chi^2 = 48.17$, $\Delta df = 9$, $p < .001$), social awareness ($CFI = .96$, $RMSEA = .05$, $SRMR = .05$, $\chi^2 = 242.82$, $df = 173$, $\chi^2/df = 1.40$, $\Delta\chi^2 = 52.46$, $\Delta df = 9$, $p < .001$), psychological detachment ($CFI = .97$, $RMSEA = .05$, $SRMR = .05$, $\chi^2 = 211.37$, $df = 154$, $\chi^2/df = 1.37$, $\Delta\chi^2 = 130.87$, $\Delta df = 9$, $p < .001$), and reflexive processes ($CFI = .92$, $RMSEA = .06$, $SRMR = .08$, $\chi^2 = 675.94$, $df = 447$, $\chi^2/df = 1.51$, $\Delta\chi^2 = 37.37$, $\Delta df = 9$, $p < .001$) achieved an acceptable fit to the data and had a significantly better fit than any of the comparison models in which the four individual work reflection dimensions and a related construct were combined to form one higher-order factor.[6] These findings support the distinctiveness of individual work reflection from related constructs.

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[4] Consistent with recent measure development work in the management literature (e.g., Djurdjevic et al., 2017), we compared individual work reflection with each related construct one at a time. This approach enables us to avoid potential issues concerning overlap between the other awareness-oriented constructs, aside from individual work reflection. When we conducted CFA with individual work reflection and all related measures in one model, we found some evidence suggesting an overlap among the other awareness-oriented constructs, although each of these constructs was clearly distinct from individual work reflection.

[5] An EFA of the mindfulness measure suggested a three-factor structure, although mindfulness is theorized as a single-factor construct. Rerunning the CFA using only the items with high factor loadings for the first factor of the mindfulness measure resulted in improved model fit for our overall model ($CFI = .98$, $RMSEA = .04$, $SRMR = .06$, $\chi^2 = 210.74$, $df = 173$, $\chi^2/df = 1.22$).

[6] We also compared the fit indices for models in which the four individual work reflection dimensions and a related construct were specified as separate factors to models in which the correlations between the factors were constrained to 1. Our results using this alternative CFA approach are consistent, implying additional support for the distinctiveness of individual work reflection from other related constructs.

In addition, according to Fornell and Larcker (1981), discriminant validity can be assessed by comparing the amount of variance captured by the construct of interest with its shared variance with other constructs. The average variance extracted (AVE) for goals- ($AVE =$ .63), methods- ($AVE = .65$), relationships- ($AVE = .74$), and self-focused ($AVE = .63$) reflection were all higher than the maximum shared variance (MSV) and average shared variance (ASV) for feedback seeking ($MSV = .31, ASV = .17$), mindfulness ($MSV = .04, ASV = .01$), rumination ($MSV = .29, ASV = .12$), social awareness ($MSV = .23, ASV = .15$), psychological detachment (MSV = .09, ASV = .05), and reflexive processes ($MSV = .41, ASV = .25$). In addition, the square root of the AVE for all four dimensions of individual work reflection (goals-: .79, methods-: .81, relationships-: .86, and self-focused reflection: .80) were greater than their correlations with other variables (rs ranging from .00 to .64). These results further suggest individual work reflection can indeed be meaningfully distinguished from related constructs established in the literature. Therefore, we proceeded to test our overarching theoretical model linking individual work reflection to leadership behaviors and effectiveness, across two main studies using independent samples of self-managing teams.

Main Study 1

Procedure and Sample

The goal in Main Study 1 was to investigate the associations between individual work reflection and leadership behaviors, specifically task-, relational-, and change-oriented leadership behaviors (Hypothesis 1). We tested this hypothesis in a lagged survey study of full-time MBA student business consulting teams working full time on projects over the course of seven weeks. The sample consisted of 165 consulting teams composed of MBA students from a large US midwestern university ($N = 850$; 32% female; mean team size = 5.2 members, ranging from 5 to

6 team members). The data were collected over two consecutive years to maximize the sample

size for this study. Each team worked full time over a period of seven weeks for a client

organization in the US or internationally. The average age of participants was 29.54 years (SD =

2.35 years). They had an average of 4.25 years of job experience (*SD* = 1.30 years).

   We measured individuals' background demographic information five weeks prior to the

start of the consulting project, individual work reflection (self-rated) at the midpoint of the

project, and leadership behaviors (peer-rated) at the end of the project. The response rates were

100% for the time 1 surveys, 99% for the time 2 surveys, and 100% for the time 3 surveys.

Students were assigned to cross-functional teams based on a variety of factors, including an

interest in keeping a balance across areas of concentration, domestic versus international

students, and gender. The teams did not have any formal structure or assigned leaders, reflecting

the self-managing teams found in today's organizations (Druskat & Wheeler, 2003; Roberson &

Williamson, 2012).

Measures

Individual Work Reflection

   At the midpoint of the project (week 4), participants indicated the time and effort they

typically invested in engaging in individual work reflection during their project, using the 16-

item measure ($\alpha = .91$) developed through our measure development studies (see Table 1). In line

with Hypothesis 1 on the overall role of individual work reflection for leadership behaviors, we

conducted our analyses at the construct level, that is, using an overall score of individual work

reflection consisting of its four dimensions, rather than at the fine-grained dimension level. This

approach allowed us to make more parsimonious conclusions about the overall impact of

individual work reflection on leadership behaviors (Law et al., 1998; Wong et al., 2008).

Leadership Behaviors

In the final week of the project (week 7), participants were asked to rate all their team members on the extent to which they displayed leadership behaviors, using items from the Team Leadership Questionnaire (Morgeson et al., 2010). To avoid participant fatigue (given that each participant had to complete questions about all of their team members), we assessed peer-rated task-, relational-, and change-oriented leadership behaviors with two items each. Participants rated each team member on the extent to which they engaged in the following behaviors: "Identify when key aspects of the team's work need to be completed" and "Make sure other team members have clear roles" (task-oriented leadership behavior; $\alpha = .71$), "Do things to make it pleasant to be a member of the team" and "Express respect and concern for other team members" (relational-oriented leadership behavior; $\alpha = .80$), and "Develop and articulate a clear mission for the team" and "Help provide a clear vision of where the team is going" (change-oriented leadership behavior; $\alpha = .88$).[7] All items were rated on a 5-point scale (1 = *not at all*, 5 = *to a very large extent*).

Team members generally agreed about each individual's task- ($r_{wg} = 0.78$; $ICC(1) = 0.39$; $ICC(2) = 0.73$), relational- ($r_{wg} = 0.86$; $ICC(1) = 0.29$; $ICC(2) = 0.63$), and change-oriented leadership behaviors ($r_{wg} = 0.81$; $ICC(1) = 0.32$; $ICC(2) = 0.67$). Based on these satisfactory checks, we computed a score for each individual's engagement in each type of leadership behavior by averaging other team members' ratings of that individual's leadership behavior (see DeRue et al., 2015 and Lanaj & Hollenbeck, 2015 for a similar approach of aggregating peer ratings for each individual). Thus, each individual received peer-rated scores for their task-, relational-, and change-oriented leadership behaviors (i.e., three scores in total).

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[7] We selected these items based on face validity and appropriateness for participants in our sample. In Main Study 2, we assess leadership behaviors using full measures from Morgeson et al. (2010).

Control Variables

Control variables were assessed five weeks prior to the start of the project. We included gender as a control variable because it has a significant impact on leadership outcomes (Eagly & Johnson, 1990). We also included age and job experience as control variables, given that previous research has identified these variables as related to leadership (DeRue et al., 2015; Gilbert et al., 1990; McCall, 2004). These variables helped isolate the effects of individual work reflection on leadership behaviors, beyond more stable, demographic factors. Following Becker et al.'s (2016) recommendation, we ran our analyses with and without these control variables.

Results

Table 3 presents the descriptive statistics and correlations among all variables. Since our research question is focused on the individual level of analysis (i.e., individual work reflection relates to an individual's leadership behaviors) and our data has a nested structure (individual team members nested within self-managing teams), we used the Type=Complex estimator in Mplus 7 to analyze our data. This approach corrects for standard error bias due to the non-independence of our data stemming from its nested structure. We modeled the hypothesized paths from individual work reflection to each of the three types of leadership behaviors (i.e., task-, relational-, and change-oriented leadership behaviors). The path coefficients of our hypothesized model are shown in Table 4.

