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# Energizing Leaders via Self-Reflection: A Within-Person Field Experiment

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The leader role is demanding and depleting, explaining why many leaders struggle to remain engaged while doing their job. In this study, we present theory and an intervention focused on improving leader energy. Integrating cognitive energetics theory (Kruglanski et al., 2012) with leader identity theory and expressive writing research, we develop and test a positive leader self-reflection intervention, which asks leaders to reflect on aspects of their selves that make them good leaders. We expected that this intervention would improve leaders' access to and application of their energy in ways that would make them more influential at work. We tested these theoretical expectations in an experimental experience sampling study where, as expected, we found that leaders experienced less depletion and through it heightened work engagement on intervention versus control days. Work engagement, in turn, improved perceived prosocial impact and clout, two markers of leaders' influence at work. We conceptually replicated the depletion-reducing effect of the intervention in a second study and showed that its effectiveness was specific to those who held leadership roles within their organizations. We discuss the theoretical and practical implications of the intervention and of our findings.

*Keywords:* energy, depletion, leadership identity, engagement, experience sampling experiment



Each day at work, leaders face responsibilities that pose significant burden on their energy. In managing others, leaders make many decisions, participate in diverse daily tasks, and monitor progress on various goals (Lanaj, Johnson, & Lee, 2016a). Such acts consume energy, potentially hurting leaders' ability to remain engaged at work (e.g., DeWall, Baumeister, Mead, & Vohs, 2011; Ent, Baumeister, & Vonasch, 2012). Attesting to leaders' energy-demanding role, recent data suggest that about 96% of senior leaders feel some degree of burnout from their job (Kwoh, 2013) and that only about 29% of managers are engaged at work (Gallup, 2017). Although the leadership literature recognizes the unique and important role that leaders play in their organizations (Derue, Nahrgang, Wellman, & Humphrey, 2011), it has largely overlooked the fact that leaders have limited energy reserves (e.g., Roche, Haar, & Luthans, 2014).

This oversight is problematic for two main reasons. First, theories of self-regulation and motivation suggest that energy is a key resource necessary for effective self-control and functioning at work (Hobfoll, 1989; Hockey, 1997; Kruglanski et al., 2012; Martela, DeHaan, & Ryan, 2016; Quinn, Spreitzer, & Lam, 2012; Ryan & Deci, 2008). Energy is an inner resource that fluctuates day to day and across contexts and it influences how people behave at work and beyond (Beal, Weiss, Barros, & MacDermid, 2005; Kruglanski et al., 2012; Quinn et al., 2012). Energy, however, is consumable (Kruglanski et al., 2012; Milyavskaya & Inzlicht, 2017; Muraven & Baumeister, 2000) and when employees suffer from depletion, their performance at work suffers and they are more prone to violate work norms and expectations (Johnson, Lanaj, & Barnes, 2014; Trougakos, Beal, Cheng, Hideg, & Zweig, 2015; Welsh & Ordóñez, 2014; Yam, Fehr, Keng-Highberger, Klotz, & Reynolds, 2016). Second, because of their strategic position and authority in their organizations, leaders are uniquely qualified to provide key task resources to their followers, such as high-quality support and assistance (Farh, Lanaj, & Ilies, 2017). Depleted leaders, however, may not provide high-quality resources to followers (e.g., Barling & Frone, 2016; ten Brummelhuis, Haar, & Roche, 2014) and may be less influential. Hence, depletion may hurt not only leaders' solitary performance but also their impact on followers.

Despite the important role that leader energy plays at work, most organizational research has focused primarily on the causes and consequences of depletion (Gilbert, Foulk, & Bono, 2018), and little research has studied energy recuperation (Spreitzer, Lam, & Fritz, 2010). The few studies that have discussed energy recuperation advocate for better sleep, frequent breaks at work, and caffeinated and/or sugary beverages (Hagger & Chatzisarantis, 2013; Lanaj, Johnson, & Barnes, 2014; Trougakos, Hideg, Cheng, & Beal, 2014; Welsh, Ellis, Christian, & Mai, 2014). Although

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helpful, these solutions may be impractical or undesirable for leaders when implemented over the course of many days. For example, better sleep may be impractical for leaders with child rearing or caretaking responsibilities. It may also be impractical for busy leaders to take naps or breaks in-between meetings (e.g., Fritz, 2012). Similarly, caffeinated or sugary beverages may be unhealthy or undesirable long-term solutions (Fritz, Lam, & Spreitzer, 2011). It is important, therefore, to develop in situ work solutions that improve energy for all leaders and that are unlikely to have negative side effects. In this article, we develop and test an intervention that energizes leaders in ways that make them more influential at work.

Cognitive energetics theory (CET, Kruglanski et al., 2012) provides important insights into how leaders can access and apply energy at work in more efficient ways. According to CET, motivated behavior is determined by potential and actual driving forces—with potential driving force representing "the maximal amount of energy the individual is prepared to invest in a given goal pursuit," and effective driving force representing "the actual amount of energy he or she invests" (Kruglanski et al., 2012, p. 8). Consistent with CET, recent research on human energy suggests that there are two main types of energy: potential- and in-use energy (Christian, Eisenkraft, & Kapadia, 2015; Quinn et al., 2012). Potential energy refers to available energy that is reserved for future tasks, whereas in-use energy refers to energy applied during engagement with work activities (Christian et al., 2015; Kahn, 1990; Rich, LePine, & Crawford, 2010). Because leader energy exists as both potential and in-use energy, we focus on both types.

Integrating CET (Kruglanski et al., 2012) with leader identity theory (Day, Harrison, & Halpin, 2009; DeRue & Ashford, 2010; Lord & Hall, 2005) and literature on expressive writing (King, 2002; Pennebaker, 1997; Seligman, Steen, Park, & Peterson, 2005), we propose that a morning self-reflection intervention, which focuses leaders on aspects of their selves that make them good leaders, will make their potential energy more accessible, subsequently increasing levels of in-use energy throughout the workday. Thus, we identify and develop an intervention that could enhance the efficient access and use of both types of energy. Consistent with CET and prior research, we conceptualize depletion as an indicator of potential energy, and work engagement as an indicator of in-use energy (e.g., Christian et al., 2015; Kruglanski et al., 2012).

Given arguments by CET that energy is important for motivated action (Kruglanski et al., 2012), we also consider the downstream effects of leaders' potential and in-use energy at work. It is paramount for leaders to manage their energy well to accomplish day-to-day business responsibilities and to remain effective at work (Bass & Stogdill, 1990; Loehr & Schwartz, 2003). The nature of leaders' job, however, is different from that of typical workers in terms of both workload and responsibilities. Hence, typical measures of job performance such as those assessing task completion or citizenship behaviors may not capture unique elements of leaders' work, such as their ability to influence their followers on a day-to-day basis. Although leaders can enact a variety of behaviors at work that influence their followers (Derue et al., 2011), they are responsible for two key organizational functions: to provide psychological supportiveness and task direction (Katz & Kahn, 1978). We investigate perceived prosocial impact and clout as two daily indicators of psychological supportiveness and task direction, respectively. Perceived prosocial impact refers to leaders' perceptions that they made a difference in their followers' lives that day at work (Sonnentag & Grant, 2012) and clout refers to the influence that leaders feel they exerted at work (Kacewicz, Pennebaker, Davis, Jeon, & Graesser, 2014). We expect that leaders will exhibit higher levels of both outcomes on intervention (vs. control) days via potential and in-use energy.

Our work makes several contributions to theory and practice. First, we contribute to research on leadership by taking an actor-centric approach to leader energy. Although much is known about how leaders affect their followers, with few exceptions, very little research has focused on leaders themselves (Foulk, Lanaj, Tu, Erez, & Archambeau, 2018; Lanaj et al., 2016a). The leader role is uniquely demanding and depleting in that leaders are responsible not only for their own performance, but also for that of their followers. It is valuable, therefore, to develop theory and to identify techniques that improve leader energy and performance at work. This is an important discovery because energized leaders feel and behave better, as do those who interact with them (Pfeffer, 1992). Highlighting leaders' unique role and identity, in a second study we show that the intervention improves potential energy but only for those in supervisory positions, providing discriminant validity for our intervention.

Second, we contribute to research on predictors and outcomes of human energy at work. Most of the research on depletion and self-regulation at work has primarily focused on activities that deplete resources, but fewer studies have examined interventions that facilitate self-regulation at work. We identify an intervention that has face validity for leaders and that reminds them of their priorities and goals as good leaders. As such, this intervention helps leaders to efficiently access their energy, and it also motivates them to channel that energy into work behaviors that matter for them, such as directing others and making a difference. Differently from other studies that have focused on time-intensive activities such as sleep and work breaks, we introduce a short and simple intervention that improves leaders' access to and allocation of their energy. By developing and testing this intervention across two studies, we provide a practical solution for leaders who want to be more effective at work.

Third, we contribute to research on expressive writing and self-regulation. Some scholars have argued that expressive writing may facilitate self-regulation (King, 2002), but little empirical research has investigated such theoretical expectations. This is surprising given the growing amount of research documenting the benefits of expressive writing interventions on indicators of human thriving (Bono, Glomb, Shen, Kim, & Koch, 2013; Cable, Gino, & Staats, 2013; Seligman et al., 2005). We contribute to this line of work by arguing theoretically and showing empirically that our self-reflection intervention may facilitate leaders' self-regulation by improving their ability to access and channel their energy toward activities that matter at work.

