

APPLICATION OF EGO DEPLETION THEORY TO LEADER HELPING: THE
DARK SIDE OF REACTIVE HELPING

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ABSTRACT

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Research indicates that leaders are often approached by followers with help requests for task-related and personal problems. In addition, theories of leadership recognize that providing support and encouragement to followers is an important leader behavior. Little research, however, has examined how helping followers may affect leaders despite theoretical arguments that helping may deplete self-regulatory resources. Drawing on Ego Depletion Theory, I propose that leader reactive helping – defined as helping in response to direct requests for assistance by followers - depletes leaders' self-regulatory resources. I also propose that helping with personal problems is more depleting than helping with task-related problems. Depletion, on the other hand, is expected to harm leaders' work engagement and creativity because these activities require self-regulatory resources. Helping role perceptions and prosocial motivation are proposed to moderate the effects of reactive helping on depletion; whereas prosocial impact and trait self-control are proposed to moderate the effects of state depletion on work engagement and creativity. An experience sampling methodology is utilized to test these research questions in a sample of middle and senior managers.

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INTRODUCTION

Proactive behavior, in its many different forms, has been identified as an important predictor of both positive individual and organizational outcomes (Grant & Ashford, 2008). Proactive behavior represents employee anticipatory acts that aim to impact themselves, others, and/or their environments (Grant & Ashford, 2008).

Employees who engage in proactive behavior plan in advance, envision an outcome, and interact with others in their environment to achieve that outcome (Grant & Ashford, 2008). Many common forms of proactive behavior involve searching for valuable resources (Bamberger, 2009; Grant & Ashford, 2008). Help seeking, for example, is a proactive behavior that facilitates acquisition of needed resources through “asking others for assistance, information, advice, or support” (D. A. Hofmann, Z. K. Lei, & A. M. Grant, 2009b, p. 1262).

Employee proactive behavior that aims to procure resources, such as help seeking, triggers a potential need for a reactive behavior on the part of other employees. Engaging in reactive behavior, however, may impair the functioning of the employees whose help is being requested. For example, taking time and effort to help someone uses psychological and emotional resources (Gailliot, 2010). Because these resources are important for a variety of different behaviors (Muraven & Baumeister, 2000), assisting others may have detrimental effects for helpers’ other work activities.

Although the literature on helping has begun to explore possible negative effects of helping for the helper (e.g., Barnes et al., 2008), this literature has not specifically differentiated between reactive and proactive helping. Some recent studies suggest that helping behavior can impair individual-level and team-level outcomes (Bachrach, Powell,

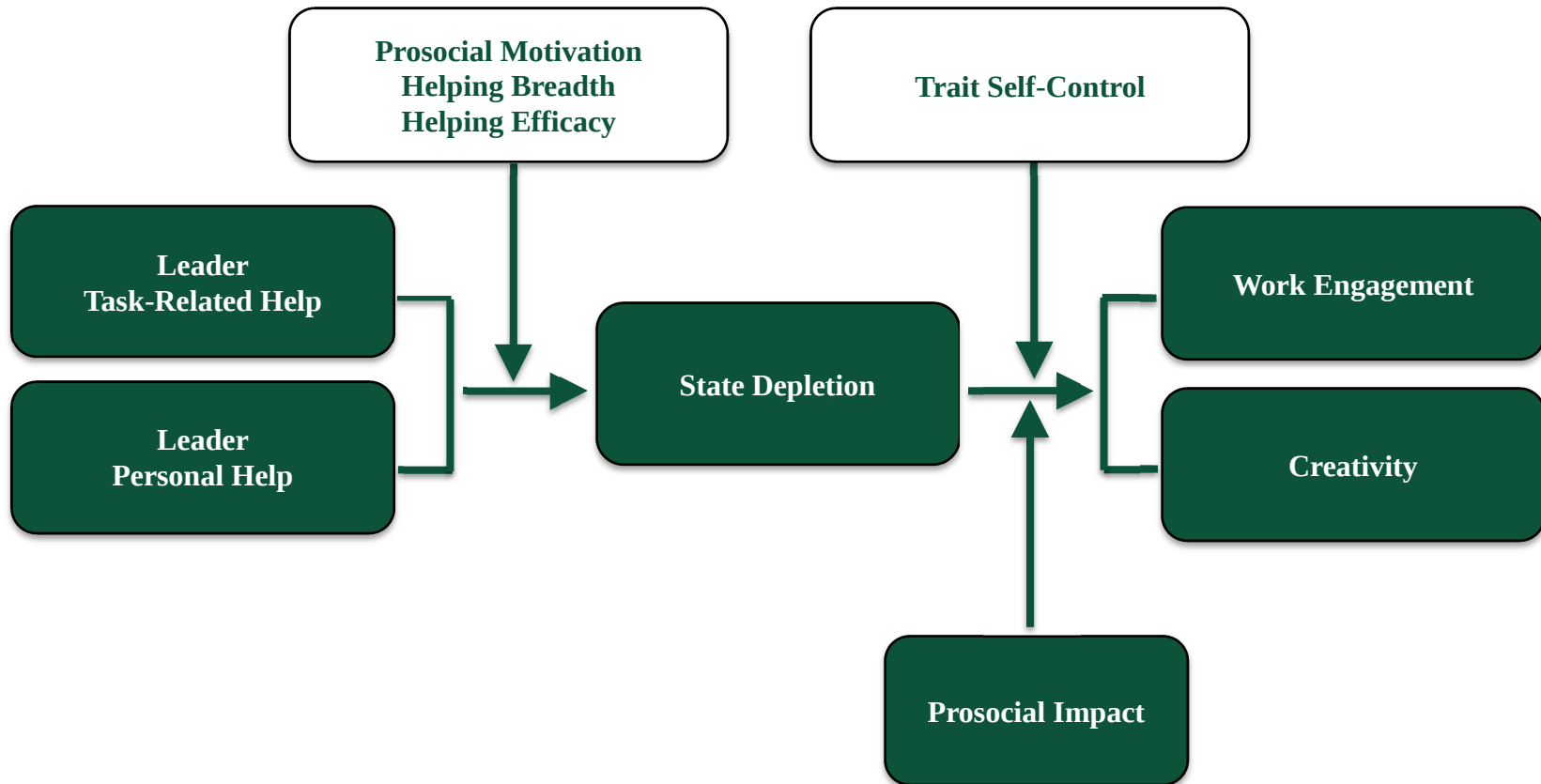
Bendoly, & Richey, 2006; Barnes et al., 2008), however, this is likely to be most salient for reactive helping acts that may not be anticipated or planned for on the part of the help provider. Indeed, there is some evidence that compared to autonomous (e.g., volitional) helping and no helping, non-autonomous (limited choice) helping is associated with lower psychological resources (Weinstein & Ryan, 2010, Study 1, 2 and 4).

In addition, the literature on helping has not focused specifically on leaders. Unlike a peer who might be able to ignore or avoid helping requests because they may fall outside their own job descriptions, addressing many helping requests does fall within the scope of leaders' responsibilities (e.g., Morgeson, DeRue, & Karam, 2010; Yukl, 2010; Yukl, Gordon, & Taber, 2002). Little work, however, has examined how responding to followers in need may affect leaders' performance on other work activities. This oversight is significant in light of evidence that leaders spend considerable time helping followers with task-related and personal problems (Kaplan & Cowen, 1981).

The main purpose of this dissertation is to use Ego Depletion Theory (Baumeister, Bratslavsky, Muraven, & Tice, 1998; Muraven & Baumeister, 2000) as a lens to investigate the effects of leader daily reactive helping on leaders' regulatory resources and functioning. Building on Ego Depletion Theory, I propose that daily reactive helping will deplete leaders' self-regulatory resources and that helping with personal problems will be more depleting than helping with task-related problems. Turning to consequences of depletion, I suggest that state depletion will have negative effects on leaders' work engagement and creativity. Ego Depletion Theory suggests that these work activities require regulatory resources and are likely to be susceptible to depletion of self-regulatory resources.

I draw on Ego Depletion Theory to also propose several moderators. More specifically, I posit that helping role perceptions and prosocial motivation will moderate the effects of reactive helping on state depletion. These expectations are informed by Ego Depletion Theory, which posits that perceptions of an activity and motivation to achieve social goals moderate the effects of activities that require resources on state depletion. Turning to consequences of state depletion, I argue that prosocial impact and trait self-control will moderate the effects of state depletion on work engagement and creativity. Arguments by Ego Depletion Theory suggest that these constructs are likely to temper the effects of state depletion on its consequences because they enable more efficient self-regulation. Figure 1 depicts the proposed conceptual model.

Figure 1
Proposed Model^a



^aNote: prosocial motivation, helping breadth, helping efficacy, and trait self-control are level 2 (dispositional) variables. The rest of the variables are level 1 (daily or within person variables).
For interpretation of the references to color in this and all other figures, the reader is referred to the electronic version of this Dissertation.

LITERATURE REVIEW

Helping Behavior in Organizations: Key Distinctions

Helping is a cooperative affiliative - promotive behavior (Van Dyne, Cummings, & Parks, 1995; Van Dyne & LePine, 1998), which consists of providing support, suggestions, information, feedback, encouragement, and assistance with task-related and personal problems (Anderson & Williams, 1996; Dudley & Cortina, 2008; Settoon & Mossholder, 2002). Many organizational scholars have conceptualized helping as a dimension of organizational citizenship behavior (OCB) (Bachrach, Powell, Collins, & Richey, 2006; Marinova, Moon, & Van Dyne, 2010; Mossholder, Richardson, & Settoon, 2011; Organ, Podsakoff, & MacKenzie, 2006; Philip M. Podsakoff, MacKenzie, Paine, & Bachrach, 2000; Van Dyne & LePine, 1998), which has been defined as “individual behavior that is discretionary, not directly or explicitly recognized by the formal reward system, and in the aggregate promotes the efficient and effective functioning of the organization” (Organ et al., 2006, p. 3).

Proactive versus Reactive Helping. When considering reactive helping on the part of the leader, the traditional conceptualization of helping as OCB is limiting for three main reasons. First, defining helping as OCB does not account for helping acts that occur as part of one’s job requirements as is the case in helping professions (e.g., nursing, Hofmann et al., 2009b; Van Dyne & LePine, 1998) or for leaders. Second, helping as OCB is considered extra role, however, the extent to which helping is perceived as in role or extra role is likely to be a function of individual perceptions (Tepper, Lockhart, & Hoobler, 2001); some form of helping may be perceived as in-role behavior and other forms as extra-role (Van Dyne et al., 1995; Van Dyne, Kamdar, & Joireman, 2008; Van

Dyne & LePine, 1998), and research suggests that employees and supervisors may struggle to distinguish between in-role and extra-role responsibilities (Morrison, 1994). Third, traditional views of OCB posit that these acts contribute positively to organizational outcomes (Organ et al., 2006). This view, however, does not take into account the fact that helping may not always lead to positive consequences for the helper (Bolino, Turnley, & Niehoff, 2004) and may even hurt helpers' own performance (Barnes et al., 2008). The limitations inherent in conceptualizing helping as OCB necessitate a broader conceptualization of helping that does not include its potential consequences as part of the definition (Bolino et al., 2004). For these reasons, I follow Anderson and Williams' (1996) approach and focus on reacting helping behaviors recognizing that leaders are likely to vary in the extent to which they consider helping as in-role or extra-role.