In initial support of Hypothesis 1, we found significant positive associations between individual work reflection and task- ($B = .11$, $SE = .04$, $t = 3.00$, $p = .003$), relational- ($B = .09$, $SE = .04$, $t = 2.53$, $p = .011$), and change-oriented ($B = .10$, $SE = .04$, $t = 2.79$, $p = .005$) leadership behaviors as assessed by peers. Further, these results were consistent after adding control variables into our model, in further support of Hypothesis 1.

 Discussion

This study provides initial evidence that individuals who engage in individual work reflection are more likely to engage in task-, relational-, and change-oriented leadership behaviors in self-managing teams. We conducted Main Study 2 next, which offered several additional contributions that complement and build on our findings from Main Study 1. First, in Main Study 2, we wanted to independently replicate our finding on the relationships between individual work reflection and leadership behaviors (Hypothesis 1). In addition, we assessed the relationship between individual work reflection and leadership effectiveness (Hypothesis 2), as well as the mediating role of understanding the team's needs in driving the relationships between individual work reflection and leadership behaviors (Hypothesis 3) and between individual work reflection and leadership effectiveness (Hypothesis 4). In Main Study 2, we also examined the incremental validity of individual work reflection over other forms of awareness such as feedback seeking, mindfulness, rumination, social awareness, psychological detachment, and reflexive processes. In addition, we controlled for individuals' Big Five personality traits, which have been identified as common predictors of leadership behaviors (Judge et al., 2002).

Main Study 2

Procedure and Sample

We set out to replicate Main Study 1's findings concerning Hypothesis 1 and to expand our hypothesis testing with respect to Hypotheses 2 to 4, thus testing our full research model (see Figure 1). Further, we wanted to establish the incremental validity of individual work reflection over other awareness-oriented constructs and the Big Five personality traits. We tested these hypotheses in a lagged survey study of undergraduate business student teams working on a project that lasted ten weeks. We used a sample of 48 project teams composed of undergraduate

business students from a large university in Hong Kong (N = 264; 45.8% female; mean team size = 5.5 members, ranging from 5 to 6 members). Students were randomly assigned to project teams. The average age of participants was 19.56 years (SD = 1.01 years).

We measured individuals' demographic information and stable individual differences at the start of the project. At the project midpoint, we measured individual work reflection (self-rated) and understanding team needs (peer-rated), as well as several awareness-oriented constructs (self-rated). Upon completion of the project, we assessed leadership behaviors and leadership effectiveness (peer-rated). The response rates were 95.1% for the time 1 surveys, 96.2% for the time 2 surveys, and 94.7% for the time 3 surveys.

Measures

Individual Work Reflection

Similar to Main Study 1, at the midpoint of the project (Week 5), all participants indicated the time and effort they typically invested in engaging in individual work reflection during their project on our 16-item measure (α = .95).

Understanding Team Needs

At the midpoint of the project (Week 5), participants were asked to rate all other team members on the extent to which they felt each understood the team's needs. We used an adapted version of the three-item measure from Wellman and colleagues (2019). Wellman et al.'s (2019) measure asked participants to assess their team's needs (e.g., "Please indicate the extent to which your team needs…"). We reworded the items to ask participants to assess their peer's understanding of the team's needs. Specifically, participants indicated the extent to which each of their team members seemed to understand their team's needs for "task-," "relational-," and "change-oriented activities" (α = .96; 1 = *not at all*, 5 = *to a very large extent*). Following

Wellman et al.'s (2019) approach, we provided several examples of each of these three types of activities to explain their meaning.

Team members had strong agreement about each of their peer's understanding of team needs (r_{wg} = 0.79; ICC(1) = 0.45; ICC(2) = 0.79). In line with previous research on individual leadership in teams (e.g., DeRue et al., 2015; Lanaj & Hollenbeck, 2015), we averaged team members' ratings of each individual's understanding of their team's needs into a single score.

Leadership Behaviors and Effectiveness

At the end of the project (Week 10), we asked participants to rate all other team members on the extent to which they displayed leadership behaviors, using full measures from Morgeson et al. (2010). We assessed task-oriented leadership behavior with six items (α = .98), relational-oriented leadership behavior with five items (α = .97), and change-oriented leadership behavior with five items (α = .98).[8] All items were rated on a 5-point scale (1 = *not at all*, 5 = *to a very large extent*). We also asked participants to evaluate their team members' overall leadership effectiveness, using Lanaj and Hollenbeck's (2015) established three-item measure. Specifically, we asked participants to evaluate the extent to which each of their team members was a "good leader," was an "effective leader," and "makes good decisions as a leader" (α = .97; 1 = *strongly disagree*, 5 = *strongly agree*).[9]

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[8] To test whether the three leadership behaviors are meaningfully distinct, we conducted a CFA using data collected in Measure Development Study 3. We compared our theorized, 3-factor model (with each factor representing one of the leadership behaviors) with plausible alternatives. The 3-factor model achieved an excellent fit to the data and a significantly better fit than the other models. Detailed CFA results can be obtained from the authors, upon request.

[9] To assess if the three leadership behaviors were indeed meaningfully distinct from leadership effectiveness, we conducted an additional CFA using data collected in Measure Development Study 3. We compared our theorized, 4-factor model (distinguishing each of the three leadership behaviors, as well as leadership effectiveness) with a 1-factor model. The hypothesized 4-factor model had an excellent fit to the data (*CFI* = .95, *RMSEA* = .08, *SRMR* = .07, χ^2 = 268.65, *df* = 139, χ^2/df = 1.93) and a significantly better fit than the 1-factor model (*CFI* = .76, *RMSEA* = .17, *SRMR* = .11, χ^2 = 771.04, *df* = 145, $\chi2/df$ = 5.32: $\Delta\chi2$ = 502.39, Δdf = 6, *p* < .001).

Team members had strong agreement about each of their peer's task- (r_{wg} = 0.79; ICC(1) = 0.45; ICC(2) = 0.79), relational- (r_{wg} = 0.82; ICC(1) = 0.50; ICC(2) = 0.82), and change-oriented leadership behavior (r_{wg} = 0.79; ICC(1) = 0.49; ICC(2) = 0.81), and their leadership effectiveness (r_{wg} = 0.75; ICC(1) = 0.42; ICC(2) = 0.77). Therefore, again following the approach in previous research investigating individual leadership in teams (e.g., DeRue et al., 2015; Lanaj & Hollenbeck, 2015), we assessed leadership behaviors and effectiveness by averaging other team members' ratings of each individual.

Control Variables

Similar to Main Study 1, we assessed demographic variables, such as gender and age, at the start of the project. We also assessed participants' Big Five personality traits at the start of the project, including extraversion (α = .82), agreeableness (α = .85), conscientiousness (α = .76), neuroticism (α = .77), and openness to experience (α = .81). Each personality trait was assessed with four items, per the Mini-IPIP scale (Donnellan et al., 2006). In addition, we measured and controlled for several awareness-oriented constructs using the same scales as in Measure Development Study 3. Participants' mindfulness (Brown & Ryan, 2003; α = .84), social awareness (Linderbaum & Levy, 2010; α = .81), and rumination (Treynor et al., 2003; α = .70) were measured at the start of the project. At the project midpoint, we included measures of feedback seeking (VandeWalle et al., 2000; α = .91), psychological detachment (Sonnentag & Fritz, 2007; α = .91), and reflexive processes (Otte et al., 2017; α = .95).

Results

Table 5 presents the descriptive statistics and correlations among all variables. Table 6 presents the path analyses from our models. In line with our individual-level theorizing, and to

account for the nested nature of the data (individual team members nested within self-managing

teams), we again tested our hypotheses using the "Type=Complex" cluster approach in MPlus.

As shown in Table 6, Model 1 tested our hypotheses concerning the positive associations

between individual work reflection and leadership behaviors (Hypothesis 1) and the positive

association between individual work reflection and leadership effectiveness (Hypothesis 2). In

line with our theorizing (see Figure 1), individual work reflection was significantly positively

associated with task- ($B = .18$, $SE = .07$, $t = 2.51$, $p = .012$), relational- ($B = .22$, $SE = .07$, $t =$

3.08, $p = .002$), and change-oriented ($B = .18$, $SE = .08$, $t = 2.22$, $p = .027$) leadership behaviors,

as well as leadership effectiveness ($B = .21$, $SE = .08$, $t = 2.77$, $p = .006$). Thus, we found support

for Hypotheses 1 and 2.