## Theoretical Development

Leader energy is essential for leader effectiveness for three main reasons: (1) it allows leaders to accomplish many work tasks; (2) its expenditure on work activities signals loyalty and commitment to others at work, and (3) it is contagious and inspires more effort

in followers (Pfeffer, 2010). Energy, however, is limited and expendable (Baumeister & Vohs, 2016; Francis & Inzlicht, 2016; Kruglanski et al., 2012) and depleted leaders are less effective at work. For example, several studies have shown that depleted leaders enact more abusive behavior (Courtright, Gardner, Smith, McCormick, & Colbert, 2016; Mawritz, Greenbaum, Butts, & Graham, 2017; Yam et al., 2016), are more unethical (Lin, Ma, & Johnson, 2016), and less charismatic toward their followers (Barnes, Guarana, Nauman, & Kong, 2016).

Whereas energy is often thought of as a unitary construct, CET (Kruglanski et al., 2012) suggests that energy manifests in two ways—first as potential energy, which subsequently fuels in-use energy. Potential energy represents physical and mental resources available to the self for goal pursuit, and these resources are "generally understood to be limited and depletable" (Kruglanski et al., 2012, p. 5). In-use energy, on the other hand, refers to the energy that a person invests in an activity (Kruglanski et al., 2012). Depletion is an important indicator of potential energy, as it represents the capacity that employees have to exert self-control at a particular moment (see also Christian & Ellis, 2011; Galla & Duckworth, 2015; Milyavskaya & Inzlicht, 2017). *Engagement* is a critical indicator of in-use energy, as it represents the actual effort applied to work (Christian et al., 2015; Rich et al., 2010). In our context, CET suggests that potential energy (in the form of depletion) and in-use energy (in the form of engagement) are both part of the same process that describes how leaders access and deploy their energy at work.

Developing a strategy to increase potential energy is fruitful not only because potential energy is a precursor of in-use energy (Kruglanski et al., 2012; Lanaj et al., 2014), but also because potential energy can be made more accessible through subtle interventions. Specifically, CET posits that potential energy is not only a function of the mental and physical resources available to leaders at a particular moment, but also of goal importance and salience (Kruglanski et al., 2012). Thus, leaders' energetic capabilities may be improved via interventions that emphasize goals and values that are important to leaders' sense of self. Drawing from CET and leadership identity theory, we suggest that an intervention that makes the self as a good leader salient to leaders will facilitate their ability to access and apply potential energy at work.

The leader role is a central component of the self for leaders because the relational context in which leaders are embedded is important for their self-definition (e.g., DeRue & Ashford, 2010; Hammond, Clapp-Smith, & Palanski, 2017; Lord & Hall, 2005; Markus, 1977; Markus & Wurf, 1987; Marr & Thau, 2014; Rus, van Knippenberg, & Wisse, 2010). Leader identity is particularly salient in formal leader roles (DeRue, Ashford, & Cotton, 2009; Marr & Thau, 2014) and leadership skills are closely integrated with the leader self-concept. This is because, as Day and coauthors (2009, p. 185) posited, "participating in more leadership experiences strengthens the salience and centrality of a leader identity, especially if the outcomes of the experience are viewed in a positive light." Because being a good leader is an important high-level goal for leaders (Lian, Yam, Ferris, & Brown, 2017), in the following section we argue that a daily intervention that emphasizes one's identity as a good leader is likely to have important implications for leaders' willingness to fulfill the leadership role that day, as manifested by how they access and apply energy at work.

## Self-Reflection and Leader Energy

CET posits that because energy is limited, people are prone to "cognitive miserliness"—the tendency to conserve energy resources—until they are sufficiently incentivized to access and invest their inner resources in pursuit of important goals (Kruglanski et al., 2012, p. 9). Given their demanding role, leaders in particular tend to conserve energy for important tasks (DeWall et al., 2011). However, we expect that on days when leaders reflect on their self as a good leader, they will experience less impetus to guard their energy because they are reminded of past successes and of their abilities, skills, and knowledge to accomplish important tasks in their role as leaders. As Lian and colleagues posited (2017, p. 46), when leaders recall their authentic selves, "there is no need to exert self-control because leaders' desires and goals are realigned."

From a self-regulation perspective, self-reflection through expressive writing is effective because putting words to experiences promotes self-understanding, reduces inhibition, and increases awareness of one's priorities and goals (King, 2002; Pennebaker, 1997). Thus, although "people tend to guard their mental resources jealously" and invest them only for worthwhile endeavors, as predicted by CET (Kruglanski et al., 2012, p. 15), reflecting on positive aspects of oneself as a leader highlights the importance of the leader role, which lessens leaders' propensity toward cognitive miserliness, thus enhancing their access to potential energy. CET's position on resource access is consistent with other theoretical perspectives (Kahneman, 2003; Kotabe & Hofmann, 2015; Pratto & John, 1991), as well as empirical evidence (Eastwood, Smilek, & Merikle, 2003; Öhman, Flykt, & Esteves, 2001; Smith, Cacioppo, Larsen, & Chartrand, 2003) suggesting that inner resources can be dormant until high priority situations arise, at which point these resources are accessed and allocated toward those situations. Informed by CET, we posit that leaders will experience less depletion on days when they reflect on positive aspects of themselves as leaders. Our expectations are also consistent with recent research on self-affirmation indicating that bringing attention to important values and goals may reduce depletion and facilitate self-regulation (Cohen & Sherman, 2014; Harris, Harris, & Miles, 2017; Schmeichel & Vohs, 2009). Hence, we propose,

> *Hypothesis 1:* Leaders will experience less depletion on days when they participate in a positive leader self-reflection intervention (vs. control days).

Our theoretical framework suggests that increased potential energy, manifested as reduced depletion, will improve in-use energy, manifested as work engagement. Work engagement "involves a holistic investment of the entire self in terms of cognitive, emotional, and physical energies" to work (Christian, Garza, & Slaughter, 2011, p. 97). Engaged employees are fully vested in their work, are attentive, integrated, and connected to others (Kahn, 1992). They are also enthusiastically devoted to their work and motivated to pursue challenging goals (Bakker & Leiter, 2010). It is not surprising, therefore, that engaged employees perform better at work, help coworkers often (Rich et al., 2010), and are more connected to significant others at home (Ilies, Liu, Liu, & Zheng, 2017). Work engagement varies within person

(Sonnentag, 2003), and because it represents application of in-use energy, it depends on the potential energy that employees have access to and are willing to exert at work (Lanaj et al., 2014).

CET (Kruglanski et al., 2012) and prior research on daily work engagement (e.g., Barnes, Lucianetti, Bhave, & Christian, 2015) suggest that depletion will precede work engagement because to use resources, one must first have them. Lending support to this idea, Lanaj and coauthors (2014) found that morning depletion was negatively associated with afternoon work engagement. They argued that being fully absorbed in and dedicated to one's work requires resources, but depleted employees lack such energy and therefore display lower work engagement. Similarly, Uy, Lin, and Ilies (2017) found that depletion reduced daily work engagement even the next day despite the restorative activities that employees experienced that evening. They further highlighted the key role that depletion plays for engagement at work.

Furthermore, engagement at work requires that employees refrain from nonwork distractions, which is difficult for depleted employees. Each day at work, employees experience desires that conflict with work values, goals, and motivations (Hofmann, Baumeister, Förster, & Vohs, 2012a; Hofmann, Vohs, & Baumeister, 2012b). To resist daily desires, employees rely on self-control, which refers to the voluntary regulation of emotions, attention, and behavior (Tangney, Baumeister, & Boone, 2004). For example, employees exert self-control when they resist impulses to check social media while at work, override negative thoughts and emotions experienced during interactions with colleagues and clients, strive to remain focused on work despite interruptions or other distractions (e.g., Heatherton & Wagner, 2011) and even when they resist the urge to sleep and to engage in leisure activities (Hofmann et al., 2012a). In addition to CET, other theories suggest that acts of self-control such as these rely on access to and application of energy (Kotabe & Hofmann, 2015; Kruglanski et al., 2012; Muraven & Baumeister, 2000). Depletion, however, hinders employees' ability to resist distractions and desires that compete for their engagement at work. Therefore, we expect the following.

> *Hypothesis 2:* Depletion will be negatively related to daily work engagement.

Integration of CET with leader identity theory suggests that leaders will experience less depletion and consequently more engagement on days when they reflect on positive aspects of their self as leaders (e.g., Kruglanski et al., 2012; Roberts, Dutton, Spreitzer, Heaphy, & Quinn, 2005). This is because when leaders recall positive aspects about themselves as leaders they are disincentivized from hoarding their inner resources and from saving them for more important tasks and instead incentivized to invest those resources in activities that matter for them as leaders. Being a good leader is closely tied to leader's sense of self (Day et al., 2009; DeRue & Ashford, 2010), which means that leaders will be motivated to invest their inner resources into their work, thus experiencing heightened engagement. Furthermore, when leaders reflect on being a good leader, they are likely to see themselves as more leader-like and to act accordingly (Day et al., 2009), which means that they will be motivated to channel their potential energy toward work activities (e.g., Ent et al., 2012). Indeed, prior research indicates that personal expressiveness that highlights one's core identity may promote work engagement. For example, Cable and coauthors (2013) found that when newcomers participated in socialization practices that emphasized their personal identity, they experienced increased engagement at work. Reflecting on core aspects of one's identity, therefore, seems to have important implications for employees' application of energy at work. These arguments suggest that on days when leaders participate in the positive leader self-reflection intervention, they will experience less depletion, and because they have more potential energy at their disposal, they are subsequently likely to channel that energy toward engaging with work tasks. In all, integrating CET with leader identity theory suggests that the positive leader self-reflection intervention will (a) facilitate access to existing energy as indicated by reduced depletion, and (b) improve the effective use of that energy as indicated by enhanced work engagement via reduced depletion. Accordingly, we hypothesize:

> *Hypothesis 3:* Depletion will mediate the effect of the positive leader self-reflection intervention on daily work engagement.