Helping can be proactive or reactive in nature (Grant, Parker, & Collins, 2009; Mossholder et al., 2011), and although the literature has not emphasized this distinction, it is critical for several reasons. First, there is evidence that followers approach supervisors with proactive help requests more often than coworkers, and thus, leaders are likely to be the most frequent target of proactive help requests (Nadler, Ellis, & Bar, 2003). Little research, however, has studied the effects of leader helping on leader functioning despite theoretical arguments that helping may deplete self-regulatory resources and may consequentially harm leaders' performance on other tasks (e.g., DeWall, Baumeister, Gailliot, & Maner, 2008).

Second, reactive helping is the most common form of helping behavior in that helping occurs mostly in response to requests for assistance (Anderson & Williams,

1996; Burke, Weir, & Duncan, 1976; Geller & Bamberger, 2012; Grant & Hofmann, 2011a; Hofmann et al., 2009b; Mueller & Kamdar, 2011). For example, Grant and Hofmann (2011b, p. 11) stated that “as much as 75–90% of all help in organizations ... is provided in response to a direct request from another person.” Most of the research on helping, however, either does not acknowledge a distinction between proactive and reactive helping (e.g., Anderson & Williams, 1996; Barnes et al., 2008; Mossholder et al., 2011), or classifies helping as a proactive behavior (e.g., Den Hartog, De Hoogh, & Keegan, 2007; McAllister, Kamdar, Morrison, & Turban, 2007), and little work has specifically studied reactive helping.

Third, although helping behavior has been linked to some positive outcomes for the helper such as improved mood and self-esteem (Glomb, Bhawe, Miner, & Wall, 2011; Williamson & Clark, 1989), this is less likely to be the case with leader reactive helping for two main reasons. First, experimental work suggests that helping may improve mood when people desire communal relationships (e.g., relationships with friends, family, romantic involvement) more so than when they desire exchange relationships (interactions among strangers and business acquaintances). For example, Williamson and Clark (1989) found that when both exchange and communal conditions were considered, there was no main effect of helping on mood ($p < .05$). They found, however, that helping improved mood significantly in the communal condition, but that it deteriorated mood in the exchange condition (Study 3). Customarily, interactions among leaders and followers are more likely to be exchange oriented than communal in nature. Reactive leader helping, therefore, is less likely to improve mood.

Second, most of the helping literature that has found positive effects of helping has focused on proactive helping. Proactive helping, however, is motivated by different needs and motives (Batson, 1990; Clary & Orenstein, 1991; Den Hartog et al., 2007; Van Lange, Schippers, & Balliet, 2011; Weinstein & Ryan, 2010) whose fulfillment may actually benefit helpers and perhaps offset some of the negative consequences of helping, such as depletion of self-regulatory resources. For example, some organizational research has linked helping with positive affect (Glomb et al., 2011), and positive affect has been shown to offset depletion (Tice, Baumeister, Shmueli, & Muraven, 2007). Reactive helping, however, is less likely to be associated with state positive affect because it is given under more controlled settings at work and Ego Depletion Theory suggests that exerting self-control in controlling settings is more depleting than self-control exercised in more autonomous settings (Muraven, 2008; Muraven, Gagné, & Rosman, 2008).

In fact, Weinstein and Ryan, (2010) found that whereas daily autonomous helping was positively associated with daily wellbeing, controlled (non-autonomous) daily helping was not (Study 1). Autonomous helping represented instances when the helper perceived to have choice or volition in acting and is conceptually similar to proactive helping, whereas controlled helping represented acts motivated by desires to comply with requests or please others and is conceptually similar to reactive helping. Compared to no helping, daily controlled helping was associated with lower mean levels of wellbeing, lower vitality, and lower self-esteem. The authors concluded that autonomous helping was associated with increased wellbeing because it satisfied the needs of autonomy, relatedness, and competence. Similarly, research on helping professions illustrates that compared to volunteers, helping professionals report higher exhaustion (Gabassi, Cervai,

Rozbowsky, Semeraro, & Gregori, 2002), suggesting that the discretionary and maybe intermittent nature of proactive helping may offset some of its negative consequences.

But even if reactive helping induces state positive affect, the hypotheses proposed here posit that frequent reactive helping is likely to be depleting despite possible affective boosts. These expectations are consistent with arguments by Ego-Depletion Theory that affect does not mediate the impact of different activities that require self-control on depletion (Muraven & Baumeister, 2000). For example, Muraven and Baumeister (2000) stated that depletion is not caused or mediated by experience of mood and emotions, but by efforts that deplete self-control resources.

Task versus Personal Helping. Research suggests that leaders may be approached for two types of help: task-related and personal (Bamberger, 2009; House, 1981). Task-related help seeking represents solicitation of assistance that directly ties to the fulfillment of job requirements and responsibilities (Bamberger, 2009). Personal help seeking, instead, aims to address personal and emotional problems not directly linked to job responsibilities but that may ultimately affect help seeker's job performance (Bamberger, 2009). The expected outcome of help seeking is receiving help and there are two main types of helping: task-related and personal (Dudley & Cortina, 2008; Settoon & Mossholder, 2002). Task-related helping involves providing instrumental support that facilitates task-performance, whereas personal helping involves assisting with personal problems and providing emotional support (Dudley & Cortina, 2008; Mossholder et al., 2011).

Similar to previous research on helping, task-related helping in this dissertation is defined as helping “with work-based issues and other less personal problems ... likely to

involve informational support and instrumental assistance” (Dudley & Cortina, 2008, p.1251). Some exemplars of task-related helping are behaviors such as providing work-related advice, providing new perspectives on work-related problems, giving factual information about work procedures or performance, assisting others with technical aspects of procedures and regulations, and supplying information about fulfillment of job roles and responsibilities (Burke et al., 1976; Kaplan & Cowen, 1981; Settoon & Mossholder, 2002).

Personal helping, on the other hand, has been defined in the literature as “self-esteem maintenance and other, more personal, problem-solving behaviors... likely to involve emotional support” (Dudley & Cortina, 2008, p.1251). Some exemplars of personal helping are behaviors such as assisting with emotional or psychological health, helping with personal feelings and intimate relationships, providing counseling, and showing concern (Burke et al., 1976; Kaplan & Cowen, 1981; Settoon & Mossholder, 2002).

Personal helping, as defined here, has also been referred to as “emotional helping” in the helping literature. For example, McGuire’s (1994) conceptualization of “emotional helping” refers to behaviors such as providing moral support, providing comfort, listening to problems, giving personal advice, cheering up, and showing concern. Similarly, Bamberger (2009) defined emotional helping as “help aimed at facilitating the resolution of problems that are more personal in nature, often involving relationship problems or issues relating to an individual’s psychological well-being, and demanding the sharing of often intimate thoughts and feelings” (p.57). These definitions of “emotional helping” are similar to the definition of personal helping (Dudley & Cortina,

2008). The emotional aspect of personal helping refers to the sensitive nature of problems and to the sharing of intimate thoughts, emotions, and experiences by the help seeker (Bamberger, 2009). Emotional or personal helping episodes, therefore, may or may not be accompanied with displays of emotions by the help seeker but the term “emotional helping” is somewhat confusing. To avoid confusion and to be consistent with predominant conceptualizations of helping in the literature, I refer to helping with personal problems as “personal helping” rather than “emotional helping.”

In this dissertation I focus on the effects of both task-related and personal helping on leaders’ functioning and behavior in the workplace. Both types of helping fall within the formal job responsibilities of leaders and research has long recognized that helping subordinates with task-related and personal problems is an important leader function (Yukl, 2010). For example, Katz and Kahn (1978) argued that leaders have two important functions: task direction and psychological supportiveness. Task direction refers to task-related behaviors that mainly support goal attainment, whereas psychological supportiveness refers to socio-emotional leader behaviors that mainly support group members (Katz & Kahn, 1978). Limited research, however, has investigated the effects that reactive helping has on leaders despite evidence that leaders spend considerable time helping. For example, Kaplan and Cowen (1981) found that most leader helping involved task-related issues. Leaders, however, also spent approximately 2.5 hours a week (7% of their working time) responding to requests for help with personal problems (e.g., marital problems, problems with children, and with depression). Most of these issues (in 75% of cases) were raised by subordinates and about 40% of leaders reported that followers contacted them with personal problems during off-work hours as well.

Supervisors hold formal helping roles in their organizations and research indicates that people in formal helping roles are perceived as being more accessible and as possessing more expertise than other employees, which increases the likelihood that they will be approached for help (e.g., Hofmann et al., 2009b). Perhaps an indication of this is the fact that executives spend approximately half of their time in contact with subordinates (Kurke & Aldrich, 1983). It is likely, therefore, that reactive helping is a prevalent leader behavior and therefore it is important for research to investigate the effects that it may have on leaders.

Task-Related and Personal Helping versus Initiating Structure and Consideration. Leader reactive task-related and personal helping are conceptually similar, but distinct constructs from initiating structure and consideration respectively. Initiating structure consists of instrumental leader behaviors that facilitate group goal attainment, such as planning, scheduling, communicating information, and criticizing (Fleishman, 1953; Korman, 1966). Consideration, on the other hand, consists of relational behaviors characterized by respect toward subordinates' feelings and ideas, such as doing personal favors, showing appreciating, being friendly and approachable (Fleishman, 1953; Korman, 1966). Similar to initiating structure, task-related helping consist of instrumental acts and similar to consideration, personal helping consists of considerate interpersonal acts.

Task-related and personal helping behaviors, however, differ from initiating structure and consideration behaviors in two crucial ways. First, reactive helping is problem focused in that leaders attempt to assist their followers with issues that they bring to leaders. Initiating structure and consideration behaviors, on the other hand,

describe leaders' general pattern of behavior or styles and they may or may not be problem focused (e.g., Fleishman, 1953). In fact, one of the main criticisms of the Ohio State Leadership Studies that developed initiating structure and consideration scales is that they do not account for situational variables (Kerr, Schriesheim, Murphy, & Stogdill, 1974).

Second, the helping episodes considered here occur in response to help seeking, however it is unclear if initiating structure and consideration behaviors are self-initiated or if they occur in response to employee requests. For example, initiating structure items such as "He talks about how much should be done" and "He sees to it that people under him are working up to their limits" (Fleishman, 1953, p.3) could be either self-initiated by leaders or they could occur in response to subordinate requests. Similarly, consideration items such as "He is easy to understand" and "He treats all his foremen as his equal" (Fleishman, 1953, p.3) could be either proactive or reactive in nature.

In sum, despite their conceptual similarities, reactive task-related and personal helping differ from initiating structure and consideration because helping as conceptualized here is problem focused and reactive in nature, whereas initiating structure and consideration represent general leader styles that may or may not be problem focused and reactive in nature.

Positive versus Negative Effects Attributable to Helping. The majority of management research on helping has linked it to positive personal and organizational outcomes. With regards to personal outcomes, research indicates that helping improves performance evaluations, the amount of assistance that helpers get from others, and helpers' mood. I review these outcomes in the sections that follow.