Next, we proceeded to test our hypotheses concerning the mediating role of

understanding team needs in explaining the associations between individual work reflection and

leadership behaviors (Hypothesis 3) and the association between individual work reflection and

leadership effectiveness (Hypothesis 4). To do so, we modeled the hypothesized paths between

individual work reflection and understanding team needs, paths between understanding team

needs and all leadership outcomes, and paths between individual work reflection and all

leadership outcomes (see Model 2 in Table 6). In initial support of Hypotheses 3 and 4,

individual work reflection was positively associated with understanding team needs ($B = .22$, SE

$= .07$, $t = 3.08$, $p = .002$). In turn, understanding team needs was positively associated with peer-

rated task- ($B = .84$, $SE = .06$, $t = 14.50$, $p < .001$), relational- ($B = .79$, $SE = .06$, $t = 14.44$, $p <$

.001), and change-oriented leadership behaviors ($B = .86$, $SE = .06$, $t = 15.14$, $p < .001$), as well

as leadership effectiveness ($B = .90$, $SE = .08$, $t = 11.43$, $p < .001$). In addition, the direct effects

of individual work reflection on leadership behaviors and effectiveness were no longer

significant.

To test Hypotheses 3 and 4 more comprehensively, we assessed the indirect relationships

between individual work reflection and each of the three leadership behaviors as well as

leadership effectiveness, via understanding team needs, using Selig and Preacher's (2008) Monte

Carlo method with 20,000 repetitions for the simulation. The indirect effects of individual work

reflection on task- ($B = .19$, 95% C.I. [.0650, .3097]), relational- ($B = .18$, 95% C.I. [.0614,

.2899]), and change-oriented ($B = .19$, 95% C.I. [.0675, .3155]) leadership behaviors, as well as

leadership effectiveness ($B = .20$, 95% C.I. [.0703, .3339]), via understanding team needs, were

all positive and significant. Thus, we found support for Hypotheses 3 and 4.

Finally, to evaluate the robustness of our full research model further, we additionally

accounted for the potential roles of other awareness-oriented constructs[10] and the Big Five

personality traits (see Model 3 in Table 6). Specifically, the awareness-oriented constructs were

modeled as predictors of understanding team needs, and the Big Five, identified as common

predictors of leadership behaviors and leadership effectiveness, were modeled as predictors of

leadership behaviors and leadership effectiveness. Gender and age were modelled as predictors

of understanding team needs, leadership behaviors, and leadership effectiveness. In further

support of Hypotheses 2 and 4, the indirect effects of individual work reflection on leadership

behaviors and leadership effectiveness, via understanding team needs, all remained positive and

significant.[11]

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[10] As shown in Table 5, individual work reflection was significantly positively correlated with feedback seeking ($r = .48$, $p < .001$) and reflexive processes ($r = .71$, $p < .001$). We continued to find support for our hypotheses even after removing these two variables from Model 3. Detailed results can be obtained from the authors, upon request.
[11] Since our mediator variable (understanding team needs) and core leadership outcomes were evaluated by the same set of team members, our data contain some inherent risk of rater bias. We therefore re-analyzed our data using a split-sample approach (using half the raters for understanding team needs and the other half for leadership

General Discussion

Although research has proposed that understanding the team's needs is important in leadership (Hackman & Walton, 1986; Zaccaro et al., 2001), previous research has provided only limited insights into how individual team members gain an understanding of what it is their team needs to function well. And even though prior practitioner-oriented and theoretical suggestions regarding the influence of reflection on leadership exist, this relationship has not been empirically tested in a systematic way. In this paper, we tie individual work reflection to leadership outcomes using functional leadership theory as our overarching framework. Our findings indicate that reflection on different work issues (e.g., one's goals, methods, relationships, and self) may enable individuals to better understand the needs of their team and, in turn, to engage in more functional leadership behaviors and to be more effective as leaders. These findings suggest that individual work reflection is a valuable activity that individuals can engage in at work of their own volition, at a time and place that is convenient to them, and that this activity helps them engage in a greater quantity and quality of leadership in their teams.

Theoretical Implications

Although reflection has been invoked in both the practice and scholarly literature on leadership (e.g., Alvesson et al., 2016; Brown, 2006), this paper is one of the first to empirically link individuals' engagement in reflection with their leadership behaviors and leadership effectiveness. Our findings that self-initiated individual work reflection promotes leadership behaviors and effectiveness meaningfully complements existing work suggesting that structured reflection interventions may have a positive impact on the influence that individuals have as leaders (Lanaj et al., 2019) and on their longer-term leadership development (DeRue et al.,

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outcomes). In further support of our theorized model, our findings remained consistent using this approach. Details of these additional analyses and results can be obtained from the authors, upon request.

2012). Our research establishes individual work reflection as a useful strategy that any individual may use at any time and place to improve the quantity and quality of their leadership. In other words, leadership is not reserved only for a select number of individuals who are given the opportunity to participate in structured reflection activities, but rather, through individual work reflection, any individual can prompt and shape their own leadership quantity and quality. In line with calls for more research on specific practices of leadership (Day & Antonakis, 2012; Van Quaquebeke & Felps, 2018), our findings show that individual work reflection is an actionable practice that can be incorporated into every would-be leader's daily routine. It is a practice that is available to all individuals who wish to lead and one that may be particularly useful where the norms regarding appropriate leadership are most unclear such as in self-managing teams.

Second, our empirical findings have implications for our understanding of functional leadership theory (Hackman & Walton, 1986; McGrath, 1962). Although previous studies have examined the functional value of different leadership behaviors for team-performance outcomes (see Burke et al., 2006 for overview), we contribute an understanding of what allows individuals to offer that functional leadership in the first place. Our empirical efforts establish individual work reflection as one important strategy that allows individuals who wish to lead their teams to better read their team's needs and determine what behaviors might best meet them. Based on our research, future studies might examine additional strategies, such as actively taking other team members' perspectives, that may help the functional leadership of would-be leaders in self-managing teams and beyond.

Third, our findings also meaningfully reframe and expand ongoing research on reflection in organizations. Existing research examines the benefits of team-level reflection (West, 2000), organization- or researcher-initiated reflection interventions (e.g., Bono et al., 2013; Ellis &

Davidi, 2005), and reflecting about positive aspects of one's work outside of work (Fritz &

Sonnentag, 2005). We contribute to this body of research by noting that reflection does not only

occur collectively as a team, in a top-down manner, or outside of work. It also occurs under

individuals' self-direction in the context of ongoing teamwork. Complementing existing research

on reflexive processes such as information seeking and evaluation (Otte et al., 2017), our

findings suggest an individual's reflection across four dimensions that make up the content of

individual work reflection is associated with leadership behaviors and effectiveness beyond these

reflexive processes. Our new measure of individual work reflection can serve as a tool for future

researchers interested in better understanding how self-initiated reflection at work can impact a

wider range of relevant individual and organizational outcomes beyond the core leadership

outcomes we focused on in this research. For example, individual work reflection may enable

people to engage in other self-initiated proactive behaviors beyond leadership in a way that

allows them to better understand the needs of various stakeholders and the nature of their

personal impact in the situation, making it a practice that enables what the literature labels "wise

proactivity" (Parker & Liao, 2016). Such research may also investigate the usefulness of

individual work reflection for solo contributors in organizations or those who work outside of

organizations altogether (e.g., gig workers).

Practical Implications

The practical implications of our findings are clear: Individuals who wish to be leaders in

their teams can use individual work reflection as a strategy to provide them with a better sense of

what the team needs, enabling them to offer a greater quantity and quality of leadership. Because

reflection is a practice that any individual may engage in at any time and place, it may be

particularly helpful for individuals who lack typical leader-like traits, who do not find the

engagement in leadership behaviors intuitive or natural, and who may not have opportunities to participate in structured reflection interventions offered by their organization.

Likewise, our findings suggest that beyond implementing after-event reviews or daily reflection interventions, organizations should encourage their staff to engage in reflection on their own as they work and provide initial guidance for how they might do so. In addition, to give individuals more opportunities to engage in and benefit from individual work reflection, organizations may consider designing work to offer more job autonomy (Hackman & Oldham, 1976; Parker et al., 2017) and autonomy support from higher-up managers (Gagné, 2003).