## Work Outcomes of Leader Self-Reflection and Energy

Possession of energy and efficient application of that energy are among the most important sources of influence for leaders at work (Pfeffer, 1992). Engaged leaders possess more energy (Kahn, 1990), and because the leader role is inherently relational (Katz & Kahn, 1978), engaged leaders are likely to exert more influence on others at work. Leadership influence accomplishes two important functions—it provides psychological supportiveness and task direction to followers (Katz & Kahn, 1978). Psychological supportiveness refers to socially supportive behaviors aiming to ameliorate the morale and wellbeing of followers, whereas task direction refers to acts aiming to facilitate task completion (Katz & Kahn, 1978). Indeed, several dominant leadership theories suggest that effective leaders are proficient at both, guiding followers toward goal accomplishments as well as caring for them (Bass, 1990; Judge, Piccolo, & Ilies, 2004). Although leaders enact a plethora of behaviors that could be categorized as psychologically supportive or task directive (Derue et al., 2011), in this article we focus on prosocial impact and clout as two daily indicators of leader psychological supportiveness and task direction, respectively. Daily prosocial impact refers to "the degree to which employees feel that their actions benefit other people" (Grant, 2008, p. 110) and is conceptually well-aligned with psychological supportiveness. Daily clout refers to the degree to which one displays influence and power at work (Kacewicz et al., 2014) and is well-aligned with task direction.

Employees experience a heightened sense of prosocial impact when they believe that their behaviors at work improved the lives of others (Grant, 2012). Perceptions of prosocial impact may stem from performing work activities that have the potential to benefit others or from providing high-quality help (Lanaj, Johnson, & Wang, 2016b; Sonnentag & Grant, 2012; Sonnentag & Starzyk, 2015). Prosocial impact is often conceptualized as a positive work experience (Sonnentag & Grant, 2012; Sonnentag & Starzyk, 2015), and perceptions of prosocial impact are more pronounced when employees have close contact with and care directly for the beneficiaries of their actions (Grant, 2007). Leaders spend most of their day in contact with their followers (Kim & Mauborgne, 2014), which means that they have ample opportunities to garner

feedback about the impact that their behaviors have on their followers. Hence, there are theoretical reasons to expect that leaders may experience a heightened sense of prosocial impact on days when they are highly engaged at work.

Engaged leaders devote their whole self to their work role and are "relaxed, direct, and concerned" in their interactions with followers (Kahn, 1992, p. 325). They are accessible to their followers, attentive to followers' concerns and frustrations, and involved in developing solutions to work problems (Kahn, 1992). Engaged leaders are likely to impact their followers in prosocial ways because they are emotionally attuned to followers' needs and express authenticity and genuine care for followers, all of which strengthen work relationships and improve prosocial impact (Kahn, 1990, 1992). There is some empirical support for these theoretical expectations. For example, studies indicate that engaged employees perform better, are concerned for others, and perform more helping behaviors (e.g., Christian et al., 2011, 2015; Rich et al., 2010; Sonnentag, 2003; ten Brummelhuis et al., 2014). When leaders enact such positive behaviors, they are likely to make and perceive a positive difference in the lives of their followers (e.g., Lanaj et al., 2016b). Because engaged leaders tend to be more active in working with their followers, attending to their needs, and enabling their job performance, they should experience increased prosocial impact. Consistent with these arguments, we expect the following:

> *Hypothesis 4:* Daily work engagement is positively related to daily prosocial impact.

Leaders display clout when they enact power over others (Kacewicz et al., 2014; Pennebaker & Jordan, 2015). Clout is manifested in the way leaders express themselves, and people high in clout use words that connote certainty, confidence, expertise, and authority (e.g., Kacewicz et al., 2014; Newman, Jones, & Ritter, 2016). According to Kahn (1992, p. 329), engaged leaders use verbal behavior indicating that they are "present and connected on a fundamental intellectual level." When leaders are engaged at work, they expect high standards of performance for themselves and for others. They are fully present at work (Kahn, 1992), which means that they pay attention to work goals and to the progress that is made to achieve those goals. Engaged leaders communicate their expectations in a clear manner to their followers and guide them to find good solutions to work problems (Kahn, 1992), indicating that they may exert more clout on days when they are engaged at work. Thus, because engaged leaders wield their power and influence appropriately so as to direct the actions of followers, they may display increased clout. Consistent with these arguments, we hypothesize the following:

> *Hypothesis 5:* Daily work engagement is positively related to daily clout.

So far we have argued that the positive leader self-reflection intervention will reduce depletion, and consequently increase work engagement. In turn, we expect that work engagement will be positively associated with prosocial impact and clout, two indicators of leaders' influence at work. We expect this process to occur because the positive leader self-reflection intervention makes the self-concept of a good leader more accessible to those in positions of leadership. Easy access to one's self-concept as a leader, in turn, guides leader behavior at work (Rus et al., 2010). Leaders are responsible for the psychological wellbeing as well as the performance of their followers (Katz & Kahn, 1978) and these functions are well-represented by prosocial impact and clout. Enactment of both types of behaviors, however, requires that the leader has resources and a willingness to apply those resources to such work activities. Potential energy made accessible through the intervention may improve leaders' influence at work because they will be motivated to invest that energy toward leader-congruent behaviors. Consistent with these arguments, we expect that the positive leader self-reflection intervention will improve prosocial impact and clout via reduced depletion and enhanced work engagement. Hence, we propose the following:

> *Hypothesis 6:* The effect of the positive leader self-reflection intervention on prosocial impact is mediated by (a) depletion and (b) daily work engagement.

> *Hypothesis 7:* The effect of the positive leader self-reflection intervention on clout is mediated by (a) depletion and (b) daily work engagement.

## Study 1

### Participants

We recruited 65 leaders from executive MBA courses at a large southeastern university in the United States. Participation in the study was voluntary; participants received extra course credit and individualized feedback reports at the end of the data collection period. Institutional review board (IRB) approval was granted by University of Florida (IRB Protocol #: 2015-U-1464, study title: Leader Positive Self-Concept Study). The average age of the participants was 34.7 years ($SD$ = 6.30), they had been employed in their current organization on average for 3.9 years ($SD$ = 3.9), worked an average of 51 hr per week ($SD$ = 8.6), and held occupational positions such as director of sales, manager of corporate finance, vice-president, director of pharmacy, and portfolio manager. Participants were mostly male (73.8%).

### Procedure

We collected data over three consecutive work weeks. In the first week, we sent the background survey to the participants, which included the informed consent as well as person-level measures for demographics. We collected daily data in the second and third weeks of the study. During the second and third weeks of the study, we emailed the daily surveys to participants three times each day—morning, afternoon, and evening, for 10 consecutive work days (Monday–Friday). We sent the morning survey, which included the positive leader self-reflection intervention (described below) as well as measures of depletion, positive affect, and self-esteem at 6:00 a.m. We sent the afternoon survey, which included the measure of daily work engagement, at 4:00 p.m. each day. We sent the evening survey, which included the measures of clout and prosocial impact, at 8:00 p.m. each day. Participants' average start time for the morning survey was 8:15 a.m., their average start time for the afternoon survey was 5:06 p.m., and their average start time for the evening survey was 9:32 p.m. The average time lapse between completion of the morning

survey and the afternoon survey was 9.32 hr, and the average time lapse between the afternoon survey and the evening survey was 4.53 hr. From the 65 leaders who participated in the study, we received a total of 465 day-level data points (out of a total possible of 650) for a response rate of 71.5%.

## Positive Leader Self-Reflection Intervention

We were interested in developing a positive leader self-reflection intervention that would improve leaders' energy at work. For this reason, we built on the positive psychology literature, which suggests that writing about positive aspects of the self can influence the way individuals think and feel about themselves (e.g., King, 2001; Seligman et al., 2005; Sheldon & Lyubomirsky, 2006). Having a positive or successful leadership experience is thought to bolster the integration of a leader identity with an overall personal self-concept (Day et al., 2009). Because being an effective leader is an important part of leaders' identity (DeRue & Ashford, 2010), we developed a self-reflection intervention that asked leaders to think and then write about three positive qualities that they possessed as leaders. We focused on three things to remain consistent with previous research utilizing self-reflection manipulations of different types, which typically ask participants to think of three items or examples (e.g., Bono et al., 2013; Seligman et al., 2005). Because each leader was in the experimental condition for five days of the study, we developed five versions of this manipulation. In random order, participants were asked to consider and write about "three things you like about yourself (they can be anything) that make you a good leader," "three valuable skills that you have that make you a good leader," "three useful traits that you possess that make you a good leader," "three personal achievements that you are proud of that make you a good leader," and "three things that you are good at (they can be anything) that make you a good leader." The instructions invited participants to "take a moment to picture these three things in your head and really focus on them. In 2–6 sentences (about 2 sentences per item), please describe what these three things are, why you like them, why they may make you a good leader, etc."[1] We purposefully asked about traits, skills, and achievements that made someone a good leader because successful application of these characteristics facilitates leader development and makes leader identity integral to one's sense of self (Day et al., 2009).