There is empirical evidence that helping contributes to helpers' performance ratings. For example, Whiting, Podsakoff, and Pierce, (2008) conducted two experimental studies where they investigated the effects of task, helping, and voice behavior on performance appraisal decisions. They found that helping contributed to performance appraisal ratings above and beyond the other behaviors. Similarly, experimental work by Podsakoff, Whiting, Podsakoff, and Mishra (2011) studied the effect of candidates' propensity to exhibit certain citizenship behaviors on selection decisions. They found that candidates' endorsement of helping behaviors was positively associated with other (e.g., recruiter) - rated competence and overall evaluation. In addition, Podsakoff, Ahearne, and MacKenzie (1997) found that helping was positively related to both performance quantity and quality in a sample of paper mill workers. Other experimental and field work also suggests that altruistic behavior matters in the context of performance evaluations and reward recommendations (Heilman & Chen, 2005; MacKenzie, Podsakoff, & Paine, 1999).

Research findings suggest that helpers receive more help in return. Applying a social exchange perspective to helping in a sample of food service employees, Lyons and Scott (2012) found that employees who helped their coworkers received more help from those coworkers in return. They explained that this is due to the norm of reciprocity that helping others engenders in help receivers. Mueller and Kamdar (2011) examined the moderating effect of helping on the relationship between help seeking and creativity. Although this was not their main research question, they also reported that giving help was positively associated with receiving help. Helping others seems to produce an

experience of obligation in those being helped who then reciprocate by assisting the helper.

Helping has also been shown to contribute to helpers' positive mood. Although organizational research on the effects of helping on affective states is scarce (Grant & Sonnentag, 2010), recent work has started to examine this association. For example, Glomb and colleagues (2011) found that daily proactive helping was associated with positive mood in a sample of professional and managerial employees. In nonworking contexts (e.g., family and volunteering outside of work), proactive helping has been associated with a decline in depressive symptoms, higher positive affect, and higher life satisfaction (S. L. Brown, Brown, House, & Smith, 2008; Hecht & Boies, 2009; Poulin et al., 2010; Weinstein & Ryan, 2010).

In order to be thorough, it is important to note that the positive effects of helping are not conclusive. In fact, a few studies show that helping may not affect personal outcomes. For example, in a diary study investigating predictors of helping in an employee sample, Conway, Rogelberg, and Pitts (2009) did not find a direct effect of helping on positive affect. In exploratory analyses, they found that helping was associated with positive affect only for employees who were low in altruism. Their findings, therefore, are inconsistent with those reported by Glomb and coauthors (2011). In two experiments, Heilman and Chen (2005) found that helping behaviors did not contribute to performance ratings or reward recommendations for women, but that they did for men. A gender effect, however, has not been reported in similar other studies (e.g., Whiting et al., 2008).

Although much attention has been paid to the positive outcomes of helping, recent research has started exploring its negative consequences as well. This research shows that helping can have detrimental effects on the helper. For example, Wright, George, Farnsworth, and McMahan (1993) found that helping was negatively associated with task performance. The authors argued that this negative association was because individuals have a limited amount of resources that they can dedicate to either their in-role behaviors or to helping. Similarly, Barnes and coauthors (2008) found that team members' helping detracted from their own taskwork, especially when the workload was evenly distributed among team members. They argued that allocation of resources to helping behaviors reduced the amount of resources that could be invested in helpers' own tasks. Venkataramani and Dalal (2007) studied helping and harming in a national sorority chapter and found the two to be weakly but significantly positively correlated. They argued that helping and harming may increase with the amount of interaction. Mueller and Kamdar (2011) examined creativity in a sample of engineering teams and found that helping was negatively related to helpers' own creativity after controlling for help received and team member status. They argued that helping diminishes the amount of time and energy that employees can devote to creative tasks.

Research indicates that helping can have negative effects on other helper outcomes. For example, Halbesleben, Harvey, and Bolino (2009) found that helping at work contributed to time, strain, and behavioral work-family interferences. The authors argued that investment of resources at work leaves fewer resources for activities at home. In non-work settings, Poulin and coauthors (2010) found that helping was associated with negative affect for caregivers who perceived low interdependence (e.g., low mutuality of

need and caregiver dependence on spouse) with an ailing spouse. In addition, employees in helping professions are particularly prone to experiencing fatigue and burnout (Cordes & Dougherty, 1993; Slatten, David Carson, & Carson, 2011).

With a few exceptions (e.g., studies by Barnes et al., 2008; Glomb et al., 2011; Halbesleben et al., 2009; Mueller & Kamdar, 2011), organizational research has mostly focused on the effects of helping on the group or recipient, and little on the effects of helping on the helper (Spitzmuller, Van Dyne, & Ilies, 2008). As the above review indicates, however, helping may have negative consequences for helpers. The literature and theory related to the negative effects of helping are not nearly as well-developed as the literature and theory for the positive effects of helping, but Ego Depletion Theory (Baumeister et al., 1998; Muraven & Baumeister, 2000) may serve as a useful conceptual framework for understanding *why*, *when*, *where*, and *with whom* (e.g., Bacharach, 1989) helpers are likely to encounter negative effects attributable to helping. Ego Depletion Theory would suggest that leader reactive helping is likely to reduce leaders' regulatory resources. Regulatory resources are important for a host of other leader behaviors.

THEORETICAL BACKGROUND: EGO DEPLETION THEORY

Ego Depletion Theory suggests that individuals exert control over the self in order to behave in accordance with socially acceptable standards and expectations (Baumeister, Gailliot, DeWall, & Oaten, 2006; Baumeister, Vohs, & Tice, 2007). Acts of self-control represent the capacity of the self to override natural self-serving tendencies and steer behavior towards more socially appropriate norms and behaviors as well as desired outcomes (Baumeister, DeWall, Ciarocco, & Twenge, 2005). For example, people exert self-control when they engage in decision making, self-presentation, or when dealing with demanding partners (Baumeister, Vohs, et al., 2007). When exerting self-control, people draw from a limited reservoir of resources, which may become depleted (Baumeister & Vohs, 2007; Hagger, Wood, Stiff, & Chatzisarantis, 2010). Depletion refers to “a temporary reduction in the self’s capacity or willingness to engage in volitional action (including controlling the environment, controlling the self, making choices, and initiating action) caused by prior exercise of volition” (Baumeister et al., 1998, p. 1253). In sum, depletion is a state that “renders the self temporarily less able and less willing to function normally or optimally” (Baumeister & Vohs, 2007, p. 2).

Self-control represents an inner resource similar to energy or strength (Baumeister & Heatherton, 1996). This same resource is utilized for different activities such as “regulating thoughts, controlling emotions, inhibiting impulses, sustaining physical stamina, and persisting in the face of frustration or failure” (Schmeichel, Vohs, & Baumeister, 2003, p. 33). Self-control, therefore, is a general purpose resource that is necessary for a broad variety of acts that require self-regulation. Coping with stress (due to continuous monitoring and focusing attention on threatening stimuli), dealing with

negative emotions (due to attempts at overriding, inhibiting, or altering negative emotions), regulating attention, dieting (restraining impulses or desires), are a few more examples of activities that require self-control (Muraven & Baumeister, 2000). Other synonymous terms for self-control are “willpower,” “self-discipline,” and “self-regulation.” Self-regulation is a broader concept that encompasses both deliberate and unconscious regulatory processes, whereas self-control represents deliberate and conscious endeavors to manage the self (Hagger et al., 2010).

Ego Depletion Theory has five key tenets (Muraven & Baumeister, 2000). First, it posits that self-control is necessary for executive functioning. Second, self-control is limited and people possess a finite amount of resources. Third, all self-control activities draw from the same pool of resources. Fourth, people vary in the amount of self-control that they possess – people who possess more self-control are more likely to succeed in endeavors that require self-control. Fifth, self-control is expendable and continual exertions can lead to state depletion. Muraven and Baumeister (2000) likened self-control to a muscle that becomes fatigued and thereby less functional when exerted. In sum, the main prediction of Ego Depletion Theory is that sustained engagement in acts that require self-control produces short-term self-regulatory deficiencies – or state depletion. In turn, state depletion leads to decreased performance on subsequent acts that require self-control.

Similar to other self-regulation theories (e.g., Higgins, 1998), Ego Depletion Theory posits that behavior is affected by four main drivers: standards, monitoring, self-regulatory strength (e.g., resources), and motivation (Baumeister & Vohs, 2007). People monitor their environment for cues about how their behavior compares to some internally

or externally valued standard. Then, they exert self-control and expend physical, psychological, emotional, and cognitive resources to align their behaviors with these valued standards. This process is likely to leave the self with fewer resources. Motivation, however, compensates or substitutes for these expended resources and renders the self less vulnerable to state depletion (Baumeister & Vohs, 2007).

In a helping context, this means that leaders are likely to monitor their working environment for standards of helping (e.g., whether helping with a particular problem is appropriate or possible). If leaders agree to help they are likely to exert self-control and expend psychological, emotional, and cognitive resources during helping episodes. Motivation may affect not only their decision to help, but also the helping process itself. For example, leaders' prosocial motivation to help may compensate or substitute for expended resources and may render leaders less vulnerable to state depletion and more able to self-regulate efficiently.

Depletion versus Alternative Constructs

Ego Depletion Theory posits that depletion due to exertion of self-control is different from fatigue, lower self-efficacy, and negative affect. First *depletion is not fatigue*, which has been defined as “a pervasive sense of tiredness or lack of energy that is not related exclusively to exertion” (R. F. Brown & Schutte, 2006, p. 585). In their meta-analysis on Ego Depletion Theory, Hagger and colleagues (2010) reported a corrected correlation of .44 between depletion and fatigue. They argued that these constructs are distinct from each other and that fatigue may be an outcome or a mediator of the effect of state depletion on performance. In addition, experimental work testing the construct

distinctiveness of fatigue and depletion shows that depletion is not tantamount to fatigue (Vohs, Glass, Maddox, & Markman, 2011).

Second *depletion is not self-efficacy*, which has been defined as “the conviction that one can successfully execute the behavior required to produce the outcomes” (Bandura, 1977, p. 193). Arguably, tasks that require self-control may result in poorer performance on subsequent tasks not because of depletion but because of reduction in self-efficacy perceptions. This idea, however, has been refuted in the depletion literature (Hagger et al., 2010). First, a recent meta-analysis by Hagger et al. (2010) did not find significant mean differences in self-efficacy perceptions between depleted and non-depleted participants across many experiments. Second, research has not found an association between depletion and self-efficacy (Finkel et al., 2006; Gailliot & Baumeister, 2007). Third, reduced self-efficacy for some tasks may not necessarily affect performance on other tasks (Hagger et al., 2010). For example, reduced self-efficacy to help with personal problems is unlikely to affect one’s self-efficacy to experience work engagement.

Last *depletion is not negative affect*, defined as “a general dimension of subjective distress and unpleasurable engagement that subsumes a variety of aversive mood states, including anger, contempt, disgust, guilt, fear and nervousness” (Watson, Clark, & Tellegen, 1988, p. 1063). Tasks that require self-control are demanding and effortful and may induce negative emotions. In fact, the meta-analysis by Hagger et al. (2010) found a small mean difference ($d = .14$) in negative affect between depleted and non-depleted participants, and no significant difference in positive affect. The significant effect may be due to the fact that in addition to investment of cognitive and psychological resources,

depletion may be partially due to exertion to improve negative mood (Muraven & Baumeister, 2000).