Limitations and Directions for Future Research

As with any study, ours has certain limitations that need to be considered, some of which suggest potentially useful avenues for future research. First, our two main studies were focused on testing the role of individual work reflection in the context of self-managing teams. These sample choices fit well with our theorizing on the functional perspective of leadership (Hackman & Walton, 1986; McGrath, 1962) as the norms of who should lead and how are ambiguous in such settings. Individual work reflection thus might be an especially important undertaking in these settings to understand the team's needs and figure out how to fulfill them. Although this paper focused on the role of individual work reflection in prompting informal leadership (i.e., from "would-be leaders"), future research might examine the leadership payoff of reflection for individuals holding traditional formal leadership positions and/or individuals attempting to lead in workgroups where a formally appointed leader is also present (Wellman et al., 2022). This future research might also examine possible relationships among our outcome variables, leadership behaviors and leadership effectiveness (e.g., leadership effectiveness as a potential outcome of leadership behaviors; see Hiller et al., 2011).

Second, although our research, across the measure development and main studies, included MBA consulting teams and working adult samples, our sample in Main Study 2 comprised undergraduate students, who are slightly younger and potentially more intelligent or academically inclined than average working adult samples. Any generalizability concern is alleviated somewhat given the consistent support for our theoretical model and our new measure of individual work reflection across the different samples and study designs included in our paper. We encourage future research to focus on and theorize about the role that age and intelligence might play more directly in the relationship between individual work reflection and leadership outcomes. For instance, reflection might have less value for individuals who are not cognitively able to gain useful insights from reflection. In contrast, younger individuals might have difficulty figuring out suitable action based on their reflection, due to their lack of leadership experience. To our best knowledge, existing research on reflection has not considered the role of age, previous experience, or intelligence,[12] and we believe these avenues for future research would be interesting.

Third, although we specified four dimensions of individual work reflection to comprehensively capture the conceptual space of this multidimensional construct (Law et al., 1998; Wong et al., 2008), we focused in our main hypothesis testing on how individual work reflection as a whole affects leadership outcomes. Scholars have argued that multidimensional constructs provide more holistic representations of complex phenomena and allow researchers to match "broad predictors" with "broad outcomes" (Edwards, 2001). However, future research

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[12] In Main Study 2, we included a measure of need for cognition, capturing the tendency of an individual to engage in and enjoy thinking (Cacioppo & Petty, 1982). We found consistent support for the relationships between individual work reflection and leadership outcomes even after controlling for need for cognition. We also did not find evidence that need for cognition moderated the key paths in our theoretical model. Detailed results of these analyses can be obtained from the authors, upon request.

may now begin to explore the differential impact of distinct individual differences and contextual factors on each of the four specific dimensions that constitute individual work reflection (e.g., reflection on relationships may be more likely occur in interdependent work contexts), as well as how the different dimensions may be differentially important across distinct types of work outcomes, such as different types of performance or well-being.

Fourth, our research advances insights into the processes by which individual work reflection positively influences leadership behaviors and effectiveness. However, we did not consider possible boundary conditions that may facilitate or inhibit this process, and we encourage future researchers to consider these possibilities. For example, individual work reflection may not always be effective and may sometimes lead to the wrong conclusions. We expect people who are high in perspective taking (Davis, 1983) or wise reasoning (Grossman, 2017) to derive better conclusions or insights from their reflection. Also, we expect that individual work reflection may be a compensatory activity for those individuals who do not possess the characteristics that others typically associate with leaders (e.g., extraversion; Judge et a, 2002). Individuals lacking these attributes may not be naturally influential, but greater reflection might help them gain influence as leaders through understanding their team's needs.

Future research could explore the relationships between individual work reflection and the awareness-oriented constructs we examined in this research. For instance, although our robustness checks addressed the high correlations between individual work reflection, feedback seeking, and reflexive processes in Main Study 2, and the CFA we conducted in Measure Development Study 3 showed that these constructs are distinct, future research could investigate possible links between them. For example, extant work shows feedback that is reflected upon has a greater impact on performance (Anseel et al., 2009). This finding suggests feedback seeking

might be an important precursor to individual work reflection, particularly for leaders whose performance is subjectively evaluated (Ashford & Tsui, 1991). Similarly, those who engage in the reflexive processes of information seeking and information evaluation may get more out of their reflection as these processes give would-be leaders important information that they can use in their individual work reflection.

Although our paper focused on establishing individual work reflection and its implications for outcomes at work, future research might also focus on the antecedents of such reflection in the workplace. For example, although we controlled for personality variables in examining our model, the data presented in Table 5 suggests that openness to experience (McCrae & Costa, 1987) may be a personality factor positively associated with individual work reflection. In addition, given the nature of reflection as a cognitive activity, need for cognition (Cacioppo & Petty, 1982) may also play an important role in motivating individuals to engage in individual work reflection. Furthermore, context factors will also certainly matter, with perhaps the most prominent among them being time pressure. Managers often feel they have no time to pause and reflect given the strenuous demands of their work (Colvin, 2006) and we encourage future research on how time pressure relates to individual work reflection.

Finally, future research might also start to integrate research on individual work reflection with research on other conceptualizations of reflection, such as trait-like reflective personality (Van Seggelen-Damen, 2013) or team-level reflexivity (Carter & West, 1998), and explore their relative contributions to organizational outcomes. For example, it would be fascinating to explore how individual work reflection and team-level reflexivity might interact to produce more shared leadership (Pearce & Sims, 2000). Although we expect individual work reflection and team-level reflexivity to have positive outcomes on individual leadership

outcomes and team shared leadership patterns, these activities will likely be driven by different

mechanisms (e.g., team reflexivity is likely to be associated with team-level variables such as

team information sharing, De Dreu, 2007, or team mental models, Konradt et al., 2015). We

hope that our measure allows the literature to further build an understanding of the unique

contributions of individual work reflection relative to other types of reflection to leadership

outcomes and beyond.

Conclusion

As work becomes ever more dynamic, there is power in would-be leaders' choice to

reflect on what they are doing to accomplish their work in teams. Our findings suggest that

reflecting on one's goals, methods, relationships, and self in a work context enhances one's

quantity and quality of leadership in teams because it allows one to better understand the needs

of one's team. Individual work reflection thus represents an actionable strategy that can help

individuals make functional leadership contributions at any time and place.

References

Alvesson, M., Blom, M., & Sveningsson, S. (2016). *Reflexive leadership: Organising in an imperfect world*. London, UK: Sage Publications.

Anderson, D. W., Krajewski, H. T., Goffin, R. D., & Jackson, D. N. (2008). A leadership self-efficacy taxonomy and its relation to effective leadership. *The Leadership Quarterly*, *19*(5), 595–608.

Anseel, F., Lievens, F., & Schollaert, E. (2009). Reflection as a strategy to enhance task performance after feedback. *Organizational Behavior and Human Decision Processes*, *110*, 23–35.

Argyris, C., & Schön, D. A. (1978). What is an organization that it may learn. In C. Argyris & D. Schön (Eds.), *Organisational learning: A theory of action perspective* (pp. 8–29). Reading, MA: Addison-Wesley.

Ashford, S. J., & Cummings, L. L. (1983). Feedback as an individual resource: Personal strategies of creating information. *Organizational Behavior and Human Performance*, *32*, 370–398.

Ashford, S. J., & DeRue, D. S. (2012). Developing as a leader: The power of mindful engagement. *Organizational Dynamics*, *41*, 146–154.

Ashford, S. J., & Tsui, A. S. (1991). Self-regulation for managerial effectiveness: The role of active feedback seeking. *Academy of Management Journal*, *34*(2), 251–280.

Tsui, A. S., & Ashford, S. J. (1994). Adaptive self-regulation: A process view of managerial effectiveness. *Journal of Management*, *20*(1), 93–121.

Badura, K. L., Grijalva, E., Galvin, B. M., Owens, B. P., & Joseph, D. L. (2020). Motivation to lead: A meta-analysis and distal-proximal model of motivation and leadership. *Journal of Applied Psychology*, *105*(4), 331–354.

Baron, L., Rouleau, V., Grégoire, S., & Baron, C. (2018). Mindfulness and leadership flexibility. *Journal of Management Development, 27*(2), 165–177.

Becker, T. E., Atinc, G., Breaugh, J. A., Carlson, K. D., Edwards, J. R., & Spector, P. E. (2016). Statistical control in correlational studies: 10 essential recommendations for organizational researchers. *Journal of Organizational Behavior*, *37*(2), 157–167.

Bono, J. E., Glomb, T. M., Shen, W., Kim, E., & Koch, A. J. (2013). Building positive resources: effects of positive events and positive reflection on work stress and health. *Academy of Management Journal*, *56*, 1601–1627.