Similar to other experimental studies (e.g., Kilduff & Galinsky, 2013; King, 2001), and to ensure that the observed effects were not due to merely writing, in the control conditions, participants were asked to write about three neutrally valenced aspects of their experiences. Because participants were in the control condition for five days of the study, we developed five versions of the control condition. In random order, participants were asked to consider and write about "three noticeable objects in your office," "three noticeable landmarks that you pass on your way to work," "three noticeable objects in your kitchen," "three noticeable features of your car," and "three noticeable items in your house."

We randomly assigned participants into either the control or the experimental condition on a daily basis using a constrained within-person randomized matrix. This procedure ensured that the order of the experimental and control days was random within and across participants. On each of the 10 days of the study, half of the participants were in the control condition and half were in the experimental condition, and all participants were in the control condition for five days and in the experimental condition for five days. The manipulation (or control) was included in the morning surveys that participants received each day. We described the manipulation to the participants as an attentional focus task where they would be asked to carefully concentrate on a certain aspect of their life or experience for a few moments and write a few sentences about that experience.[2]

## Measures

**Positive leader self-reflection intervention.** We dummy coded the positive leader self-reflection intervention such that it took a value of 0 for days when leaders completed the control condition and 1 for days when leaders completed the experimental condition.

**Depletion.** We measured depletion with five items published by Lanaj, Johnson, and Wang (2016b) and originally developed by Twenge, Muraven, and Tice (2004). Participants responded on a 5-point scale, ranging from 1 (*very slightly or not at all*) to 5 (*very much*) to items that included "I feel drained right now," "Right now, my mental energy is running low", and "Right now, I feel like my willpower is gone." The average alpha coefficient for these 5 items was $\alpha = .92$.

**Work engagement.** To measure daily work engagement, we adapted six items from the scale developed by Rich et al. (2010). This scale is appropriate because it maps onto the affective, cognitive, and behavioral aspects of work engagement recognized by Kahn (1990, 1992) and has good discriminant validity (Byrne, Peters, & Weston, 2016). Our 6-item scale included two items for each dimension, which we collapsed to create one overall measure of work engagement. Participants responded on a 5-point scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*) to items that included, "Today, I was absorbed in my job," "Today, I exerted a lot of energy on my job," and "Today, I strived hard to complete my job." The average alpha coefficient for these 5 items was .86.

**Prosocial impact.** We measured prosocial impact using the three-item scale developed by Grant (2006) and published by

[1] To explore whether the five versions of each condition had different effects from each other, we conducted an ANOVA for each condition with the version as the factor and our outcome variable of depletion as the dependent variable. To take into account the multilevel nature of our data, we group mean centered depletion prior to these analyses (Hofmann et al., 2000). In the intervention condition results suggested that none of the 5 versions of the manipulation had a different effect on depletion, $F(4,223) = .99$, *ns*. Similarly, in the control condition, results suggested that none of the 5 versions of the control condition had a different effect on depletion, $F(4,232) = 1.29$, *ns*.

[2] We examined whether the experimental (vs. control) condition influenced the amount of time participants took to complete the morning survey, which included the manipulation (control). This analysis indicated that participants did not take more time to complete the morning survey on experimental days (average = 11.04 min) compared to control days (average = 12.37 min; mean difference = 1.34 min, *ns*). As another check, we also examined the number of words and letters that participants used in their self-reflection essays in the experimental days versus the control days. On average, participants used 56.89 words and 323.89 letters in experimental days and 56.46 words and 305.15 letters in the control days; there were no significant mean differences in words (.43, *ns*) or letters (18.74, *ns*) across the two conditions. This is another indication that participants put a similar amount of effort in the control and experimental conditions.

Sonnentag and Grant (2012). Participants responded on a 5-point scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*) to the following: "I feel that my behaviors at work made a positive difference in my coworkers' lives today," "I am very conscious of the positive impact that my behaviors at work had on my coworkers today," and "I am very aware of the ways in which my behaviors benefited my coworkers today." The average coefficient alpha for these three items was .89.

We relied on self-reports for work engagement and prosocial impact because our primary goal in this study was to show that positive leader self-reflection matters for how leaders think and feel, and we believe that these self-beliefs are meaningful and important in their own right, especially given the lack of research on leaders' own perceptions at work. Furthermore, other-reported ratings of leader behaviors are problematic for two key reasons. First, coworkers may have limited opportunities to observe each other throughout the workday and self-reports may be the most accurate and comprehensive way to assess nonobservable work behaviors (e.g., Vazire, 2010) such as prosocial impact and work engagement (e.g., for similar choices, see Foulk et al., 2018; Gabriel, Koopman, Rosen, & Johnson, 2018; Parke, Weinhardt, Brodsky, Tangirala, & DeVoe, 2018). Second, leaders interact with many followers each day at work and may be in a better position than anyone else to think about and appraise these interactions.

**Clout.** According to Pennebaker and Jordan (2015, p. 6), clout is "the kind of power that is seen in a strong leader." One manifestation of clout is in the way a leader speaks and writes, as "a person with clout speaks with confidence and a sense of authority" (Pennebaker & Jordan, 2015, p. 6). To be consistent with the conceptualization of clout as the way leaders express themselves, we used an implicit measure to assess clout. Each evening we presented participants with the following open-ended question: "We are interested to know about your experience at work today. In a few sentences, please describe your work day." This question was designed to be open-ended and nonspecific, such that leaders could freely express any thoughts or feelings about their day. We then used the Linguistic Inquiry and Word Count (LIWC) software (Pennebaker, Booth, Boyd, & Francis, 2015) to analyze the degree to which leaders expressed clout when describing their days. The LIWC uses a validated dictionary to measure the degree of clout expressed in text (Kacewicz et al., 2014). To ensure that leaders in the positive leader self-reflection condition were not simply writing more and thus indirectly writing more about clout than leaders in the control condition, we compared the number of words written on experimental versus control days. There were no significant mean differences, suggesting no difference in the length of the responses to this open-ended question based on experimental condition. It is worth noting that since clout is an implicit measure, it is not subjected to demand characteristics and other internal validity threats that typify self-reported measures because it is highly unlikely that participants were aware (even subconsciously) that we were interested in specifically investigating clout and adjusted their writings to include more words that indicate this construct on intervention versus control days.

**Positive affect.** Our primary theoretical interest is on depletion as an outcome and mediator of the effects of the positive leader self-reflection intervention. However, prior research on other types of positive expressive writing interventions indicates that it may have a simultaneous effect on positive affect (e.g., Burton & King, 2004; Sheldon & Lyubomirsky, 2006). Estimating the effect of one mediator in the absence of another known mediator can overstate its effects due to unaccounted for shared variance (de Jong & Elfring, 2010). For this reason, we controlled for positive affect by modeling it as an alternative mediating path in our model. This approach allowed us to establish the unique effects of our intervention on all outcomes and to explain variance accounted for in each, above and beyond the effect of positive affect. We measured state positive affect with the five-item positive affect subscale of the PANAS-X instrument (MacKinnon et al., 1999; Watson, Clark, & Tellegen, 1988). Participants responded on a 5-point scale ranging from 1 (*very slightly or not at all*) to 5 (*very much*) to items such as "Inspired", "Alert," and "Enthusiastic." The alpha coefficient for these five items was $\alpha = .94$.

## Analyses

Prior to analyzing our models, we conducted a manipulation check. Following the procedure described by Galinsky, Gruenfeld, and Magee (2003), we had three coders who were blind to the study conditions and hypotheses rate the degree to which participants' responses to our intervention indicated positive leader self-reflection. Raters were asked to respond to the question, "To what extent is the writer of this paragraph positively reflecting on being a leader? This could involve reflecting on positive traits, skills, or achievements that make him/her a good leader" on a 5-point scale ranging from 1 (*not at all*) to 5 (*a great extent*). Aggregation tests suggested that there was acceptable agreement among the raters (ICC[1] = .78, ICC[2] = .91; LeBreton & Senter, 2008), therefore we aggregated the responses of the three raters into a single variable. We then conducted an analysis of variance (ANOVA) with the experimental condition as the factor and the raters' aggregated responses to this question as the dependent variable. Results indicated that participants wrote about positive leader self-reflection more in the experimental condition compared to the control condition ($M_{\text{experimental}} = 3.29$, $SD_{\text{experimental}} = .93$; $M_{\text{control}} = 1.01$, $SD_{\text{control}} = .09$), $F(1,463) = 1391.85$, $p < .01$, suggesting that our manipulation had the intended effect.