THEORETICAL DEVELOPMENT AND HYPOTHESES

The Depleting Nature of Reactive Helping

Helping is a problem solving activity that requires exertion of energy and effort (Gailliot, 2010). Helping involves several processes such as problem solving, behavioral flexibility, perspective taking, social perceptiveness, and emotional management and support (Dudley & Cortina, 2008) and Ego Depletion Theory posits that these processes consume resources. For example, helpers engage in thought and action specific to problems expressed by help seekers and problem solving requires exertion of self-control (Schmeichel et al., 2003). Schmeichel and coauthors (2003) stated that "... using logic to draw conclusions and implications from ideas, extrapolating from known facts to make estimates about unknowns, and generating novel ideas may require active self-control" (p.33). Because these processes are important to helping, responding to requests for assistance is likely to deplete self-regulatory resources.

Helping is also likely to increase helpers' perceptions of time pressure and to reduce their cognitive flexibility (Mueller & Kamdar, 2011). Managing such negative perceptions and emotions can also be depleting (Baumeister, Vohs, et al., 2007; Grandey, Fisk, & Steiner, 2005). Furthermore, evolutionary theory suggests that people are inherently selfish and think of their needs before the needs of others (Gailliot, 2010). Helping, therefore, also consumes resources to override or curb selfish tendencies to focus on one's own tasks rather than to help others (DeWall et al., 2008; Gailliot, 2010).

Furthermore, leaders may need to sympathize and take the followers' perspective on issues that they bring to leaders. When agreeing to assist, leaders may also need to switch mindsets from focusing on the tasks at hand to the problems raised by followers.

Both perspective taking and mindset switching are activities that deplete self-regulatory resources (Ackerman, Goldstein, Shapiro, & Bargh, 2009; Hamilton, Vohs, Sellier, & Meyyis, 2011). For example, switching from an approach to an avoidance mindset or from an individualistic to a collectivistic mindset has been shown to deplete self-regulatory resources (Hamilton et al., 2011; Experiment 4 and 5).

Reactive helping acts can also be thought of as goal disruptive events or task-related obstacles that require behavioral flexibility for leaders who have to juggle other daily activities (e.g., Kurke & Aldrich, 1983; Mintzberg, 1975). Research examining the effects of externally induced obstacles indicates that they consume psychological resources and cause negative mood and fatigue (Zohar, 1999). For example, Zohar, Tzischinski, and Epstein (2003) studied the energy expended during goal disruptive or goal enhancing events in a sample of hospital residents. Goal disruptive events were defined as interpersonal or non-interpersonal work disruptions, diversion of time and effort from the tasks at hand, or unforeseen difficulties. Goal enhancing events, on the other hand, were defined as challenging or interesting opportunities and tasks. The authors found that goal disruptive events predicted negative affect and fatigue. Goal enhancing events also predicted fatigue but only under high workload levels. The overall pattern of results suggests that goal disruptive and enhancing events increase fatigue levels due to energy resource limitations (Zohar et al., 2003). This line of research supports the general idea that responding to disruptions may consume resources. More generally, the arguments presented thus far support the position that helping is likely to deplete helpers' self-regulatory resources.

Additionally, personal helping is likely to be more depleting than task-related helping. Ego Depletion Theory posits that discussion of intimate topics and uncomfortable interactions deplete self-regulatory resources (Baumeister & Vohs, 2007; Muraven & Baumeister, 2000; Richeson & Trawalter, 2005). This is because people labor at managing their biases, their emotions, and the display of their emotions. Attempts at managing and expressing emotions deplete self-regulatory resources (Grandey et al., 2005; Scott & Barnes, 2011). In addition, helping with personal problems necessitates emotional regulation because it involves giving emotional support and dealing with uncomfortable problems (Dudley & Cortina, 2008). For example, leaders may have to manage feelings of discomfort or surprise when subordinates seek help for personal matters. Leaders may also have to labor at looking composed and sympathetic and to show concern and courtesy to followers during personal helping episodes. These activities require emotional regulation and are likely to be depleting.

Helping with personal problems also requires mindset switching from focusing on work related activities to focusing on followers' personal problems. As argued earlier, mindset switching requires resources, but this may be even more effortful for personal problems because these are less common for leaders (Kaplan & Cowen, 1981). Research indicates that leaders are more comfortable to help followers with task-related problems than with personal problems (Burke et al., 1976; Etzion, Adler, & Zeira, 1980). This may be because helping with personal problems requires more emotional and psychological resources.

Although a direct association between helping and depletion has yet to be established, recent research on Ego Depletion Theory suggests that this is a possibility.

First, there is evidence that helping requires self-regulatory resources. For example, DeWall, Baumeister, Gailliot, and Maner (2008) conducted several experiments to study the effects of state depletion on helping and found that subjects who were depleted were less likely to help others. They concluded that helping requires exertions by the self and that it draws from the same resources as other behaviors that require self-control. Second, literature on the effects of interpersonal activities on depletion suggests that demanding interactions are depleting (Finkel et al., 2006). For example, Finkel and coauthors (2006) found that demanding interactions lead to impaired self-regulation (e.g., depletion). They coined the term “high maintenance interactions” for interdependent interpersonal activities that require effortful coordination beyond what is required to complete the task at hand (e.g., helping an emotionally distressed person with a personal problem, Experiment 4). High maintenance interactions were more depleting than low maintenance interactions and the effect remained even after controlling for task motivation and liking for the partner (Finkel et al., 2006). Mood or self-efficacy did not account for the effect. In one experiment, the authors compared high and low maintenance interactions to a condition where participant did not interact with anybody else. The low maintenance interaction was more depleting than the no interaction condition, but this difference did not reach significance.

In addition, research on social psychology suggests that supporting others emotionally and with personal problems taxes one’s own psychological and emotional resources (Shumaker & Brownell, 1984). For example, Kinman, McFall, and Rodriguez (2011) found that members of the clergy who performed emotional labor experienced increased psychological distress and lower intrinsic job motivation. Magen and

Konasewich, (2011) studied the effects of helping among friends and found that providing emotional support was associated with deteriorated mood states among women. Similarly, Strazdins and Broom (2007) found that giving emotional help to friends and family was positively associated with helpers' depressive symptoms. They argued that helping with personal matters (giving advice, talking about relationship problems etc.) could be emotionally charged and thus strenuous for help providers. Taken together, these arguments support the position that helping others with personal issues is likely to deplete self-regulatory resources and that personal problems are likely to elicit emotional states whose regulation also necessitates self-control resources.

In sum, although empirical research on the effects of interpersonal activities on state depletion is in its infancy, both Ego Depletion Theory (e.g., Baumeister et al., 2007; Gailliot, 2010) and organizational research that has taken a resource perspective on helping (Halbesleben et al., 2009) suggest that helping is likely to deplete helpers' regulatory resources. Furthermore, compared to task-related helping, helping with personal problems is likely to be more depleting. This is because in addition to engaging in resource intensive processes such as problem solving and switching mindsets, leaders may also need to manage their own emotions and feelings during the helping process. This adds another layer of complexity that enhances the resource taxing nature of personal helping. Based on the conceptual arguments presented thus far, I hypothesize the following:

Hypothesis 1: Reactive task-related helping will be positively associated with state depletion, controlling for morning state depletion.

Hypothesis 2: Reactive personal helping will be positively associated with state depletion, controlling for morning state depletion.

Hypothesis 3: Reactive personal helping will be more depleting than task-related helping, controlling for morning state depletion.

Moderators of the Effects of Reactive Helping on Depletion: Prosocial Motivation

Ego Depletion Theory acknowledges that certain individual differences and contextual features may moderate the extent to which activities that require self-control are subsequently associated with state depletion (Baumeister et al., 2007). For example, Ego Depletion Theory suggests that heightened motivation to achieve a goal moderates the effects of activities that require self-control on depletion (Baumeister, Vohs, et al., 2007). Prosocial motivation coincides with a heightened motivation to meet the goal of benefiting others (Grant, 2008; Grant & Berg, 2011) and should temper the effects of reactive helping on state depletion. Prosocially motivated people care not only about their personal outcomes, but also about the needs and welfare of others (Batson, 1987, 1990; Beersma & De Dreu, 2005). They view interpersonal activities as cooperative endeavors and assisting others as the right thing to do (Beersma & De Dreu, 2005). Scholars suggest that helping for prosocial motives results in a number of self-benefits such as 1) aversive arousal reduction (e.g., relieved feelings of distress experienced when someone else is in trouble); 2) punishment avoidance (avoidance of feelings of shame or guilt for not helping); and 3) personal and social reward (e.g., feeling good about oneself for helping). These benefits may be either consciously intended or an unintended consequence of pursuing the goal of ultimately benefiting others through one's help (Batson, 1990).

Leaders who are motivated by prosocial desires to assist their followers are likely to need less energy to overcome selfish tendencies because prosocially motivated people subordinate their own interests often to help others (Grant & Mayer, 2009) and repeated practice with an activity improves self-regulation (Baumeister et al., 1998). In addition, leaders who are prosocially motivated help for personally meaningful reasons and may experience less strain and conflicting emotions during helping. As a result, fewer resources will be dedicated to managing negative feelings. Helping others for prosocial motives is also likely to have self-affirming value for helpers. According to self-affirmation theory, an event is self-affirming when it increases the perceived integrity and moral adequacy of the self (Schmeichel & Vohs, 2009). People experience self-affirmation when they perform activities that confirm their values and personal relationships are important affirmation resources (Sherman & Cohen, 2006). Leaders who are high in prosocial motivation remain true to self during helping episodes because these represent activities that are personally relevant and congruent with their desires to benefit others. Research indicates that self-affirmation “enables good self-control” (Schmeichel & Vohs, 2009, p. 771), consequentially, leaders who are high in prosocial motivation ought to experience less state depletion from helping. Consistent with the arguments made thus far, I posit the following:

Hypothesis 4: Prosocial motivation will have a cross-level moderating effect on the relation between daily reactive helping and state depletion such that a) task-related helping and b) personal helping will be less depleting for high versus low prosocial motivation.

Moderators of the Effects of Reactive Helping on Depletion: Helping Role Perceptions

Although the leadership research considers assisting followers to be an important leader function (Morgeson et al., 2010; Yukl, 2010), some leaders may view helping with task-related and personal problems as part of their job, whereas others may consider it as going beyond the call of duty. In fact, research on helping indicates that people vary in their helping role perceptions (Kamdar, McAllister, & Turban, 2006; McAllister et al., 2007). Arguments by Ego Depletion Theory suggest that helping breadth role perceptions and helping efficacy role perceptions are likely to influence relations between reactive helping and state depletion. It is possible; therefore, that these two helping role perceptions may moderate the extent to which helping is associated with state depletion.

Because the two helping types are distinct constructs that involve dealing with different sets of problems (Dudley & Cortina, 2008; Settoon & Mossholder, 2002), helping breadth and efficacy perceptions ought to be specific to helping type. Thus, task-related helping breadth perceptions refer to perceptions that helping with task-related issues is an expected part of one's job, whereas personal helping breadth perceptions refer to perceptions that helping with personal problems is an expected part of one's job. Task-related helping efficacy, on the other hand, is defined as perceptions that one is capable to help with task-related problems, whereas personal helping efficacy perceptions capture perceptions of confidence that one is capable to help with personal problems. Helping role perceptions specific to task-related and personal helping are constructs concordant with either task-related or personal helping and ought to be considered as moderators between their respective helping form and state depletion. For example, task-

related helping breadth is concordant with task-related helping and ought to be considered as a moderator between task-related helping and state depletion, whereas personal helping breadth is concordant with personal helping and ought to be considered as a moderator between personal helping and state depletion. In the following sections I review the theoretical arguments for why helping breadth perceptions and helping efficacy perceptions are likely to moderate the effects of helping on state depletion.