Boud, D., Cressey, P., & Docherty, P. (2006). *Productive reflection at work: Learning for changing organizations*. London, UK: Routledge.

Boud, D., Keogh, R., & Walker, D. (2013). *Reflection: Turning experience into learning*. London, UK: Routledge.

Brown, J. (2006). *A leader's guide to reflective practice*. Bloomington, IN: Trafford.

Brown, K. W., & Ryan, R. M. (2003). The benefits of being present: Mindfulness and its role in psychological well-being. *Journal of Personality and Social Psychology*, *84*, 822–848.

Burke, C. S., Stagl, K. C., Klein, C., Goodwin, G. F., Salas, E., & Halpin, S. M. (2006). What type of leadership behaviors are functional in teams? A meta-analysis. *The Leadership Quarterly*, *17*(3), 288–307.

Cacioppo, J. T., & Petty, R. E. (1982). The need for cognition. *Journal of Personality and Social Psychology*, *42*(1), 116-131.

Carleton, E. L., Barling, J., & Trivisonno, M. (2018). Leaders' trait mindfulness and transformational leadership: The mediating roles of leaders' positive affect and leadership self-efficacy. *Canadian Journal of Behavioural Science*, *50*(3), 185–194.

Carter, S. M., & West, M. A. (1998). Reflexivity, effectiveness, and mental health in BBC-TV production teams. *Small Group Research*, *29*, 583–601.

Chan, K. Y., & Drasgow, F. (2001). Toward a theory of individual differences and leadership: understanding the motivation to lead. *Journal of Applied Psychology*, *86*(3), 481–498.

Chemers, M. M., Watson, C. B., & May, S. T. (2000). Dispositional affect and leadership effectiveness: A comparison of self-esteem, optimism, and efficacy. *Personality and Social Psychology Bulletin*, *26*(3), 267–277.

Chun, J. U., Lee, D., & Sosik, J. J. (2018). Leader negative feedback-seeking and leader effectiveness in leader-subordinate relationships: The paradoxical role of subordinate expertise. *The Leadership Quarterly*, *29*(4), 501–512.

Cianci, A. M., Klein, H. J., & Seijts, G. H. (2010). The effect of negative feedback on tension and subsequent performance: The main and interactive effects of goal content and conscientiousness. *Journal of Applied Psychology*, *95*(4), 618–630.

Cressey, P., Boud, D., & Docherty, P. (2006). The emergence of productive reflection. In D. Boud, P. Cressey, & P. Docherty (Eds.), *Productive reflection at work: Learning for changing organizations* (pp. 11–26). London, UK: Routledge.

Cuddy, A. J., Glick, P., & Beninger, A. (2011). The dynamics of warmth and competence judgments, and their outcomes in organizations. *Research in Organizational Behavior*, *31*, 73–98.

Daudelin, M. W. (1996). Learning from experience through reflection. *Organizational Dynamics,* 36–48.

Davis, M. H. (1983). Measuring individual differences in empathy: Evidence for a multidimensional approach. *Journal of Personality and Social Psychology*, *44*(1), 113–126.

Day, D. V., & Antonakis, J. 2012. Leadership: Past, present, and future. In D. V. Day & J. Antonakis (Eds.), *The nature of leadership* (pp. 3–29). Los Angeles, CA: Sage.

De Cremer, D., & Van Vugt, M. (2002). Intergroup and intragroup aspects of leadership in social dilemmas: A relational model of cooperation. *Journal of Experimental Social Psychology*, *38*(2), 126–136.

Decuypere, A., Audenaert, M., & Decramer, A. (2018). When mindfulness interacts with neuroticism to enhance transformational leadership: the role of psychological need satisfaction. *Frontiers in Psychology*, *9*, 1–18.

De Dreu, C. K. (2007). Cooperative outcome interdependence, task reflexivity, and team effectiveness: A motivated information processing perspective. *Journal of Applied Psychology*, *92*(3), 628–638.

DeRue, D. S, & Ashford, S. J. (2010). Who will lead and who will follow? A social process of leadership identity construction in organizations. *Academy of Management Review*, *35*, 627–647.

DeRue, D. S, Nahrgang, J. D., & Ashford, S. J. (2015). Interpersonal perceptions and the emergence of leadership structures in groups: A network perspective. *Organization Science*, *26*, 1192–1209.

DeRue, D. S., Nahrgang, J. D., Hollenbeck, J. R., & Workman, K. (2012). A quasi-experimental study of after-event reviews and leadership development. *Journal of Applied Psychology*, *97*, 997–1015.

DeRue, D. S., Nahrgang, J. D., Wellman, N., & Humphrey, S. E. (2011). Trait and behavioral theories of leadership: An integration and meta-analytic test of their relative validity. *Personnel Psychology*, *64*, 7–52.

Djurdjevic, E., Stoverink, A. C., Klotz, A. C., Koopman, J., da Motta Veiga, S. P., Yam, K. C., & Chiang, J. T. J. (2017). Workplace status: The development and validation of a scale. *Journal of Applied Psychology*, *102*(7), 1124–1147.

Donnellan, M. B., Oswald, F. L., Baird, B. M., & Lucas, R. E. (2006). The mini-IPIP scales: tiny-yet-effective measures of the Big Five factors of personality. *Psychological Assessment*, *18*(2), 192–203.

Druskat, V. U., & Wheeler, J. V. (2003). Managing from the boundary: The effective leadership of self-managing work teams. *Academy of Management Journal*, *46*, 435–457.

Eagly, A. H., & Johnson, B. T. (1990). Gender and leadership style: A meta-analysis. *Psychological Bulletin*, *108*, 233–256.

Edwards, J. R. (2001). Multidimensional constructs in organizational behavior research: An integrative analytical framework. *Organizational Research Methods*, *4*(2), 144–192.

Ellis, S., & Davidi, I. (2005). After-event reviews: Drawing lessons from successful and failed experience. *Journal of Applied Psychology*, *90*, 857–871.

Ellström, P. E. (2006). The meaning and role of reflection in informal learning at work. In D. Boud, P. Cressey, & P. Docherty (Eds.), *Productive reflection at work: Learning for changing organizations* (pp. 43–53). London, UK: Routledge.

Etzion, D., Eden, D., & Lapidot, Y. (1998). Relief from job stressors and burnout: reserve service as a respite. *Journal of Applied Psychology*, *83*(4), 577–585.

Fabrigar, L. R., Wegener, D. T., MacCallum, R. C., & Strahan, E. J. (1999). Evaluating the use of exploratory factor analysis in psychological research. *Psychological Methods*, *4*(3), 272–299.

Ford, J. K., MacCallum, R. C., & Tait, M. (1986). The application of exploratory factor analysis in applied psychology: A critical review and analysis. *Personnel Psychology*, *39*, 291–314.

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, *18*(1), 39–50.

French, J. R. P., & Raven, B. H. (1959). The bases of social power. In D. Cartwright (Ed.), Studies in social power (pp. 150–167). Ann Arbor, MI: Institute for Social Research.

Fritz, C., & Sonnentag, S. (2005). Recovery, health, and job performance: Effects of weekend experiences. *Journal of Occupational Health Psychology*, *10*, 187–199.

Fritz, C., & Sonnentag, S. (2006). Recovery, well-being, and performance-related outcomes: The role of workload and vacation experiences. *Journal of Applied Psychology*, *91*, 936–945.

Gagné, M. (2003). The role of autonomy support and autonomy orientation in the engagement of prosocial behavior. *Motivation and Emotion, 27*, 199–223.

Gerpott, F. H., Lehmann-Willenbrock, N., Voelpel, S. C., & van Vugt, M. (2019). It's not just what is said, but when it's said: A temporal account of verbal behaviors and emergent leadership in self-managed teams. *Academy of Management Journal*, *62*, 717–738.

Gilbert, G. R., Collins, R. W., & Brenner, R. (1990). Age and leadership effectiveness: From the perceptions of the follower. *Human Resource Management*, *29*(2), 187–196.

Grossman, I. (2017). Wisdom in context. *Perspectives on Psychological Science, 12*(2), 233–257.

Hackman, J. R., & Oldham, G. R. (1976). Motivation through the design of work: Test of a theory. *Organizational Behavior & Human Performance, 16*(2), 250–279.

Hackman, J. R., & Walton, R. E. (1986). Leading groups in organizations. In P. S. Goodman & Associates (Ed.), *Designing effective work groups* (pp. 72–119). San Francisco, CA: Jossey-Bass.