We conducted multilevel confirmatory factor analyses to investigate the distinctiveness of our study variables. At the within-person level of analysis, we included depletion, positive affect, work engagement, and prosocial impact. First, we estimated a model where each construct loaded on its own factor. The fit statistics for this model were reasonable ($\chi^2 = 594.68$, $df = 166$, root mean square error of approximation [RMSEA] = .08, standardized root mean residual [SRMR] = .07, comparative fit index [CFI] = .91). Next, we compared this model to several alternative models using the Satorra-Bentler $\chi^2$ difference test incorporating the maximum-likelihood restricted scaled correction factors (Satorra & Bentler, 2001). We compared our full model to three models: (1) a model where depletion and positive affect loaded on a single factor, and the rest of the items for the remaining constructs loaded on their own factors ($\chi^2 = 1485.62$, $df = 169$, RMSEA = .13); (2) a model where work engagement and prosocial impact loaded on a single factor, and the items for the remaining constructs loaded on their own factors ($\chi^2 = 1139.32$,

*df* = 169, RMSEA = .11); (3) a model where depletion and positive affect loaded on a single factor, work engagement and prosocial impact loaded on a single factor, and the items for the remaining constructs loaded on their own factors ($\chi^2$ = 2017.71, *df* = 171, RMSEA = .15). Results indicated that our proposed model fit the data significantly better than these alternative models ($\Delta\chi^2$ = 493.12, $\Delta df$ = 3, $p < .01$; $\Delta\chi^2$ = 559.71, $\Delta df$ = 3, $p < .01$; $\Delta\chi^2$ = 939.39, $\Delta df$ = 5, $p < .01$, respectively). Thus, we retained the full model to test our hypotheses.[3]

To ensure that multilevel modeling was appropriate for our analyses, we estimated the within-person variance in each of our endogenous variables. Analyses indicated that all of our focal variables had substantial within-person variance, necessitating the use of multilevel modeling (depletion: 64%; work engagement: 63%; clout: 82%; prosocial impact: 63%). Therefore, we tested all of our hypotheses simultaneously via multilevel path modeling using Mplus 7.3 (Muthén & Muthén, 2012). Figure 1 depicts the path model that we tested.[4] We group-mean centered our within-individual predictors (Hofmann, Griffin, & Gavin, 2000), and modeled hypothesized paths with random slopes and control paths with fixed slopes (Enders & Tofighi, 2007). Using the procedure recommended by Snijders and Bosker (1999) for estimating pseudo $R^2$ ($\sim R^2$) in multilevel models, we calculated the variance explained by our hypothesized path model in each of our endogenous variables. For our indirect effect hypotheses, we used the strategy recommended by Bauer, Preacher, and Gil (2006) to perform a bootstrap procedure with 20,000 iterations to estimate 95% confidence intervals (CIs) for each indirect effect. For our three-stage mediation hypotheses, we used a similar procedure with 20,0000 iterations recommended by Taylor, MacKinnon, and Tein (2008) to estimate confidence intervals for micromediation.

## Results

Table 1 shows within- and between-person correlations as well as descriptive statistics for all study variables and Table 2 presents the results of our hypothesized multilevel path model, which tested all hypotheses simultaneously. Hypothesis 1 predicted that leaders would experience a reduction in depletion on days when they performed the positive leader self-reflection intervention compared to control days. As shown in Table 2, the relationship between positive leader self-reflection and depletion was negative and significant ($\gamma = -.12$, $p < .05$) providing support for Hypothesis 1.

Hypothesis 2 posited that depletion would be negatively related to daily work engagement. As Table 2 shows, this relationship was negative and significant ($\gamma = -.11$, $p < .05$), providing support for Hypothesis 2. Hypothesis 3 predicted that depletion would mediate the relationship between positive leader self-reflection and daily work engagement. The indirect effect was 0.02 and the 95% CI excluded 0 (95% CI [.01, .04)]), thus supporting Hypothesis 3. Hypotheses 4 and 5 stated that daily work engagement would be positively related to daily prosocial impact and clout, respectively. As shown in Table 2, work engagement was positively related to prosocial impact ($\gamma = .29$, $p < .01$) as well as clout ($\gamma = 5.16$, $p < .05$), providing support for both hypotheses. Hypothesis 6 predicted that (a) depletion and (b) work engagement would mediate the relationship between positive leader self-reflection and prosocial impact. We found support for this hypothesis; the indirect effect of positive leader self-reflection on prosocial impact via depletion and work engagement was 0.02 and significant (95% CI [.01, .02]). Hypothesis 7 stated that (a) depletion and (b) work engagement would mediate the relationship between positive leader self-reflection and clout. Supporting this hypothesis, the indirect effect of positive leader self-reflection via depletion and work engagement on clout was 0.24 and significant (95% CI [.18, .36]). Our model accounted for 6% of the variance in depletion, 34% of the variance in work engagement, 53% of the variance in prosocial impact, and 8% of the variance in clout.

## Supplementary Analyses

Our theoretical arguments suggest that the positive leader self-reflection intervention affects leaders by reducing depletion. However, because the intervention involves leaders reflecting on past positive experiences in their role, it is possible that the effects that we observed on work engagement, prosocial impact, and clout may be due to increased self-esteem rather than reduced depletion. For this reason, we also measured self-esteem and in supplemental analyses ran a model identical to the one used to test our study hypotheses, but also included daily self-esteem as an alternative mediator of the effects of the leader self-reflection intervention. That is, this model included depletion, positive affect, and self-esteem as simultaneous mediators of the relationship between our positive leader self-reflection intervention and work engagement, prosocial impact, and clout.

We measured self-esteem in the morning survey after the intervention adapting items from self-esteem measures by Nezlek and Plesko (2001) and Pearlin and Schooler (1978). Participants responded to seven items on a 5-point scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Sample items included "Right now, I have a positive attitude towards myself," "Right now, I feel that I have a number of good qualities," and "Right now, I feel that I am able to do things as well as most other people." The average coefficient alpha for this seven-item scale was 87. The supplementary model indicated that the intervention did not have a significant effect on self-esteem ($\gamma = .04$, *ns*) and self-esteem did not predict work engagement ($\gamma = .13$, *ns*). In the model that included self-esteem, our hypothesized relationships remained significant and did not change much. For example, the relationship between our intervention and depletion remained negative and significant even when accounting for self-esteem ($\gamma = -.07$, $p < .05$), and depletion predicted work engagement ($\gamma = -.07$, $p < .05$). These results indicate that the intervention has unique effects on depletion and through it on the rest of the outcomes examined in this study.

[3] The chi-square difference tests are based on scaled rather than raw chi-square values, as is recommended for multilevel models (Satorra & Bentler, 2001). Results of raw difference tests (i.e., results that do not incorporate the scaling correction factors) yield similar results.

[4] Following the recommendation of an anonymous reviewer, we re-estimated our model in Mplus including previous day values as controls on all of our focal endogenous variables, which we modelled with fixed effects. The parameter estimates for our hypothesized relationships remained largely unchanged. We also re-estimated the indirect effects, and they also remained largely unchanged (manipulation to work engagement: indirect effect = .02, 95% CI [.01, .04]; manipulation to clout: indirect effect = .24, 95% CI [.19, .37]; manipulation to prosocial impact: indirect effect = .02, 95% CI [.01, .02]).

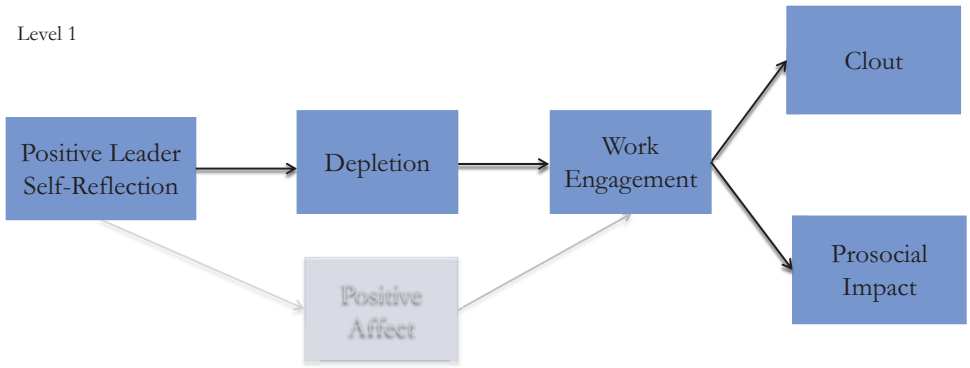


*Figure 1.* Conceptual and estimated multilevel path model. The paths involving positive affect were modeled and tested but not hypothesized. Main effects and other controls excluded for parsimony. Table 2 reports full model as tested. See the online article for the color version of this figure.

## Study 2

Although Study 1 results provide support for our hypothesized model, it is difficult to tell whether the effectiveness of our intervention is limited to leaders, or if its efficacy would be observed for employees in nonmanagerial positions as well. Our arguments stemming from CET and leader identity theory suggest that our intervention should be energizing only for those employees who hold leadership positions, because leader identity is central to their sense of self and positive leader self-reflection fits that identity well. For these reasons, we conducted a second study aiming to examine whether the intervention had similar effects on nonleaders' depletion, thus establishing discriminant validity for our intervention (Campbell, 1960).

### Participants and Procedure

We recruited 373 full time (worked 30+ hours/week) working adults from Amazon's Mechanical Turk. Participants received financial compensation for their participation in this study. Our sample consisted of 98 leaders and 275 nonleaders. Leaders' average age was 35.77 years ($SD$ = 9.70), average work experience in their current job was 5.94 years ($SD$ = 6.21), average hours worked per week was 43.14 ($SD$ = 5.05), and 67% were male. Nonleaders' average age was 32.75 ($SD$ = 8.53), average work experience in their current job was 4.18 years ($SD$ = 4.53), average hours worked per week was 41.89 ($SD$ = 6.18), and 59% were male.

After completing the informed consent (IRB approval was granted by University of Florida, IRB Protocol #: IRB201600590, study title: Leader Self-Concept Validation Study), participants were randomly assigned into either a control condition or a positive leader self-reflection condition. We used the same manipulation and control conditions as described in the main study and participants were randomly assigned into one of the five versions of the manipulation or one of the five versions of the control condition,[5] and we collapsed across versions in each condition. In the control condition there were 143 nonleaders and 49 leaders, and in the leader self-reflection intervention there were 132 nonleaders and 49 leaders. Unlike the main study, Study 2 was conducted with a between-person design and as such each participant participated only in the manipulation or the control condition. After completing the writing task, participants completed measures of positive affect and depletion as well as demographic information.