Helping breadth role perceptions: As previously discussed, helping breadth refers to perceptions that helping is an expected part of one's job (McAllister et al., 2007). Research on Ego Depletion Theory suggests that feeling forced or pressured to exert self-control for external reasons leads to greater state depletion (Moller, Deci, & Ryan, 2006; Muraven, 2008; Muraven et al., 2008). Muraven (2008) tested these ideas in an experimental setting and found that subjects who resisted eating cookies for controlled reasons were more depleted afterwards than subjects who resisted eating cookies for more autonomous reasons. The authors suggested that Ego Depletion Theory ought to be revised to account for the fact that exertion of self-control due to external expectations is more depleting than exertion of self-control for more volitional reasons.

Similarly, work by Muraven, Gagné, and Rosman (2008) suggests that feeling pressured to exert self-control for external reasons is more depleting than exerting self-control for volitional reasons because the latter consumes fewer resources. This is partially due to the subjective vitality (e.g., energy) experienced while exerting autonomous self-control. People experience vitality when they engage in behaviors that feel self-driven and vitality replenishes depleted resources. Leaders who perceive to have high helping breadth are likely to experience limited volition and vitality and to become

more depleted by helping (e.g., Muraven, 2008). Hence, helping breadth is likely to moderate the strength of the relationship between reactive helping and depletion such that this relation will be stronger for high versus low helping breadth perceptions.

Hypothesis 5a: Task-related helping breadth will have a cross-level moderating effect on the relation between daily task-related helping and state depletion such that the relation will be stronger for high versus low task-related helping breadth.

Hypothesis 5b: Personal helping breadth will have a cross-level moderating effect on the relation between daily personal helping and state depletion such that the relation will be stronger for high versus low personal helping breadth.

Helping efficacy role perceptions: Helping efficacy refers to perceptions of one's competence to help (McAllister et al., 2007). Judgments of self-efficacy are based on four sources of information: past experience; vicarious learning through observing others' actions; verbal persuasion that one possesses the required capabilities for a particular activity; and psychological states (Bandura, 1982). Leaders who have high helping self-efficacy are likely to have faced similar task or emotional helping requests and to have been successful in the past. Furthermore, Ego Depletion Theory suggests that self-control may get stronger with exercise (Gailliot, Plant, Butz, & Baumeister, 2007; Hagger et al., 2010; Muraven, Baumeister, & Tice, 1999). It is likely; therefore, that high helping self-efficacy may weaken the effects of reactive helping on depletion because leaders with high helping efficacy are likely to have built up resources from helping experiences in their past.

People who possess higher helping self-efficacy are also likely to mobilize their motivation and cognitive resources more efficiently and to choose more efficient analytical strategies for performance (e.g., Bandura & Wood, 1989; Gist & Mitchell, 1992). In fact, self-efficacy plays a central role in self-regulation because it facilitates personal agency and determines the amount of effort that people are willing to exert for any given endeavor (Bandura, 1991). People high in self-efficacy are committed to their courses of actions and derive intrinsic motivation from mastering challenges (Bandura, 1991). Therefore, in addition to being efficient at utilizing their resources, leaders high in helping self-efficacy are also likely to be intrinsically motivated by helping requests. Leaders high in helping self-efficacy, therefore, ought to become less depleted by helping episodes.

To summarize, leaders who are high in helping self-efficacy may be less vulnerable to depletion due to helping because: they are likely to have had more experience with helping, and because they are likely to be intrinsically motivated to help and more efficient at self-regulating during helping. For these reasons I expect that leader helping self-efficacy will moderate the effect of reactive helping on depletion such that this relationship will be weaker for leaders who are high versus low in helping self-efficacy. Because efficacy refers to judgments of one's capabilities for a specific task (Gist & Mitchell, 1992), and because task-related and personal helping refer to two different categories of behaviors, I differentiate between task-related and personal helping efficacy perceptions. The following hypotheses summarize my arguments:

Hypothesis 6a: Task-related helping efficacy will have a cross-level moderating effect on the relation between daily task-related helping and state depletion such

that the relation will be weaker for high versus low task-related helping efficacy.

Hypothesis 6b: Personal helping efficacy will have a cross-level moderating effect on the relation between daily personal helping and state depletion such that the relation will be weaker for high versus low personal helping efficacy.

Although dyadic interactions (e.g., a specific helping episode between a leader and a follower) are beyond the scope of this dissertation, it is likely that characteristics of the target of helping may affect the extent to which helping depletes leaders. For example, helping a peer may be associated with less depletion than helping a subordinate because leaders are likely to experience more volition when they help a peer (e.g., responding to a peer's request for help is likely to fall outside one's job responsibilities) and Ego Depletion Theory suggests that volition is energizing (Muraven, 2008). Similarly, the quality of the leader-member exchange (LMX) between leader and follower may moderate the extent to which helping is depleting. A leader who has a high LMX relationship with a follower, for example, may experience less discomfort and depletion from helping that follower with personal problems.

Furthermore, some followers may be more dependent on their leaders and ask for help more frequently than others (Nadler, 1998). Helping dependent followers may be more depleting than helping followers who approach their leaders more selectively. This is because in addition to spending energy on helping acts, leaders may also need to exert self-control to manage negative feelings of exasperation and impatience from having to respond to many help requests from the same subordinate.

In this dissertation, I conceptualize reactive helping as the sum of helping episodes undertaken by leaders in response to their followers' help seeking requests during a given work day. As argued so far, target characteristics are likely to matter and may strengthen (e.g., dependent followers) or weaken (high LMX follower) the relation between a particular helping episode and depletion due to that episode. Because I look at the sum of daily helping episodes across all subordinates and depletion associated with all these helping episodes, the effects of reactive helping on depletion reported in this dissertation are likely to yield conservative estimates. Target specification will be a natural evolution for the literature studying the effects of reactive helping on depletion.

Consequences of Depletion: Work Engagement and Creativity

Effective performance at work requires investment of psychological, emotional, and cognitive resources. Depleted leaders, however, possess a diminished amount of resources that they can dedicate to work activities. It is possible; therefore, that state depletion due to helping may impair leaders' performance on other work activities. Although there is some evidence in the management literature that depletion affects work activities, this research has focused rather narrowly on counterproductive work behaviors. It is important to review this literature here, however, because it clarifies how Ego Depletion Theory has been applied in the management literature so far.

Wagner, Barnes, Lim, and Ferris (2012) drew on Ego Depletion Theory to argue a relationship between sleep quantity and quality and employee cyberloafing. They suggested that sleep deprivation impaired employees' ability to recover depleted resources and in turn left them with fewer self-control resources to resist temptations to cyberloaf while at work. Consistent with their expectations, they found that employees

cyberloafed (e.g., visited Facebook, ESPN, YouTube, and other non-work related websites) more frequently following the switch to daylight saving time.

Perhaps in a more direct test of Ego Depletion Theory, Christian and Ellis (2011) found that depletion due to poor sleep quality had a direct effect on workplace deviance in a sample of nurses. In another study testing Ego Depletion Theory, Barnes, and coauthors (2011) posited that employees are more likely to engage in unethical behavior when their self-control resources are diminished. Across several studies they found that impaired self-control due to insufficient sleep was positively related to unethical behavior. Similar findings were reported by Gino, Schweitzer, Mead, and Ariely (2011) who conducted a number of experiments and found that depletion of self-regulatory resources increased individuals' propensity to behave dishonestly. Resisting unethical behavior requires self-control resources but depleted individuals have fewer resources left to identify and refrain from unethical acts. Finally, findings by Thau and Mitchell (2010) suggest that supervisor abuse depletes employees' self-regulatory resources and may result in employee work deviance.

Ego Depletion Theory suggests that depletion is likely to have a broad range of effects in the workplace (Baumeister et al., 1998; DeWall et al., 2008; DeWall, Baumeister, Mead, & Vohs, 2011; Muraven & Baumeister, 2000). Thus, focusing only on counterproductive work behaviors as consequences of depletion is limiting because other important work activities require self-control resources as well. For example, theory would suggest that depletion is likely to affect work engagement and creativity because these activities require resources. Work engagement has been defined as the “simultaneous investment of personal energies in the experience or performance of work”

(Christian, Garza, & Slaughter, 2011, p. 95). Employees who are engaged experience high levels of energy, are enthusiastically involved in their jobs, and are motivated to strive towards challenging goals (Bakker & Leiter, 2010). Energy, however, is an expendable resource and depleted individuals possess less of it (Baumeister, Muraven, & Tice, 2000). Consequentially, depleted individuals may not have the necessary resources to experience engagement at work.

Work engagement has been shown to fluctuate daily and researchers have argued that personal resources predict daily work engagement (e.g., Bakker, 2011; Kahn, 1990; Sonnentag, 2003; Sonnentag, Mojza, Demerouti, & Bakker, 2012). For example, Sonnentag, Dormann, and Demerouti, (2010) presented a theoretical model of daily work engagement and identified resource level as a predictor of daily work engagement. In addition, empirical work suggests that replenishment of resources affects daily work engagement suggesting that self-regulatory resources are an important predictor of work engagement (e.g., Sonnentag, 2003; Sonnentag et al., 2012). Although a direct relationship between state depletion and work engagement has yet to be investigated, there are theoretical reasons to expect that state depletion will be negatively related to leaders' daily work engagement. This research question has practical implications for leaders and organizations because work engagement has been shown to impact OCB and task performance (e.g., Christian et al., 2011; Crawford, LePine, & Rich, 2010).

In addition to work engagement, state depletion is also likely to impair leader creativity. Creativity refers to “coming up with fresh ideas for changing products, services, and processes so as to better achieve the organization’s goals” (Amabile, Barsade, Mueller, & Staw, 2005, p. 367). Creativity has been shown to fluctuate daily

(Amabile et al., 2005; Binnewies & Wörnlein, 2011; Ohly & Fritz, 2010; To, Fisher, Ashkanasy, & Rowe, 2012) and Ego Depletion Theory suggests that creative endeavors require energy and that state depletion may impair daily creativity (Baumeister, Schmeichel, DeWall, & Vohs, 2007; Baumeister & Tierney, 2011). For example, Baumeister (2005, p. 82) stated that “Conscious, controlled processes offer great flexibility, enabling people to deal in thoughtful, creative ways with a remarkable broad range of events and circumstances. But they are expensive, in the sense that they require energy and effort.” In one of the few studies on creativity and state depletion, Baumeister and colleagues (2007, Study 4) found that depleted participants generated less creative solutions to a particular problem compared to participants who were not depleted. These preliminary findings indicate that state depletion may hinder daily creativity.

Creativity has important implications for leaders because leaders need to engage in creative problem solving to facilitate the fulfillment of group and organizational goals (Morgeson et al., 2010; M. D. Mumford, Zaccaro, Harding, Jacobs, & Fleishman, 2000). Thus, creativity ought to be studied as a consequence of state depletion for practical reasons too. Illustrating this point, a recent survey of 1,500 chief executives conducted by IBM's Institute for Business Value demonstrated that CEOs selected creativity as the most important leadership competency for future successful organizational performance (Kern, 2010). Similarly, endorsing the sentiment that creativity is an important leader behavior, Dyer, Gregersen, & Christensen, (2011, p. 7) stated that “Innovative companies are almost always led by innovative leaders. *Let us say this again: Innovative companies are always led by innovative leaders.* The bottom line: if you want innovation, you need creativity skills within the top management team of your company.” Surprisingly,

however, very little research has studied leader creativity and most studies have focused on non-managerial employees (e.g., Amabile et al., 2005; Binnewies & Wörnlein, 2011; Ohly & Fritz, 2010; To et al., 2012). This is a serious omission given the theoretical and practical relevance of leader creativity.