Halpin, A. W. (1957). *Manual for the leader behavior description questionnaire*. Columbus, OH: Bureau of Business Research, Ohio State University.

Hemphill, J. K., & Coons, A. E. (1957). Development of the leader behavior description questionnaire. In R. M. Stogdill & A. E. Coons (Series Eds.), *Leader behavior: Its description and measurement* (pp. 6–38). Columbus, OH: Ohio State University.

Hiller, N. J., DeChurch, L. A., Murase, T., & Doty, D. (2011). Searching for outcomes of leadership: A 25-year review. *Journal of Management, 37*(4), 1137–1177.

Hinkin, T. R. (1998). A brief tutorial on the development of measures for use in survey questionnaires. *Organizational Research Methods*, *1*, 104–121.

Hinkin, T. R. (2005). Scale development principles and practices. In R. A. Swanson & E. F. Holton (Eds.), *Research in organizations: Foundations and methods of inquiry* (pp. 161–179). San Francisco, CA: Berrett-Koehler Publishers.

Hinkin, T. R., & Tracey, J. B. (1999). An analysis of variance approach to content validation. *Organizational Research Methods*, *2*, 175–186.

Homan, A. C., Gündemir, S., Buengeler, C., & van Kleef, G. A. (2020). Leading diversity: Towards a theory of functional leadership in diverse teams. *Journal of Applied Psychology*, *105*(10), 1101–1128.

Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal*, *6*(1), 1–55.

Humphrey, R. H. (2002). The many faces of emotional leadership. *The Leadership Quarterly, 13*(5), 493–504.

John, O. P., & Gross, J. J. (2004). Healthy and unhealthy emotion regulation: Personality processes, individual differences, and life span development. *Journal of Personality, 72*(6), 1301–1334.

Judge, T. A., Bono, J. E., Ilies, R., & Gerhardt, M. W. (2002). Personality and leadership: A qualitative and quantitative review. *Journal of Applied Psychology*, *87*, 765–780.

Kabat-Zinn, J. (1994). Wherever you go, there you are: Mindfulness meditation in everyday life. New York, NY: Hyperion.

Kahneman, D. (2011). *Thinking, fast and slow*. New York, NY: Farrar, Straus and Giroux.

Konradt, U., Schippers, M. C., Garbers, Y., & Steenfatt, C. (2015). Effects of guided reflexivity and team feedback on team performance improvement: The role of team regulatory processes and cognitive emergent states. *European Journal of Work and Organizational Psychology*, *24*(5), 777–795.

Kraemer, H. M. (2016). How self-reflection can make you a better leader. Retrieved from: https://insight.kellogg.northwestern.edu/article/how-self-reflection-can-make-you-a-better-leader

Kross, E., & Ayduk, O. (2017). Self-distancing: Theory, research, and current directions. *Advances in Experimental Social Psychology*, *55*, 81–136.

Lanaj, K., Foulk, T. A., & Erez, A. (2019). Energizing leaders via self-reflection: A within-person field experiment. *Journal of Applied Psychology*, *104*, 1–18.

Lanaj, K., & Hollenbeck, J. R. (2015). Leadership over-emergence in self-managing teams: The role of gender and countervailing biases. *Academy of Management Journal*, *58*, 1476–1494.

Law, K. S., Wong, C. S., & Mobley, W. M. (1998). Toward a taxonomy of multidimensional constructs. *Academy of Management Review*, *23*(4), 741–755.

Lee Cunningham, J., Sonday, L., & Ashford, S. J. (in press). Do I dare? The psychodynamics of anticipated image risk, leader identity endorsement, and leader emergence. *Academy of Management Journal*.

Linderbaum, B. A., & Levy, P. E. (2010). The development and validation of the feedback orientation scale (FOS). *Journal of Management*, *36*, 1372–1405.

Litman, L., Robinson, J., & Abberbock, T. (2017). TurkPrime. com: A versatile crowdsourcing data acquisition platform for the behavioral sciences. *Behavior research methods*, *49*(2), 433-442.

London, M., & Smither, J. W. (2002). Feedback orientation, feedback culture, and the longitudinal performance management process. *Human Resource Management Review*, *12*(1), 81-100.

Manz, C. C., & Sims, H. P. (1980). Self-management as a substitute for leadership: A social learning theory perspective. *Academy of Management Review*, *5*, 361–367.

McCall Jr, M. W. (2004). Leadership development through experience. *Academy of Management Perspectives*, *18*(3), 127–130.

McCrae, R. R., & Costa, P. T. (1987). Validation of the five-factor model of personality across instruments and observers. *Journal of Personality and Social Psychology, 52*(1), 81–90.

McGrath, J. E. (1962). *Leadership behavior: Some requirements for leadership training*. Washington, DC: U.S. Civil Service Commission, Office of Career Development.

Mintzberg, H. (1989). *Mintzberg on management: Inside our strange world of organizations*. New York, NY: Simon and Schuster.

Miranda, R., & Nolen-Hoeksema, S. (2007). Brooding and reflection: Rumination predicts suicidal ideation at 1-year follow-up in a community sample. *Behaviour Research and Therapy*, *45*, 3088–3095.

Morgeson, F. P., DeRue, D. S., & Karam, E. P. (2010). Leadership in teams: A functional approach to understanding leadership structures and processes. *Journal of Management*, *36*, 5–39.

Nesbit, P. L. (2012). The role of self-reflection, emotional management of feedback, and self-regulation processes in self-directed leadership development. *Human Resource Development Review, 11*(2), 203–226.

Nübold, A., Van Quaquebeke, N., & Hülsheger, U. R. (2020). Be (com) ing real: A multi-source and an intervention study on mindfulness and authentic leadership. *Journal of Business and Psychology*, *35*(4), 469–488.

Osborne, J. W., & Costello, A. B. (2009). Best practices in exploratory factor analysis: Four recommendations for getting the most from your analysis. *Pan-Pacific Management Review, 12*(2), 131–146.

Otte, K. P., Konradt, U., Garbers, Y., & Schippers, M. C. (2017). Development and validation of the REMINT: A reflection measure for individuals and teams. *European Journal of Work and Organizational Psychology*, *26*(2), 299–313.

Oxford Dictionaries. (2022). *Reflection*. https://www.lexico.com/definition/reflection

Paglis, L. L., & Green, S. G. (2002). Leadership self-efficacy and managers' motivation for leading change. *Journal of Organizational Behavior*, *23*(2), 215–235.

Palan, S., & Schitter, C. (2018). Prolific.ac—A subject pool for online experiments. *Journal of Behavioral and Experimental Finance*, *17*, 22–27.

Parker, S. K., & Liao, J. (2016). Wise proactivity: How to be proactive and wise in building your career. *Organizational Dynamics*, *45*(3), 217–227.

Parker, S. K., Morgeson, F. P., & Johns, G. (2017). One hundred years of work design research: Looking back and looking forward. *Journal of Applied Psychology, 102*(3), 403–420.

Pearce, C. L., & Sims, H. P. (2000). Shared leadership: Toward a multi-level theory of leadership. In M. M. Beyerlein, D. A. Johnson, & S. T. Beyerlein (Eds.), *Advances in interdisciplinary studies of work teams* (pp. 115–139). Greenwich, CT: JAI Press.

Peer, E., Brandimarte, L., Samat, S., & Acquisti, A. (2017). Beyond the Turk: Alternative platforms for crowdsourcing behavioral research. *Journal of Experimental Social Psychology*, *70*, 153–163.

Pennebaker, J. W. (1997). Writing about emotional experiences as a therapeutic process. *Psychological Science*, *8*, 162–166.

Porter, J. (2017). Why you should make time for self-reflection (even if you hate doing it). *Harvard Business Review*. https://hbr.org/2017/03/why-you-should-make-time-for-self-reflection-even-if-you-hate-doing-it

Reichard, R. J., & Johnson, S. K. (2011). Leader self-development as organizational strategy. *The Leadership Quarterly*, *22*(1), 33–42.

Roberson, Q. M., & Williamson, I. O. (2012). Justice in self-managing teams: the role of social networks in the emergence of procedural justice climates. *Academy of Management Journal*, *55*, 685–701.

Santos, J. P., Caetano, A., & Tavares, S. M. (2015). Is training leaders in functional leadership a useful tool for improving the performance of leadership functions and team effectiveness?. *The Leadership Quarterly*, *26*(3), 470–484.

Schermelleh-Engel, K., Moosbrugger, H., & Müller, H. (2003). Evaluating the fit of structural equation models: Test of significance and descriptive goodness-of-fit measures. *Methods of Psychological Research, 8*, 23–74.