### Measures

**Leader versus nonleaders.** As part of this study, participants reported their job title in their current job. We used this information to code for whether or not participants held a leadership position. Participants were coded as leaders if their job title indicated that they managed subordinates, for example if their title included the word "manager," "director," "leader," and "supervisor." Sample leader job titles were general manager, assistant director, and division manager. Sample nonleader job titles were technician, office assistant, and home health aide. Leaders were coded as 1, and nonleaders were coded as 0 in the data.

**Positive leader self-reflection intervention.** Similar to the main study, we dummy coded this measure such that it took a value of 0 for the control condition and 1 for the experimental condition.

**Positive affect.** We measured positive affect using the same 5-item scale reported in Study 1. The alpha coefficient for these 5 items was $\alpha$ = .90.

**Depletion.** We used the same 5-item scale reported in Study 1 to measure depletion. The alpha coefficient for these 5 items was $\alpha$ = .92.

### Results

Means, standard deviations, and correlations for Study 2 variables are reported in Table 3. To explore the effects of our leader self-reflection intervention on leaders versus nonleaders, we ran a

[5] To explore whether the five versions of each condition had different effects from each other, we conducted an ANOVA for each condition with the version as the factor and depletion as dependent variable. In the intervention condition results suggested that none of the 5 versions of the manipulation had a different effect on depletion, $F(4,176)$ = 1.36, *ns*. Similarly, in the control condition none of the five versions of the control had a different effect on depletion, $F(4,187)$ = .830, *ns*.

Table 1
*Study 1: Means, Standard Deviations, and Correlations of Study Variables*

| Variables | *M* | *SD* | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|---|---|
| 1. Positive leader self-reflection | .49 | .04 | — | −.09 | −.04 | −.02 | −.05 | .02 |
| 2. Positive affect | 3.06 | .82 | .13** | (.94) | −.63** | .46** | .46** | .23 |
| 3. Depletion | 1.65 | .5 | −.10* | −.55** | (.92) | −.28* | −.27* | −.37** |
| 4. Work engagement | 3.68 | .46 | −.02 | .08 | −.16** | (.86) | .51** | .14 |
| 5. Prosocial impact | 3.70 | .46 | .06 | .15** | −.07 | .24** | (.89) | .15 |
| 6. Clout | 45.26 | 15.31 | −.05 | .03 | −.07 | .14** | .17** | — |

*Note*. Within individual correlations are shown below the diagonal and are based on within-individual scores ($N = 465$). Between-individual correlations are shown above the diagonal and are based on between-individual scores ($N = 65$). Means and standard deviations are based on between-individual scores. Coefficient alphas are reported in parentheses along the diagonal.
* $p < .05$. ** $p < .05$.



two-way ANOVA with the leader positive self-reflection condition and leader status as factors. Consistent with our analyses in the main study, we entered positive affect as a covariate in this model. Results of this model indicated that there was a significant interaction between the leader self-reflection intervention and leader status, $F(1,368) = 4.24$, $p < .05$. A bar graph of this relationship is presented in Figure 2. These results show that, as expected, leaders who took part in the positive leader self-reflection intervention reported less depletion than leaders who took part in the control condition, but that the intervention had no effect on nonleaders. To further explore these results, we ran ANOVA models testing the effects of the positive leader self-reflection intervention on leaders as well as nonleaders in the sample. These results suggested that among the leaders, the intervention had a significant effect ($M_{control} = 1.56$, $SD_{control} = .66$; $M_{manipulation} = 1.34$, $SD_{manipulation} = .51$), $F(1,95) = 4.87$, $p < .01$), but that among the nonleaders the intervention had no significant effect ($M_{control} = 1.56$, $SD_{control} = .76$; $M_{manipulation} = 1.59$, $SD_{manipulation} = .89$), $F_{(1,272)} = 1.55$, ns) on depletion. These results provide further support for our hypothesized model by (a) replicating the effect of our intervention on leader depletion found in Study 1; and (b) by showing that the effectiveness of this intervention is limited to those holding leadership positions.

## Testing Assumptions

One of our core assumptions—informed by leader identity theory—is that the leader role is uniquely meaningful for those in supervisory positions. Hence, reflecting upon core leader characteristics should reduce depletion for those in leadership positions but not for those who are not in leadership positions. The results of Study 2 provide initial support for this assumption—they show that reflecting on the leader role has no effect on depletion for nonleader employees. However, to provide further discriminant validity for our findings, we ran another condition as part of Study 2, where we explored the effects of an employee-specific positive self-reflection intervention on leaders and nonleaders' depletion. We ran this second condition to test two potential alternative explanations for why the self-reflection intervention may reduce leaders' depletion.

First, an alternative explanation for our findings could be that leaders are simply more depleted than nonleaders and that any positive self-reflection intervention would reduce their depletion. Thus, reflecting on one's identity as a good leader may be no different than reflecting on one's identity as, say, a good employee. A challenge to our sets of results, therefore, could be that any positive identity-based and work-specific self-reflection intervention may reduce leaders' depletion. Second, one could argue that the reason our positive leader self-reflection intervention does not work for nonleaders is because the leader self-reflection intervention is not relevant for these employees, since they do not hold leadership positions. Thus, it could be that asking nonleaders to reflect on positive aspects of their roles as employees may also reduce depletion. We addressed both of these valid concerns by introducing a second condition to our Study 2—a positive employee self-reflection intervention.

Table 2
*Study 1: Simultaneous Multilevel Path Model Results*

| | Depletion | | Positive affect | | Work engagement | | Prosocial impact | | Clout | |
|---|---|---|---|---|---|---|---|---|---|---|
| Variables | *B* | *SE* | *B* | *SE* | *B* | *SE* | *B* | *SE* | *B* | *SE* |
| Intercept | 1.65** | .06 | 3.05** | .10 | 3.58** | .20 | 2.64** | .20 | 25.47** | 8.30 |
| Level 1 predictors | | | | | | | | | | |
| Positive leader self-reflection | −.12* | .05 | .17** | .06 | −.05 | .06 | .05 | .05 | −2.82 | 2.65 |
| Depletion | | | | | −.11* | .05 | .06 | .05 | −2.77 | 2.85 |
| Positive affect | | | | | .09* | .04 | .12** | .04 | −.01 | 2.06 |
| Work engagement | | | | | | | .29** | .06 | 5.16* | 2.22 |

*Note*. $N$ (Level 1) = 465; $N$ (Level 2) = 65. Unstandardized coefficients are reported. Level 1 predictors were group mean centered.
* $p < .05$. ** $p < .01$.

Table 3
*Study 2: Means, Standard Deviations, and Correlations of Study Variables*

| Variables | *M* | *SD* | 1 | 2 | 3 | 4 |
|---|---|---|---|---|---|---|
| 1. Positive leader self-reflection | .49 | .50 | | | | |
| 2. Leader vs. nonleader | .26 | .44 | .02 | | | |
| 3. Positive affect | 2.98 | 1.03 | .09 | .07 | (.90) | |
| 4. Depletion | 1.54 | .77 | −.03 | −.07 | −.45** | (.92) |

*Note*. $N = 373$. Coefficient alpha are reported in parentheses along the diagonal.
** $p < .01$.

The procedure was identical to that described above, except that we slightly modified each of the five versions of the manipulation condition so that it represented an employee-specific positive self-reflection intervention, rather than a leader-specific positive self-reflection intervention. The five versions of the revised employee-specific positive self-reflection manipulation were: "Please consider three things about yourself that make you a good employee," "Please consider three valuable skills that you have that make you a good employee," "Please consider three useful traits that you possess that make you a good employee," "Please consider three personal achievements that you are proud of that make you a good employee," and "Please consider three things that you are good at (they can be anything) that make you a good employee." We compared the results of this employee positive self-reflection intervention to the same control condition reported above. There were 199 people in the employee-specific self-reflection intervention, including 135 nonleaders and 64 leaders, who were also recruited from Amazon's Mechanical Turk. In this new condition, leaders' average age was 32.94 years ($SD = 7.33$), average work experience in their current job was 4.73 years ($SD = 4.12$), average hours worked per week was 42.41 ($SD = 4.51$), and 59% were male. Nonleaders' average age was 34.13 ($SD = 9.71$), average work experience in their current job was 4.30 years ($SD = 4.80$), average hours worked per week was 41.72 ($SD = 5.15$), and 53% were male.

We estimated ANOVAs identical to those described above to explore the effect of this employee-specific positive self-reflection intervention for both leaders and nonleaders. Results indicated that this intervention did not have detectable effects on depletion neither for leaders ($M_{control} = 1.56$, $SD_{control} = .66$; $M_{manipulation} = 1.66$, $SD_{manipulation} = .80$) $F(1, 110) = .44$, *ns*, nor for nonleaders ($M_{control} = 1.56$, $SD = .76$; $M_{manipulation} = 1.50$, $SD_{manipulation} = .66$), $F_{(1,275)} = .01$, *ns*. We also tested mean-differences in depletion for leaders across both self-reflection conditions—leaders who participated in the positive leader self-reflection intervention and leaders who participated in the positive employee self-reflection intervention. As expected, we found significant mean differences across the two groups, $F(1, 110) = 7.14$, $p < .01$. The leaders who reflected on being a good leader experienced a larger reduction in depletion ($M_{leader\ manipulation} = 1.34$, $SD_{leader\ manipulation} = 0.51$) than leaders who reflected on being a good employee ($M_{employee\ manipulation} = 1.66$, $SD_{employee\ manipulation} = .80$).