To summarize, Ego Depletion Theory suggests that regulatory resources are likely to predict both work engagement and creativity. Consequentially, I expect state depletion to be negatively related to these two outcomes. The following two hypotheses reflect these expectations:

Hypothesis 7: State depletion will be negatively related to daily work engagement.

Hypothesis 8: State depletion will be negatively related to daily creativity.

So far, I have argued that reactive helping will induce state depletion in leaders, which means that leaders will possess fewer self-regulatory resources to devote to other important work activities. For example, work engagement and creativity represent important leader activities that require self-regulatory resources. In order to experience work engagement, leaders need self-regulatory resources to become absorbed and experience vigor at work. Similarly, to come up with novel solutions to problems leaders need self-regulatory resources because these facilitate cognitive flexibility. Creativity, therefore, is likely to also be sensitive to diminished regulatory resources.

The conceptual arguments presented thus far suggest that reactive helping acts deplete self-regulatory resources, and consequentially diminish work engagement and creativity. State depletion, therefore, is expected to mediate the negative effects of reactive helping on work engagement and creativity. These expectations are consistent

with one of the main premises of Ego Depletion Theory that investment of regulatory resources on some behaviors will leave fewer resources for other activities (Baumeister et al., 2000). Consistent with the above arguments, I propose the following hypotheses:

Hypothesis 9: State depletion will mediate the effects of daily task-related helping on a) daily work engagement, and b) daily creativity.

Hypothesis 10: State depletion will mediate the effects of daily personal helping on a) daily work engagement, and b) daily creativity.

Moderators of the Effects of Depletion on Its Consequences: Perceived Prosocial Impact of Helping

There is evidence that leaders monitor their success, and success of the helping effort should matter, but this has been largely ignored in the helping literature to date. For example, the helpers in Kaplan and Cowen's (1981) sample perceived themselves to be moderately effective (Mean = 5.5 on an 8 point scale) and felt that they were encouraging, supportive, and sympathetic. Some leaders, however, also reported feeling puzzled, helpless, uncomfortable, and frustrated and rated helping followers with certain personal problems (e.g., marital) as particularly difficult to handle. With few exceptions (Barnes et al., 2008; Glomb et al., 2011; Weinstein & Ryan, 2010), most of the helping research has looked at antecedents of helping and little research has considered helping outcomes, especially perceptions about helping effectiveness (Clary & Orenstein, 1991). Perceptions related to helping experiences, however, are likely to affect the extent to which leaders' state depletion affects their other work behaviors.

Perceived prosocial impact captures employees' subjective beliefs of whether or not their help benefited others at work (Grant & Campbell, 2007). Focusing attention on

how actions facilitate positive outcomes reduces leaders' attention to the negative aspects of helping (e.g., Grant & Campbell, 2007; Grant & Sonnentag, 2010). This is important because focusing on negative aspects of one's work leads to reduced psychological resources and energy (Fritz & Sonnentag, 2006) as well as to negative emotions, whose management requires further exertion of self-control resources (Baumeister, Vohs, et al., 2007). Consideration of positive aspects of one's work, on the other hand, has the potential to help regain lost resources or to acquire new resources (Fritz & Sonnentag, 2006). For example, Grant and Campbell (2007) found that perceived prosocial impact protected against burnout (a marker of depletion). Similarly, Grant and Sonnentag (2010) found that prosocial impact buffered against emotional exhaustion associated with negative task evaluations. They argued that prosocial impact compensates for negative aspects of work task. Building on these arguments and findings, it is possible that perceptions of impacting others through one's help may safeguard leaders' regulatory resources because they divert leaders from dwelling on the negative aspects of helping (e.g., effort) and motivate leaders to focus on the positive aspects of one's help instead (e.g., benefiting others) (Grant & Sonnentag, 2010).

Sonnentag and Grant (2012) conceptualized perceived prosocial impact as a positive affective work event. Recently, scholars have argued theoretically and shown empirically that positive work events energize employees. For example, Gross and coauthors (2011) found that positive events were negatively related to end-of-work fatigue (defined by the authors as an outcome of depleted resources) for employees who experienced chronic social stressors such as interpersonal tension with others. It is possible; therefore, that helping events that are high in prosocial impact may energize

employees and may restore depleted resources. This expectation is consistent with arguments by Ego Depletion Theory that positive experiences facilitate self-regulation even when the self is depleted (Tice et al., 2007).

Perceptions of prosocial impact are inherently tied to the type of tasks that one performs, and researchers have studied perceptions of prosocial impact across different jobs (Grant, 2012; Sonnentag & Grant, 2012). For example, Sonnentag and Grant (2012) studied perceptions of prosocial impact in a sample of firefighters and rescue workers; Grant (2012) examined perceptions of prosocial impact in a sample of governmental employees; whereas Grant and Campbell (2007) investigated perceptions of prosocial impact in samples of transportation service employees, secretaries, and school teachers. Clearly, perceptions of prosocial impact are specific to one's work behaviors.

Similarly, because task related helping and personal helping are unique constructs that deal with distinct types of employee problems (Dudley & Cortina, 2008), perceptions of prosocial impact ought to be specific to the helping type. For example, a leader may perceive that his or her help with task-related problems was particularly effective on a given day, but that helping subordinates with personal problems was not. A global evaluation of prosocial impact of helping would not capture these important nuances. For these reasons, I differentiate between prosocial impact perceptions for task-related helping, which refers to one's perceptions that helping with task-related problems was beneficial to subordinates; and prosocial impact perceptions for personal helping, which refers to one's perceptions that helping with personal problems was beneficial to subordinates. Perceptions of prosocial impact for task-related helping and perceptions of prosocial impact for personal helping are concordant constructs with task-related and

personal helping respectively, compared to a global evaluation of one's perceived prosocial impact of helping. Consideration of these two types of prosocial impact perceptions ought to provide a clearer understanding of the effects that depletion has on work outcomes.

In sum, perceptions of prosocial impact for task-related helping and perceptions of prosocial impact for personal helping should moderate the effects of depletion on work engagement and creativity because these perceptions encourage people to focus on the positive aspects of task-related and personal helping (Grant & Sonnentag, 2010) and because they constitute positive work experiences. Focusing on the positive aspects of one's work safeguards resources, whereas positive experiences facilitate and improve self-regulation when resources are diminished (Tice et al., 2007). In line with these arguments, I posit the following hypotheses:

Hypothesis 11: Daily perceived prosocial impact of task-related helping will moderate the effect of state depletion on a) daily work engagement and b) daily creativity such that these relations will be weaker when perceived prosocial impact of task-related helping is high versus low.

Hypothesis 12: Daily perceived prosocial impact of personal helping will moderate the effect of state depletion on a) daily work engagement and b) daily creativity such that these relations will be weaker when perceived prosocial impact of personal helping is high versus low.

Moderator of the Effects of State Depletion on Its Consequences: Trait Self-Control

Because some individuals have more self-control resources than others (Tangney, Baumeister, & Boone, 2004), the effects of state depletion on daily work engagement and

creativity may depend on trait self-control. Hagger and colleagues (2010) argued that individuals who are high in trait self-control are likely to have more resources remaining after engaging in depleting tasks. The authors stated that trait self-control may “moderate the ego-depletion effect” (p. 500).

Whereas Hagger et al. (2010) could not test this effect in their meta-analysis, there is some empirical evidence that trait self-control may serve as a buffer against state depletion. For example, Muraven, Collins, Shiffman, and Paty (2005) studied the effect of daily self-control demands on alcohol intake and found that people who were high in trait self-control were better at managing their drinking levels after a high level of daily self-control demands. Similarly, DeWall, Baumeister, Stillman, and Gailliot (2007) studied the effects of state depletion on aggression and found that the effect was moderated by trait self-control. Participants who were high in trait self-control were less likely to express intentions of responding aggressively.

Overall, these studies suggest that individuals high in self-control have a larger amount of resources at their disposal. Thus, although engaging in reactive helping is likely to be associated with state depletion, leaders high in trait self-control are also likely to have a more extended pool of resources at their disposal (Hagger et al., 2010), which may protect their other activities from the negative effects of state depletion. Consistent with these arguments, I propose the following:

Hypothesis 13: The negative association between state depletion and daily work engagement will be weaker for leaders who are high versus low in trait-state control.

Hypothesis 14: The negative association between state depletion and daily creativity will be weaker for leaders who are high versus low in trait-state control.

Summary and Contributions

This dissertation aims to make a number of theoretical contributions. First, it contributes to research on helping. Whereas most organizational research has studied the effects of helping on the receiver and the workgroup, little work has studied the effects of helping on the helper (Spitzmuller et al., 2008). In addition, most research has studied proactive helping, which is volitional and employees may decide to help when they have the necessary resources or to fulfill certain needs (e.g., Weinstein & Ryan, 2010). However, little is known about how helping in response to proactive requests for assistance affects the helper. This is relevant because theory suggests that helping may deplete the helper and may harm his or her performance on other tasks (DeWall et al., 2008; Gailliot, 2010). This dissertation is the first to investigate this possibility for leaders.

Second, many interpersonal proactive behaviors are regarded as valuable employee initiatives (Grant & Ashford, 2008). For example, management scholars have asserted that in-role performance is not sufficient anymore, but that “organizational survival and success depend on proactivity” (Grant et al., 2009, p. 31). Many of these proactive initiatives often target others who are expected to perform reactive behaviors, but it is unclear how responding to proactive behaviors may affect respondents. It is possible that responding to proactive behaviors may tax employees’ self-regulatory

resources and deter them from other perhaps more important work tasks. I investigate these possibilities here by studying reactive helping in response to proactive help seeking.

Third, this dissertation contributes to research on leadership by utilizing Ego Depletion Theory to make a set of novel predictions about the effects of reactive helping on leaders' self-regulatory resources and other work behaviors. Management research has recently started to apply Ego Depletion Theory to work contexts but this research has taken a rather narrow approach by primarily focusing on how depletion impairs people's ability to refrain from unethical or abusive behaviors (e.g., Christian & Ellis, 2011; Mead, Baumeister, Gino, Schweitzer, & Ariely, 2009; Thau & Mitchell, 2010). This dissertation provides a broader application of Ego Depletion Theory by considering other relevant work activities such as work engagement and creativity, which are important because they contribute to effective work performance (Christian et al., 2011; Rich, Lepine, & Crawford, 2010).

Fourth, this dissertation relies on a method that allows study of a temporal phenomenon like state depletion. More specifically, I use an experience sampling methodology (Wheeler & Reis, 1991) and hierarchical linear modeling (HLM, Raudenbush & Bryk, 2002) to test the hypotheses that are posited in this dissertation. HLM is appropriate because it accounts for the non-independence of data and it allows individuals to serve as their own control, thus eliminating unmeasured between-individual confounds. Last, the practical implications of this dissertation may be substantial. If reactive helping is shown to deplete leaders, then leaders and organizations need to become aware of ways in which they can prevent or counteract depletion associated with reactive helping.