Schön, D. A. (1983). *The reflective practitioner: How professionals think in action*. New York, NY: Basic Books.

Schriesheim, C. A., & Hinkin, T. R. (1990). Influence tactics used by subordinates: A theoretical and empirical analysis and refinement of the Kipnis, Schmidt, and Wilkinson subscales. *Journal of Applied Psychology*, *75*, 246–257.

Seibert, K. W. (1999). Reflection-in-action: Tools for cultivating on-the-job learning conditions. *Organizational Dynamics*, *27*, 54–65.

Selig, J. P., & Preacher, K. J. (2008, June). Monte Carlo method for assessing mediation: An interactive tool for creating confidence intervals for indirect effects [Computer software]. Available from http://quantpsy.org/.

Shepherd, N. A., & Smyth, P. J. (2012). *Reflective leaders and high-performance organizations:* Bloomington, IN: iUniverse.

Sitkin, S. B. (1992). Learning through failure: The strategy of small losses. *Research in Organizational Behavior, 14*, 231–266.

Smith, A., & Shaw, P. (2011). *The reflective leader*. London, UK: Canterbury Press.

Sonnentag, S., & Fritz, C. (2007). The Recovery Experience Questionnaire: development and validation of a measure for assessing recuperation and unwinding from work. *Journal of Occupational Health Psychology*, *12*(3), 204–221.

Sonnentag, S., & Grant, A. M. (2012). Doing good at work feels good at home, but not right away: When and why perceived prosocial impact predicts positive affect. *Personnel Psychology*, *65*, 495–530.

Stogdill, R. M. (1963). *Manual for the leader behavior description questionnaire-form XII: An experimental revision*. Columbus, OH: Ohio State University.

Swift, T. A., & West, M. A. (1998). *Reflexivity and group processes: Research and practice*. Sheffield, UK: The ESRC Centre for Organization and Innovation.

Talbot-Zorn, J., & Marz, L. (2017). The busier you are, the more you need quiet time. *Harvard Business Review*. https://hbr.org/2017/03/the-busier-you-are-the-more-you-need-quiet-time

Treynor, W., Gonzalez, R., & Nolen-Hoeksema, S. (2003). Rumination reconsidered: A psychometric analysis. *Cognitive Therapy and Research*, *27*, 247–259.

Tsui, A. S., & Ashford, S. J. (1994). Adaptive self-regulation: A process view of managerial effectiveness. *Journal of Management*, *20*, 93–121.

Turner, N. E. (1998). The effect of common variance and structure pattern on random data eigenvalues: Implications for the accuracy of parallel analysis. *Educational and Psychological Measurement,* 58, 541–568.

Uhl-Bien, M., & Graen, G. B. (1998). Individual self-management: Analysis of professionals' self-managing activities in functional and cross-functional work teams. *Academy of Management Journal*, *41*, 340–350.

VandeWalle, D., Ganesan, S., Challagalla, G. N., & Brown, S. P. (2000). An integrated model of feedback-seeking behavior: Disposition, context, and cognition. *Journal of Applied Psychology*, *85*, 996–1003.

Van Knippenberg, D., & Hogg, M. A. (2003). A social identity model of leadership effectiveness in organizations. Research in organizational behavior, 25, 243–295.

Van Quaquebeke, N., & Felps, W. (2018). Respectful inquiry: A motivational account of leading through asking questions and listening. *Academy of Management Review*, *43*(1), 5–27.

Van Seggelen-Damen, I. C. (2013). Reflective personality: Identifying cognitive style and cognitive complexity. Current Psychology, 32(1), 82-99.

Wellman, N., Ashford, S. J., Sanchez-Burks, J., & DeRue, D. S. (2022). Leading hen the Boss is Present: How Leadership Structure Schemas Affect Leadership Behavior. *Journal of Leadership & Organizational Studies*, 15480518221076767.

Wellman, N., Newton, D. W., Wang, D., Wei, W., Waldman, D. A., & LePine, J. A. (2019). Meeting the need or falling in line? The effect of laissez-faire formal leaders on informal leadership. *Personnel Psychology*, *72*(3), 337–359.

West, M.A. (2000). Reflexivity, revolution and innovation in work teams. In Beyerlein, M., Johnson, D., & Beyerlein, S. (Eds.), *Product development teams, 1–29*. Stamford, CT: JAI Press.

Wong, C. S., Law, K. S., & Huang, G. H. (2008). On the importance of conducting construct-level analysis for multidimensional constructs in theory development and testing. *Journal of Management*, *34*(4), 744–764.

Yukl, G., & Falbe, C.M. (1990). Influence tactics and objectives in upward, downward, and lateral influence attempts. *Journal of Applied Psychology, 75*(2), 132–140.

Yukl, G., Gordon, A., & Taber, T. (2002). A hierarchical taxonomy of leadership behavior: Integrating a half century of behavior research. *Journal of Leadership & Organizational Studies*, *9*, 15–32.

Zaccaro, S. J., Mumford, M. D., Connelly, M. S., Marks, M. A., & Gilbert, J. A. (2000). Assessment of leader problem-solving capabilities. *The Leadership Quarterly*, *11*(1), 37–64.

Zaccaro, S. J., Rittman, A. L., & Marks, M. A. (2001). Team leadership. *The Leadership Quarterly*, *12*, 451–483.

Zhang, C., Nahrgang, J. D., Ashford, S. J., & DeRue, D. S. (2020). The risky side of leadership: Conceptualizing risk perceptions in informal leadership and investigating the effects of their over-time changes in teams. *Organization Science*, *31*(5), 1138–1158.

Table 1

Measure Development Study 1 Initial and Final Items of the Individual Work Reflection Measure

	G	M	S	R
Goals-focused reflection (G)				
Review the objectives for the project.*#	**.50**	-.02	.06	.14
Reflect on whether I am meeting the project goals.*	**.75**	.11	.01	-.11
Revisit the project goals to make sure I'm still on track.	**.57**	.23	-.15	.11
Evaluate my progress towards the project goals.*	**.81**	-.05	-.03	-.08
Reconsider project objectives in light of changing circumstances.#	.10	**.41**	-.14	.33
Consider whether I'm on track to achieve project deliverables.*	**.60**	.14	-.17	.10
Methods-focused reflection (M)				
Evaluate the methods I am using to get the project done.#	.30	**.52**	.06	-.10
Review my approach to getting the job done.*#	.15	**.63**	.01	-.09
Reflect on whether my input is helping to best move the project forward.	.16	**.36**	.20	.08
Reconsider how I make decisions on this project.*#	-.04	**.66**	.06	.04
Consider whether I need a different approach to better achieve project goals.*	-.08	**.71**	.02	.07
Evaluate whether I am working in the best way to accomplish project deliverables.*	.23	**.57**	.07	-.11
Relationships-focused reflection (R)				
Reflect on how well or poorly I am working with others (e.g., clients, customers, co-workers or a boss) on the project.	.04	.15	.24	**.30**
Evaluate whether I am connecting well or poorly with those who will receive my work. *	.02	-.17	.15	**.73**
Consider whether my actions are helping to build high-quality connections with those who will receive my work.*	-.06	.07	-.02	**.71**
Reflect on how well I am communicating with those who will receive my work.*	.36	-.25	-.06	**.70**
Think through the quality of my connections with those who will receive my work.*	-.16	.18	-.06	**.76**
Reflect on the quality of my relationships with others on the project.	-.07	.12	.08	**.60**
Self-focused reflection (S)				
Think about how my individual working style affects project progress.*	.02	.08	**.63**	.02
Reflect on whether my ways of thinking are beneficial to the project.	.01	.22	**.53**	.10
Evaluate the personal impact I have on the project.*	.18	-.17	**.76**	.03
Consider whether I am working effectively on my project.	**.59**	.01	.15	.00
Notice how my day-to-day moods help or hurt my work on the project.*	-.21	.05	**.64**	-.02
Reflect on the kind of energy I am bringing to the project.*	.03	.12	**.60**	.04

Note: The highest factor loading for each item is indicated in bold. N = 303. * Items marked with an asterisk are items that were selected for our final 16-item measure used in the main studies. # Items marked with a hash symbol are items that were directly adapted from Carter and West (1998). For goals-focused reflection, we chose to include the item "review the objectives for the project" instead of "revisit the project goals to make sure I'm still on track" even though it had a slightly lower factor loading, because this item was adapted directly from an item in Carter and West's (1998) measure of team reflexivity (i.e., "reviews its objectives"). We felt that this item was a better fit with our conceptualization of goals-focused reflection, which was based on existing theory (e.g., Carter and West, 1998; Manz & Sims, 1980; Uhl-Bien & Graen, 1998).