In all, our results suggest that compared to the control condition, reflecting on being a good employee does not reduce depletion for leaders or for nonleaders. These findings address one of our concerns—that any type of positive role-based self-reflection intervention may reduce depletion for leaders. This does not seem to be the case—the positive leader self-reflection intervention has distinctive effects on leaders, further lending support to our theoretical expectations about the implications of reflecting on one's

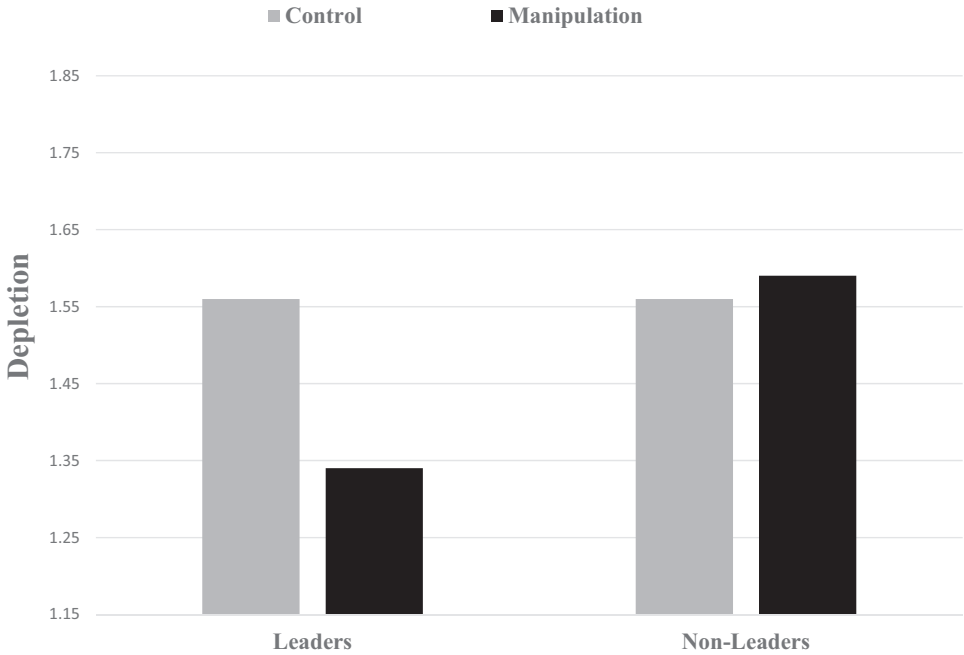


*Figure 2.* Study 2: Moderating effect of leadership status on the association between positive leader self-reflection and depletion. The *y*-axis scaling reflects a range of 1 *SD* around the mean of depletion.

leader role. Furthermore, leaders who reflected on being a good leader experienced a higher reduction in depletion than leaders who reflected on being a good employee. These findings further support our assumption that the leader role is unique and closely tied to leaders' own sense of self. These findings imply that positive self-reflection interventions such as ours may work best when they ask about core aspects of one's identity.

## Discussion

Drawing from CET, leader identity theory, and literature on expressive writing, we propose that leader potential energy (manifested as reduced depletion) and subsequent leader in-use energy (manifested as work engagement) can be improved via a self-reflection writing intervention that asks leaders to reflect on what makes them a good leader. We expected that the intervention would reduce depletion and improve work engagement for leaders for several reasons. First, self-reflection through writing is a process of articulating and expanding one's self, which reduces one's inhibition and frees inner resources (King, 2002; Pennebaker, 1997; Roberts et al., 2005). Hence, consistent with CET and research on expressive writing, we expected that on days when leaders participated in the positive leader self-reflection intervention, they would be less inclined to conserve inner resources and more motivated to invest energy into work activities (e.g., Kruglanski et al., 2012). Expressive writing is also a process of self-construction, which brings forth greater self-understanding of one's needs, priorities, and emotions, all of which facilitate self-control (Burton & King, 2004; King, 2001, 2002). For leaders this means that the intervention would remind them of their priorities and goals as leaders, and because leader identity is a core component of the self for those in positions of leadership (Day et al., 2009), leaders would be motivated to apply their potential energy to work activities (e.g., Cable et al., 2013). Taken together, these arguments informed our expectations that leaders would experience less depletion and consequently more work engagement on days when they participated in the positive leader self-reflection intervention. Furthermore, we expected that leaders would be more influential on intervention days because they would be more able and willing to apply their energy at work.

We found support for these theoretical expectations. As Study 1 results illustrated, leaders experienced less depletion and subsequently more work engagement on days when they participated in the positive leader self-reflection intervention compared to days when they were in the control condition. Work engagement, in turn, improved prosocial impact and clout, two markers of leaders' influence at work, and depletion and work engagement mediated the effects of the intervention on both outcomes. To more directly examine whether the intervention was particularly effective for leaders because of their role identity, we conducted Study 2 to conceptually replicate the effects of the intervention on depletion—the first chain in our model—for leaders versus nonleaders. Study 2 indicated that the intervention reduced depletion only for leaders, suggesting that leader identity may be most salient and relevant for those in formal leadership roles (DeRue & Ashford, 2010; Marr & Thau, 2014). Furthermore, Study 2 provided discriminant validity by also showing that a positive employee self-reflection intervention that was not specific to the leader role did not reduce depletion for leaders or nonleaders in our sample, further highlighting the uniqueness of leader identity. Our study makes several theoretical and practical contributions.

## Theoretical and Practical Contributions

One of our most important contributions is placing a spotlight on leaders' own energy at work. Although there is an impressive amount of research on leader behaviors and attitudes and their implications for followers and organizations (Derue et al., 2011; Judge & Piccolo, 2004), very little work has examined how leaders themselves feel at work (Foulk et al., 2018; Lanaj et al., 2016a). This is particularly problematic given annual surveys showing that many leaders are not engaged at work (Gallup, 2017). Each day at work, leaders are pulled in many directions as they try to accomplish their individual responsibilities, manage follower concerns and problems, attend meetings, and communicate and coordinate with other leaders and stakeholders (e.g., Roche et al., 2014). Handling all of these responsibilities requires energy, which is limited in quantity and consumable, and unless leaders take active steps to manage their energy, they are left depleted and disengaged at work.

Hence, a second important contribution of our work is to help illuminate how an expressive writing intervention improves leaders' energy at work. In so doing, we contribute to the expressive writing literature, which has suggested that writing may facilitate self-regulation when it reminds people of their goals, priorities, and values (King, 2002). To the best of our knowledge, our study is one of the first to directly test this theoretical expectation with a leader sample by showing across two studies that the intervention reduces depletion for leaders. We argue and show that when leaders reflect about their self as a good leader, they are less likely to hoard inner resources and are more inclined to harness their inner energy toward work activities. These processes explain why the intervention reduced depletion and subsequently improved work engagement in ways that enhanced leaders' influence at work.

Third, our findings have implications for research on resource depletion more broadly by suggesting that people's activated identity may impact how they access and utilize their resources. Recent arguments in discussions of ego depletion theory acknowledge that perhaps one's "natural response is to conserve energy after some has been expended, but one can overcome this conservationist impulse with motivation or other factors" (Baumeister, 2016:10). These arguments are well-aligned with CET's concept of "cognitive miserliness" (Kruglanski et al., 2012), espoused by other motivated approaches to self-control, which propose that people's default mode is to conserve energy, unless contextual factors override this propensity (e.g., Shenhav et al., 2017). Our intervention supports the motivated approach to self-regulation—we show that after leaders reflect on their identity as a good leader, they report less depletion, and consequently are more engaged at work that day. We believe that the reduction in depletion is, at least partly, a manifestation of leaders' reduced "cognitive miserliness" and enhanced willingness to invest energy in what are worthwhile leader activities.

Finally, our research has practical value for leaders and their organizations. Our results suggest that the majority of variance in leader depletion and engagement is within-person – 64% and 63%, respectively—suggesting that leaders' energy fluctuates dramati-

cally throughout the day. All leaders, therefore, experience ebbs and flows in energy across days, highlighting the need to develop interventions that help these leaders to manage their energy. We introduce a short and self-relevant exercise that leaders can complete in the morning at work that has the potential to improve their energy and effectiveness. This is important not only for leaders' own performance and wellbeing at work but also for those of their followers. Engaged leaders have engaged followers (ten Brummelhuis et al., 2014), suggesting that focusing on leaders' energy may have a trickle-down effect on followers' energy as well.

## Strengths, Limitations, and Future Research

Our study has several strengths, including the use of field experiments with leaders in their natural settings at work, separation in time among our predictors, mediators, and outcomes, replication of the depletion effects across two studies, and the use of an unobtrusive (implicit) measure for clout. Despite these strengths, like most studies, there are a few limitations worth noting that we hope will be addressed in future research.