METHODS

Sample

The sample consisted of 77 mid to high level managers enrolled in a weekend MBA course. Seventy eight percent of participants (61 people) were male. The ethnic composition of the sample was as follows: 66% of participants (51 people) were white, 13% (10) were Asian, 13 % (10) were Black or African American, 5% (4) were Hispanic or Latino, and 2 participants selected “Other” as their ethnicity. The average age of participants was 38.6 years ($SD = 7.8$). Their average experience in managerial or supervisor positions was 9.8 years ($SD = 6.8$), average tenure in current job was 3.9 years ($SD = 3.4$), and average experience in current occupational domain was 13.7 years ($SD = 7.3$). Participants had on average 7 subordinates ($SD = 6$) and they worked an average of 52 ($SD = 9.1$) hours a week. Participants held a variety of occupational positions such as director of global marketing, research manager, regional operations director, sales manager, human resources manager, chief financial officer, and hospital president among others. Of the 77 leaders, 74 provided sufficient data to be included in multilevel analyses.

Procedure

I designed an experience sampling study for theoretical and empirical reasons. With regards to theoretical reasons, Ego Depletion Theory specifically recognizes that state depletion is a temporal phenomenon that varies within people and across times and circumstances (Muraven & Baumeister, 2000). Because one’s ability to self-regulate varies daily, ESM is an appropriate methodology. Empirically, ESM is appropriate

because prior research has shown that the focal variables considered in this dissertation vary daily (e.g., Glomb et al., 2011; Grant & Sonnentag, 2012; Sonnentag, 2003).

I used an experience sampling method to collect data over three work weeks. Reis and Wheeler (1991) suggested that a two work-week period is likely to represent an accurate portrayal of social interactions. More specifically, the authors stated that “the 2-week record-keeping period is assumed to represent a stable and generalizable estimate of social life” (p. 287). Recently, however, scholars have expanded the timeframe for experience sampling studies to three work weeks (see Bono, Glomb, Shen, Kim, & Koch, in press). In order to ascertain whether a two or three week timeframe was appropriate for the current study, I conducted a search in Web of Science for experience sampling studies published in the *Academy of Management Journal*, *Journal of Applied Psychology*, and *Personnel Psychology* for 5 years (2008-2012) using the keywords “experience sampling,” “diary,” and “within person.” I also manually searched the in-press articles (in press as of May 15th 2012) of these three journals.

The search yielded 24 published articles that used experience sampling methodology. The average number of work days in the study designs of these articles was 10.9 with a standard deviation of 6.4 days. The average frequency of daily measurement was 2.5 with a standard deviation of 1.4 measurements. These trends support my expectations that experience sampling of 15 work days with 2 daily measurements is within the accepted bounds of publishing standards of similar studies in these three journals.

I collected data using online Qualtrics surveys. Approximately one week prior to the start of the daily surveys, I emailed leaders a one-time survey, which measured

demographics and stable differences (trait self-control, helping breadth, and helping efficacy). In the one-time survey, I also asked leaders to provide contact information for up to five subordinates. I started the daily surveys approximately a week after the one-time survey. I emailed leaders two surveys each day for 15 consecutive working days. I sent the morning survey at 7 AM and the afternoon survey between 3:45 and 4 PM. The morning survey measured state depletion, positive affect, and negative affect. The afternoon survey measured task-related reactive helping, personal reactive helping, prosocial impact for task-related reactive helping, prosocial impact for personal reactive helping, state depletion, daily work engagement, and daily creativity. On those same 15 work days, I also emailed a survey to leaders' subordinates between 3:45 and 4:00 PM each day. In this survey, I measured subordinates' ratings of leaders' work engagement and creativity on that day. Ratings of work engagement and creativity from subordinates ought to alleviate issues of common method bias (P. M. Podsakoff, MacKenzie, Lee, & Podsakoff, 2003).

After the data collection was complete, each leader received an individualized feedback report, which displayed how their mood and helping behaviors varied over the 15 days relative to the class average. These data and trends were also discussed in class. After the data collection was complete, followers were entered in a raffle to win \$25. One in 10 subordinates won \$25 and checks were mailed to winners approximately two months after the data collection was completed. Participation was completely voluntary in that leaders and followers could quit completing the surveys at any point if they so desired. The data was also confidential in that leaders had access only to their own responses. All other information presented to leaders was aggregated either at the leader

(e.g., their subordinate ratings) or class level and was not identifiable. Table 1 depicts the data collection procedure.

Table 1
Data Collection Schedule

	Phase 1	Phase 2
Data Collected	Stable Differences	Daily Surveys
Timeline	1 time	15 work days
Source	Leader	Leader (twice a day) Followers (once a day)

Over the three study weeks, leaders completed 68% of the morning surveys and 65% of the afternoon surveys. On average, leaders completed the morning survey at 9:06 AM (SD = 1:41 hrs.), and the afternoon survey at 5:42 PM (SD = 1:47 hrs.). The average time elapsed between completion of the morning and afternoon survey was 8:26 hrs. (SD = 2:15 hrs.). Over the same 15 work days, subordinates completed 76% of the daily surveys. On average, subordinates completed the afternoon survey at 4:24 PM (SD = 1:30 hrs.). These response rates are similar to published experience sampling studies (Daniels, Boocock, Glover, Hartley, & Holland, 2009; Scott & Barnes, 2011; Scott, Colquitt, Paddock, & Judge, 2010).

One-Time Measures

Task-related reactive helping breadth: I measured task-related reactive helping breadth with three items adapted from McAllister and coauthors (2007). Following procedures described by McAllister et al. (2007), participants were shown the three items for task-related reactive helping and were directed to indicate whether each statement reflected an expected part of their job. An example item for task-related reactive helping breadth is: “This behavior is an expected part of my job: Helping subordinates who ask

for my help with difficult assignments.” The response format was on a five point scale (1 = “Strongly Disagree” 5 = “Strongly Agree”). Coefficient alpha for task-related helping breadth was $\alpha = 0.90$.

Task-related reactive helping efficacy: to measure task-related reactive helping efficacy, I used procedures described by McAllister and coauthors (2007). Participants rated how efficacious they felt to perform each of the task-related reactive helping items (response format was: 1 = “Strongly Disagree” 5 = “Strongly Agree”). An example item for task-related reactive helping efficacy is: “I am completely confident in my capabilities when engaging in this behavior: Helping subordinates who ask for my help with difficult assignments.” Coefficient alpha for task-related helping efficacy was $\alpha = 0.89$.

Personal reactive helping breadth: following procedures described by McAllister and coauthors (2007), I measured personal reactive helping breadth with three items. Participants were shown the three items per personal reactive helping and were asked to indicate their agreement on a five-point response format where 1 = “Strongly Disagree” and 5 = “Strongly Agree.” An example item for personal reactive helping breadth is: “This behavior is an expected part of my job: Helping subordinates who come to me with their personal problems and worries.” Coefficient alpha for personal reactive helping breadth was $\alpha = 0.83$.

Personal reactive helping efficacy: I measured personal reactive helping efficacy with three items following procedures by McAllister and coauthors (2007). An example item for personal helping efficacy is: “I am completely confident in my capabilities when engaging in this behavior: Helping subordinates who come to me with their personal problems and worries.” Participants indicated their agreement on a five point scale, where

1 = “Strongly Disagree” and 5 = “Strongly Agree.” Coefficient alpha for personal helping efficacy was $\alpha = 0.88$.

Prosocial motivation: in this dissertation, prosocial motivation refers to contextual prosocial motivation, which is a relatively stable perception. Grant and Berry stated that (2011, p. 3): “Contextual prosocial motivation refers to an employee’s desire to benefit a particular category of other people through a particular occupation, job, or role.” Hence, the prosocial motivation items used in this dissertation reflect leaders’ prosocial motivation to help their subordinates who seek their help at work. This approach is consistent with published operationalizations of prosocial motivation (Grant, 2008). Furthermore, research indicates that those who help with task-related problems also help with personal issues (Settoon & Mossholder, 2002). For this reason, I collected one overall prosocial motivation measure.

I measured prosocial motivation with three items adapted from Grant (Grant, 2006, 2008). Items were changed to reflect leaders’ prosocial motivation to respond to their subordinates’ proactive requests for help. An example item is: “Overall, why are you motivated to help subordinates who ask for your help? Because I care about benefiting my subordinates through my help.” Participants responded to each item using a five-point response format where 1 = “Strongly Disagree” and 5 = “Strongly Agree.” Coefficient alpha for prosocial motivation was $\alpha = 0.88$.

Trait self-control: ten (out of 13) items from the brief version of the scale developed by Tangney, Baumeister, and Boone, (2004) were used to measure trait self-control. I decided not to include the following three items: “I am lazy,” “I say inappropriate things,” and “Sometimes I can’t stop myself from doing something, even if

I know it is wrong.” I removed these items because they sounded pejorative and had the potential to offend or upset respondents as well as to deter participation. Participants indicated their agreement with each of the other 10 statements along a five-point response format where 1 = “Strongly Disagree” and 5 = “Strongly Agree.” An example item is: “I am good at resisting temptation.” Internal consistency as indicated by coefficient alpha was $\alpha = 0.79$.

In their scale validation piece, Tangney and coauthors (2004) showed empirically that trait self-control is a distinct construct from the Big Five personality traits (Goldberg, 1990, 1992). A closer look at the construct definitions of trait self-control and the Big Five personality traits, however, suggests that trait self-control is conceptually similar to conscientiousness and emotional stability. Trait self-control refers to people’s capacity and willingness to change how they think, feel, or behave in ways that are appropriate for a given situation. Conscientiousness refers to people’s tendencies to be dependable and responsible. Costa and coauthors suggested that conscientiousness encompasses aspects of both proactivity and inhibition, in that highly conscientious people are competent, orderly, and dutiful on one hand, as well as achievement oriented, self-disciplined, and deliberate in their actions on the other hand (Costa Jr, McCrae, & Dye, 1991). Hence, similar to people who are high in trait self-control, people who are high in conscientiousness are able to exert control over their environment (e.g., the aspect of order) as well as themselves (e.g., self-discipline). Conceptually, therefore, trait self-control and conscientiousness share similarities.

Despite their similarities, trait self-control is conceptually and empirically distinct from conscientiousness. For example, different from conscientiousness, trait self-control

captures people's ability to change and adapt the self to their environment.

Conscientiousness, however, refers mostly to people's tendency to maintain order in their surrounding environment. Adaptability of the self, therefore, is a unique aspect of trait self-control not captured by conscientiousness. In support of the idea that trait self-control and conscientiousness are distinct constructs, Tangney and coauthors (2004) showed that trait self-control and conscientiousness share only about 25 percent of their variance (correlation between self-control and conscientiousness was $r = .48$).

Trait self-control is also conceptually similar to emotional stability because the latter refers to people's ability to exert control over their moods and emotional reactions (Costa & McCrae, 1987). Trait self-control, however, is a broader construct that encompasses not only the self's ability to control emotions but also the self's ability to control thought and behavior. In support of their construct distinctiveness, Tangney et al. (2004) reported a correlation of only $r = .42$ between trait self-control and emotional stability. These arguments suggest that trait self-control is a distinct construct from conscientiousness and emotional stability and ought to have unique moderating effects on the relations between state depletion and its consequences.