Table 2

Measure Development Study 3 Confirmatory Factor Analysis of Individual Work Reflection

Model	Descriptives	χ^2, *df*	Ratio χ^2/df	$\Delta \chi^2$, $\Delta df\updownarrow$[a]	CFI	RMSEA	SRMR
Model 1	Individual work reflection as four factors (goals, methods, relationships, self)	99.58, 92	1.08	147.26, 5**	.99	.02	.04
Model 2	Individual work reflection as two factors (task: goals and methods, social: relationships and self)	246.84, 97	2.54	99.71, 1**	.89	.10	.06
Model 3	Individual work reflection items as a single factor	346.55, 98	3.54		.82	.13	.07

Note: $N = 150$. [a] For model comparisons, Model 1 is compared with Model 2, and Model 2 is compared with Model 3. ** Model improvement significant at $p <$ .01 level. CFI = Comparative fit index; RMSEA = Root mean square error of approximation; SRMR = Standardized root mean squared residual. The following cut-off values to determine goodness of fit were applied: a chi-square ratio ≤ 3, CFI values ≥ .95, RMSEA ≤ .06, and SRMR ≤ .08 (Hu & Bentler, 1999; Schermelleh-Engel et al., 2003).

Table 3

Main Study 1 Descriptive Statistics and Correlations

	M	SD	1	2	3	4	5	6
1. Individual work reflection	3.98	0.50	(.91)					
2. Task-oriented leadership	3.85	0.71	.11**	(.71)				
3. Relational-oriented leadership	4.09	0.65	.09**	.57**	(.80)			
4. Change-oriented leadership	3.87	0.69	.10**	.89**	.61**	(.88)		
5. Female	0.32	0.47	.15**	.10**	-.01	.00		
6. Age	29.98	2.41	-.01	-.14**	-.02	-.11**	-.17**	
7. Job experience	4.25	1.30	.04	-.04	-.04	-.05	-.06	.19**

*Note: N = 850. * p < .05, ** p < .01. Cronbach's alphas appear across the diagonal.*

Table 4

Main Study 1 Multivariate Regression Estimates

	TLB	RLB	CLB	TLB	RLB	CLB
Independent Variable						
Individual work reflection	.11**	.09*	.10**	.14**	.12*	.14**
	(.04)	(.04)	(.04)	(.05)	(.05)	(.05)
Control Variables						
Female				.11*	-.03	-.04
				(.05)	(.05)	(.05)
Age				-.04**	-.00	-.03**
				(.01)	(.01)	(.01)
Job experience				-.01	-.02	-.02
				(.02)	(.02)	(.02)

*Note: N = 850. * p < .05, ** p < .01. Standard errors in parentheses. TLB = Task-oriented leadership behavior; RLB = Relational-oriented leadership behavior; CLB = Change-oriented leadership behavior.*

Table 5

Main Study 2 Descriptive Statistics and Correlations

	M	SD	1	2	3	4	5	6	7	8	9
1. Individual work reflection	3.61	0.67	(.95)								
2. Understanding team needs	3.81	0.69	.25**	(.96)							
3. Task-oriented leadership	3.78	0.83	.17**	.74**	(.98)						
4. Relational-oriented leadership	3.87	0.82	.21**	.74**	.95**	(.97)					
5. Change-oriented leadership	3.72	0.85	.16*	.73**	.98**	.94**	(.98)				
6. Leadership effectiveness	3.56	0.91	.17**	.70**	.95**	.90**	.95**	(.97)			
7. Feedback seeking	3.25	0.85	.48**	.13*	.06	.08	.08	.05	(.91)		
8. Mindfulness	2.61	0.54	-.04	-.13*	-.11	-.15*	-.10	-.11	.09	(.84)	
9. Rumination	3.03	0.69	.12	-.02	-.00	.00	-.01	.01	.18**	.21**	(.70)
10. Social awareness	3.90	0.60	.09	.11	.02	.00	.05	.07	.11	-.02	.13*
11. Psychological detachment	2.19	0.76	-.33**	-.21**	-.22**	-.24**	-.21**	-.22**	.34**	-.17**	-.07
12. Reflexive processes	3.76	0.61	.71**	.17**	.14*	.16**	.15*	.14*	.01	.52**	.14*
13. Extraversion	4.21	1.18	.14*	.03	.02	.03	.03	.04	-.08	.24**	-.02
14. Agreeableness	5.34	0.79	.13*	-.01	.03	.05	.04	.04	-.24**	.13*	.17**
15. Conscientiousness	4.43	1.03	.09	.18**	.10	.09	.09	.09	-.27**	.00	.06
16. Neuroticism	3.92	1.15	.03	-.04	.04	.01	.03	.04	.35**	-.07	.06
17. Openness to experience	4.87	1.05	.21**	.08	.01	.02	.02	.02	-.21**	.20**	.05
18. Female	0.46	0.50	.09	.07	.08	.10	.07	.08	-.01	-.01	.01
19. Age	19.56	1.01	-.06	-.01	-.03	-.03	-.00	.02	.07	-.02	.05

*Note: N = 264. * p < .05, ** p < .01. Cronbach's Alphas appear across the diagonal.*

	10	11	12	13	14	15	16	17	18
10. Social awareness	(.81)								
11. Psychological detachment	.12	(.91)							
12. Reflexive processes	.16*	-.31**	(.95)						
13. Extraversion	.12	-.07	.23**	(.82)					
14. Agreeableness	.11	-.08	.12	.33**	(.85)				
15. Conscientiousness	-.07	-.15*	.05	.14*	.09	(.76)			
16. Neuroticism	.24**	.10	.03	-.08	-.09	-.13*	(.77)		
17. Openess to experience	.18**	-.18**	.18**	.22**	.18**	.09	.10	(81)	
18. Female	.12	-.08	.13*	-.00	.03	.04	.13*	-.03	
19. Age	-.03	.04	-.05	.00	.00	.00	.04	-.01	-.07

*Note: N = 264. * p < .05, ** p < .01. Cronbach's alphas appear across the diagonal.*

Table 6

Main Study 2 Multivariate Regression Estimates

	Model 1				Model 2					Model 3				
	TLB	RLB	CLB	LE	UTN	TLB	RLB	CLB	LE	UTN	TLB	RLB	CLB	LE
Independent Variable														
Individual work reflection	.18* (.07)	.22** (.07)	.18* (.08)	.21* (.08)	.22** (.07)	-.00 (.04)	.04 (.04)	-.01 (.05)	.01 (.05)	.17** (.08)	-.02 (.04)	.02 (.04)	-.03 (.05)	-.01 (.05)
Mediator Variable														
Understanding team needs						.84** (.06)	.79** (.06)	.86** (.06)	.90** (.08)		.84** (.06)	.80** (.06)	.86** (.06)	.93** (.09)
Awareness-Oriented Constructs														
Feedback seeking										.05 (.05)				
Mindfulness										-.08 (.07)				
Rumination										-.03 (.05)				
Social awareness										.09 (.05)				
Psychological detachment										-.08 (.05)				
Reflexive processes										-.07 (.09)				
Other Leadership Predictors														
Extraversion											.00 (.03)	-.00 (.02)	.01 (.02)	.02 (.03)
Agreeableness											.05 (.05)	.05 (.04)	.05 (.05)	.04 (.06)
Conscientiousness											.00 (.04)	-.02 (.03)	-.00 (.04)	-.01 (.04)
Neuroticism											.05 (.03)	.03 (.03)	.04 (.03)	.05 (.04)
Openness to experience											-.03 (.04)	-.02 (.03)	-.03 (.04)	-.02 (.04)
Demographic Controls														
Female										.05 (.07)	.02 (.06)	.06 (.06)	.01 (.06)	.04 (.06)
Age										.01 (.04)	.04 (.03)	.05 (.03)	.06 (.03)	.08 (.04)

Note: $N = 264$. * $p < .05$, ** $p < .01$. Standard errors in parentheses. TLB = Task-oriented leadership behavior; RLB = Relational-oriented leadership behavior; CLB = Change-oriented leadership behavior; LE = Leadership effectiveness; UTN = Understanding team needs.

Figure 1

Theoretical Model – Individual Work Reflection and Leadership Outcomes