First, even though our exogenous independent variable was a self-reflection intervention, the endogenous variables in our model were self-reported, raising concerns of common method and common source bias (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). These concerns are partially mitigated by the separation of our variables in time, our robustness tests involving lagged controls, and the fact that between-person biases, such as self-enhancement and social desirability tendencies that are problematic with self-reported data are eliminated via person-centering in multilevel analyses (Beal, 2015). In addition, in our second study, we randomly assigned participants to the intervention or control condition, which again mitigates between-person confounds. Finally, we relied on an implicit measure of clout, assessing it via analysis of participants' description of their workday using the LIWC (Pennebaker et al., 2015), rather than measuring clout using a traditional self-reported questionnaire. Implicit measures assess the construct under investigation without directly asking participants about the presence of the construct in their minds (e.g., Eysenck, MacLeod, & Mathews, 1987; Isen, Labroo, & Durlach, 2004), minimizing demand characteristics and internal validity threats.

In addition, we believe that the self-reported nature of our data was well suited for our study for several reasons. First, consistent with prior research, depletion may be best evaluated by the focal person because only he or she can truly assess the potential energy that one feels at any particular moment. Similarly, our measures of work engagement and prosocial impact may be best assessed by leaders because they are the only ones who have access to all aspects of their day and all interactions with their followers. Furthermore, our leaders had, on average, 10 direct reports and it would be unfeasible to ask all direct reports to fill out daily surveys of work engagement, impact, and clout. Nevertheless, the self-reported nature of our data remains a limitation and we invite future research to examine other-reports of some of our study variables. Another limitation is that our prosocial impact measure asked about the impact that leaders had on their coworkers that day at work. Thus, this measure may capture not only the impact that leaders had on their direct reports, but also on other coworkers with whom they interacted that day at work. We hope that future research will investigate whether there are impact differences between these groups.

Despite random assignment of the interventions to days and participants, reverse causality remains a limitation for work engagement, prosocial impact, and clout. We took several steps to investigate whether reverse causality is a major concern. First, we reestimated our model with a reverse-causal specification,[6] with morning depletion predicting evening clout and prosocial impact, and evening clout and prosocial impact predicting afternoon engagement. In this model depletion was not significantly related to clout ($\gamma = -.04$, *ns*) nor prosocial impact ($\gamma = .02$, *ns*). Furthermore, clout had no significant effect on engagement ($\gamma = .18$, *ns*), but prosocial impact did have a significant effect on engagement ($\gamma = .26$, $p < .01$). These results suggest that reverse causality is unlikely for the engagement-clout relationship, but possible for the engagement-prosocial impact relationship. For this reason, we examined the fit statistics for the two models that swapped the direction of the engagement-prosocial impact associations. Because these models are nonnested, we used the procedure described by Hooper, Coughlan, and Mullen (2008) and Wang and Chan (2011) and compared the information criteria for each of the two models. All three information criteria statistics suggested that our proposed model (Akaike information criteria [AIC] = 7973.78; Bayesian information criteria [BIC] = 8122.89; sample size-adjusted Bayesian information criterion [SSBIC] = 808.64) fit the data better than the reverse causal model (AIC = 8117.32; BIC = 8287.14; SSBIC = 8157.02). Because of these results, the supplementary analyses controlling for previous-day lags reported in Footnote 4 and, given that our measure of work engagement was collected on average 4.53 hr before measures of clout and prosocial impact, we believe that reverse causality is unlikely. Nevertheless, the potential for reverse causality is not entirely eliminated and we invite future research to further explore the causal nature of the constructs included in our model.

Another limitation of our study is that we did not measure leader identity directly but rather rely on arguments that the intervention improves energy because it activates leader identity. Now that we have established a robust association between the intervention and depletion across two studies, we invite future research to examine some of the mediating mechanisms that may explain this association. Furthermore, we did not examine follower specific outcomes, such as follower engagement, proactivity, or performance, all of which may be enhanced by leader engagement, prosocial impact, and clout. We did not focus on follower outcomes for two main reasons: (1) our focus was on leaders and therefore followers were beyond our research scope and (2) unless all direct reports are surveyed in daily studies such as these, it is unclear if the leader effects are pervasive across all direct reports or only on a subset that filled out the daily surveys. Collecting data from all subordinates across 10 workdays was not feasible in our setting, but we are hopeful that future research will develop more creative ways to overcome such feasibility concerns. Now that we have established that this intervention matters for how leaders think and feel, we hope that future research will extend beyond psychological processes and also consider other behavioral and social processes,

[6] To make this re-estimated model converge, we rescaled our clout variable by dividing it by 100.

such as leader charisma and transformational leadership with reports from coworkers, supervisors, or family members.

We did not measure outcomes of the intervention on significant others, but it is possible that the intervention may affect them too. For example, recent research indicates that when leaders feel engaged at work, they participate in more positive sharing with their significant others at home and they experience less work-family conflict (Ilies et al., 2017). As we show here, on intervention days, engaged leaders feel that they made a difference in their followers' lives and may share such good experiences with their significant others at home, and doing so may improve both parties' wellbeing (Ilies et al., 2017). We hope that future research will examine the implications of the intervention on leaders' as well as their family members' wellbeing at home.

Our theorizing based on CET suggests that the positive self-reflection intervention reduces depletion by overriding leaders' cognitive miserliness and enhancing access to already existing resources. However, it is possible that leaders could experience a reduction in depletion because the self-expression intervention generates inner resources. In other words, rather than giving leaders' access to resources that they already have, the intervention may be building new resources. This may explain why personal expressiveness through writing is a revitalizing and reinvigorating state of wellbeing (Roberts et al., 2005; Waterman, 1993). We encourage future research to further parse out the underlying processes between the self-expression intervention and depletion.

We focused on the influence of the self-reflection intervention on morning depletion, expecting that the intervention would affect depletion first and then work-engagement next, as CET predicts (Kruglanski et al., 2012) and as prior research on daily work engagement suggests (e.g., Barnes et al., 2015; Lanaj et al., 2014). It is possible, however, that our intervention may have immediate effects on work engagement if it is administered later in the workday when employees are already exerting energy at work. We encourage future research to administer the intervention at different times in the workday and to examine the immediate effects on depletion, engagement, and other work outcomes.

Although we show that the effects of the intervention last until the end of the day, we could not examine next-day effects because of the experimental nature of the study where intervention and control conditions were randomly assigned to participants across the study days. Because of the randomized order with which participants were assigned to the experimental and control condition, we also cannot test whether the effectiveness of the intervention builds, wanes, or stays the same when done on consecutive days. Research suggests that self-control is facilitated by habitual activities that lead to goal adherence (Galla & Duckworth, 2015). Hence, if leaders engage in a positive leader self-reflection exercise on a regular basis, they may pursue daily goals less effortfully. Furthermore, work by Dutton, Roberts, and Bednar (2010) suggests that people's identity content and self-definition develop and grow over time at work. It would be interesting, therefore, to explore whether and how leader identity may change over time as a function of consistently reflecting on one's strengths as a leader. We hope that future research will examine the potential longer-term effects of this intervention over weeks and months. On the flip side, although we are not aware of research showing that positive interventions such as this may backfire, we also invite future research to examine whether continued exposure to this intervention may promote feelings of overconfidence or narcissism over time. Prolonged exposure to this intervention may prime positive illusions, which may be harmful if they promote overconfidence or maladaptive behaviors.

A natural extension of this work is to examine between person variables that may weaken or strengthen the effects of the intervention. It is unclear, for example, how identification with followers may affect leaders' outcomes. On the one hand, identifying strongly with followers may amplify the effects of the intervention on leader effectiveness because leaders will care more about the wellbeing of their team. On the other hand, this meshing of identities with followers may make it harder for leaders to differentiate themselves from the group and may thus prevent them from deriving the most benefit from the intervention. We hope that future research will examine moderators that may influence the effectiveness of this intervention.

As per CET, we conceptualize inner resources as depleatable physical and mental energy applicable to goal pursuit (Kruglanski et al., 2012). It is worth noting, however, that although most self-regulation theories agree that inner resources are necessary for cognition and self-control and that they are limited and depletable, these same theories are vague about what exactly constitute inner resources (e.g., Evans, Boggero, & Segerstrom, 2016; Shenhav et al., 2017). For example, Quinn and colleagues' (2012, pp. 339, 345) conceptualization of resources is broad—they write that "resources are defined as anything that actors can use to enact a schema" and that "resources are defined by their use rather than their innate characteristics." Similarly, conservation of resources theory (Halbesleben, Neveu, Paustian-Underdahl, & Westman, 2014, p. 1339) defines resources "as anything perceived by the individual to help attain his or her goals." Baumeister and Vohs (2016, p. 71) argue that self-regulatory resources are "akin to energy" where "energy is widely used in both literal and metaphorical ways." Given the pervasive sentiment that the exact nature of the resources being depleted remains unknown (Hobfoll, Halbesleben, Neveu, & Westman, 2018; Lian et al., 2017; Shenhav et al., 2017), we invite future research to further explore the nature of resources and how they apply to work.

In Study 2 we found that the positive employee self-reflection intervention did not influence employees' depletion. This may be because reflecting on aspects of oneself that make one a good employee may not prime an identity that is as positive, integrated, and salient for employees as leader identity that is accessed via the positive leader self-reflection intervention is for leaders. We hope that future research will shed more light on these possibilities.

Finally, to ascertain that our intervention effects were not merely due to writing or taking a break, in the control condition we asked participants to write about neutral observations (see Kilduff & Galinsky, 2013, for a similar choice). However, future research may want to compare the positive leader self-reflection intervention that we developed here to other positive writing interventions, such as writing about one's signature strengths. Given our Study 2 findings, we expect that our writing intervention will be more beneficial for leaders than other positive writing interventions that do not directly prime salient and integral work-relevant identities. This remains an empirical question that we hope will be addressed in future studies.

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