Work experience: it is possible that work experience may affect the extent to which reactive helping is associated with state depletion. Ego Depletion Theory suggests that experience with an activity that requires self-control (e.g., dieting) improves people's ability to exert self-control over time (Muraven, Tice, & Baumeister, 1998). Experienced leaders may have helped subordinates with similar problems before and may become less depleted by helping episodes than leaders who have less experience. Work experience, therefore, may moderate the extent to which task-related and personal reactive helping

are associated with state depletion such that these effects may be weaker for leaders with high versus low work experience. Although not a formal part of my model, I explored these possibilities in post-hoc analyses.

To do so, I measured work experience including experience as a leader and experience in current role. I measured *experience as a leader* with one item adapted from work by Stam and Elfring (2008): “How many years have you held managerial/supervisory positions?” I measured *experience in the current role* with the following item adapted from Jokisaari and Nurmi (2009): “How many years have you worked in your current job.” The items for all one-time measures are listed in Table 2.

Table 2

One-Time (dispositional) Measures

Task-Related Helping Breadth: This behavior is an expected part of my job: 1. Helping subordinates who ask for my help with difficult assignments. 2. Helping subordinates who ask for my help with heavy work loads. 3. Going out of my way to help subordinates who ask for my help with work-related problems.	McAllister et al., (2007) 1= strongly disagree 2= disagree 3 = neither agree nor disagree 4 = agree 5 = strongly agree
Task-Related Helping Efficacy: I am completely confident in my capabilities when engaging in this behavior: 1. Helping subordinates who ask for my help with difficult assignments. 2. Helping subordinates who ask for my help with heavy work loads. 3. Going out of my way to help subordinates who ask for my help with work-related problems.	McAllister et al., (2007) 1= strongly disagree 2=disagree 3 = neither agree nor disagree 4 = agree 5 = strongly agree

Table 2 (cont'd)

Personal Helping Breadth: This behavior is an expected part of my job: 1. Helping by listening to subordinates who come to me because they have to get something off their chest. 2. Helping subordinates who come to me with their personal problems and worries. 3. Helping by taking a personal interest in subordinates who ask for my help with personal problems.	McAllister et al., (2007) 1= strongly disagree 2= disagree 3 = neither agree nor disagree 4 = agree 5 = strongly agree
Personal Helping Efficacy: I am completely confident in my capabilities when engaging in this behavior. 1. Helping by listening to subordinates who come to me because they have to get something off their chest. 2. Helping subordinates who come to me with their personal problems and worries. 3. Helping by taking a personal interest in subordinates who ask for my help with personal problems.	McAllister et al., (2007) 1= strongly disagree 2= disagree 3 = neither agree nor disagree 4 = agree 5 = strongly agree
Prosocial Motivation: “Why are you motivated to help subordinates who ask for your help?” 1. Because I care about benefiting my subordinates through my help. 2. Because I want to have a positive impact on my subordinates through my help. 3. Because it is important to me to do good for my subordinates through my help.	Adapted from Grant (2008) 1= strongly disagree 2 = disagree 3 = neither agree nor disagree 4 = agree 5 = strongly agree
Work Experience: Experience as a leader: “How many years have you held managerial/supervisory positions?” Experience in current role (job experience): “How many years have you worked in your current job?”	Stam and Elfring (2008) Jokisaari and Nurmi (2009)

Table 2 (cont'd)

Brief Self-control scale: 1. I am good at resisting temptation. 2. I have a hard time breaking bad habits (R). 3. I do certain things that are bad for me, if they are fun (R). 4. I refuse things that are bad for me. 5. I wish I had more self-discipline (R). 6. People would say that I have iron self-discipline. 7. Pleasure and fun sometimes keep me from getting work done (R). 8. I have trouble concentrating (R). 9. I am able to work effectively toward long-term goals. 10. I often act without thinking through all the alternatives (R). (R) Reversed Items	Tangney, Baumeister, and Boone, (2004) 1= very slightly or not at all 2 = a little 3 = moderately 4 = quite a bit 5 = very much
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Daily Measures

State depletion: I used five items from the State Self-Control Scale (Twenge, Muraven, & Tice, 2004) to measure morning and afternoon state depletion. Higher scores on this scale indicate that self-resources are depleted. Participants responded to these items along a five-point response format where 1 = “Very slightly or not at all” and 5 = “Very much.” An example item is: “I feel drained right now.” Average coefficient alpha for morning state depletion was $\alpha = 0.92$, and average coefficient alpha for afternoon state depletion was $\alpha = 0.93$.

Reactive helping: selection of the helping items used in this dissertation was driven by two considerations. First, I did not want to overburden participants with long surveys because they had to complete surveys at work twice a day, once in the morning and once in the afternoon. Keeping the surveys short had the potential to improve the

response rate as well as the data quality. Thus, I decided to use three items for task-related reactive helping and three items for personal reactive helping.

Second, I selected helping items that most accurately capture the literature's definitions for task-related helping and personal helping (e.g., Cortina & Dudley, 2008). As an example, I decided to exclude the following items by Settoon and Mossholder (2002): "Make an extra effort to understand the problems faced by coworkers" and "Show coworkers where to go to get what they need." Settoon and Mossholder (2002) argued that the item "Make an extra effort to understand the problems faced by coworkers" refers to personal helping, whereas the item "Show coworkers where to go to get what they need" refers to task-related helping. These items are ambiguous, however, in that they may refer to helping with both task-related and personal issues. In order to improve the conceptual and empirical distinctiveness of the two helping types, I dropped ambiguous items such as these and decided to use items that are clearly task-related (e.g., Today, I helped subordinates who asked for my help with difficult assignments), or personal (e.g., Today, I helped subordinates who came to me with their personal problems and worries) (adapted from Settoon & Mossholder, 2002).

Reactive task-related helping: I adapted three items from the scale developed by Settoon and Mossholder, (2002) to measure reactive task-related helping. Items were changed to reflect daily task-related helping acts, as well as to capture reactive task-related helping acts only. Each afternoon, participants were asked to indicate the frequency with which they had engaged in task-related helping behaviors at work that day. Daily frequency was measured on a 6 point scale where 1 = "Never" and 6 = "Five or more times." An example item is: "Today, I helped subordinates who asked for my

help with difficult assignments.” Average internal consistency of task-related helping across all study days as indicated by Cronbach’s alpha was $\alpha = 0.91$.

Reactive personal helping: I measured reactive personal helping with three items adapted from Settoon and Mossholder (2002). Similar to task-related helping, each afternoon participants indicated the frequency with which they had helped with personal issues at work that day. Items were adapted to reflect reactive behaviors. An example item is: “Today, I helped subordinates who came to me with their personal problems and worries.” The response format ranged from 1 “Never” to 6 “Five or more times.” Average reliability of the scale was $\alpha = 0.93$.

Prosocial impact of reactive helping: I measured state prosocial impact for task related reactive helping with three items initially developed by Grant (2006) and recently published by Sonnentag and Grant (2012). After responding to the helping items, participants were asked to provide an evaluation of the prosocial impact of those helping acts. A sample item is: “I feel that my help with the above issues made a positive difference in subordinates’ lives today.” Participants indicated their agreement with these three items along a five point scale where 1 = “Strongly Disagree” and 5 = “Strongly Agree.” Average internal consistency for prosocial impact of reactive task-related helping was $\alpha = 0.95$; and average internal consistency for prosocial impact of reactive personal helping was $\alpha = 0.97$.

Work engagement: I adapted six items from the scale developed by Rich and coauthors (2010) to measure daily work engagement. Compared to other measures of work engagement, this scale operationalizes Kahn’s (1990) conceptualization of work engagement as investment of physical, cognitive, and emotional energy at work (Rich et

al., 2010). Kahn's (1990) conceptualization dovetails well with Ego Depletion Theory's predictions that depleted resources are likely to hinder one's ability to be physically, cognitively, and emotionally vested in other activities. Hence, two items from each of these three dimensions were used to measure work engagement. Items were rated by leaders' subordinates each afternoon. Leaders' subordinates expressed their agreement with each item along a five-point scale (1 = "Strongly Disagree" to 5 = "Strongly Agree"). An example item is: "Today, John Doe exerted a lot of energy on the job." Average coefficient alpha was $\alpha = 0.93$.

In return for participating in this study, each leader received a personalized feedback report, which contained information about how his or her behavior compared to the average of the other leaders. To increase self-awareness, I also provided leaders with information about how their own assessment of daily work engagement and creativity differed from ratings by subordinates. Self-ratings of work engagement were collected from leaders with the same 6 items as above. An example item is: "Today, I exerted a lot of energy on the job." Average coefficient alpha for self-ratings of work engagement was $\alpha = 0.89$. Self-ratings of daily work engagement are discussed in post-hoc analyses.

Creativity: I measured daily creativity with four items adapted from Zhou and George (2001). Each afternoon, subordinates rated their supervisor's daily creativity by indicating their agreement with items such as "Today, Jane Doe came up with creative solutions to problems" (response format was 1 = "Strongly Disagree" to 5 = "Strongly Agree"). Average coefficient alpha was $\alpha = 0.95$. Each afternoon, leaders also rated their own creativity with the same four items. The average coefficient alpha for self-ratings of daily creativity was $\alpha = 0.93$.

Positive and negative affect: the literature identifies state positive and negative affect as important antecedents of daily creativity (Amabile et al., 2005; Binnewies & Wornlein, 2011; To et al., 2012). Therefore, in order to assess a cleaner relation between state depletion and daily creativity, morning state positive and negative affect were entered as control variables in the equations predicting daily creativity. State positive and negative affect were each measured in the morning with four items from the short form of the PANAS scale (Mackinnon et al., 1999). Leaders were asked to indicate the extent to which certain emotions captured how they felt at that moment, on a scale of 1 to 5, where 1 = “Very slightly or not at all” and 5 = “Very much.” Sample items for state positive affect are “inspired” and “excited” and sample items for negative affect are “distressed” and “upset.” The average internal reliability across all study days for state positive affect was $\alpha = 0.93$, and the average internal reliability for state negative affect was $\alpha = 0.82$.

Helping difficulty: task difficulty has been shown to relate to depletion, but the nature of this relationship is unclear (Hagger et al., 2010). It is possible, for example, that helping difficulty may affect the extent to which reactive helping is associated with state depletion. To explore these possibilities in post-hoc supplementary analyses, I measured perceptions of helping difficulty for task-related and personal reactive helping with the following item: “On average, how difficult did you find helping your subordinates with the above problems today?” Participants rated helping difficulty (separately for task-related and personal) along a five point scale where 1 = “Not at all difficult” and 5 = “Very difficult.” The items for the daily measures are presented in Table 3.

Table 3

Daily (within-person) Measures

Measure	Source
Morning (Control) Measures	
Positive Affect 1. Inspired 2. Excited 3. Enthusiastic 4. Determined	Items from (MacKinnon et al., 1999) 1= very slightly or not at all 2 = a little 3 = moderately 4 = quite a bit 5 = very much
Negative Affect 1. Afraid 2. Nervous 3. Upset 4. Distressed	Items from (MacKinnon et al., 1999) 1= very slightly or not at all 2 = a little 3 = moderately 4 = quite a bit 5 = very much
State Depletion: 1. I feel drained right now. 2. My mind feels unfocused right now. 3. Right now, it would take a lot of effort for me to concentrate on something. 4. Right now, my mental energy is running low. 5. Right now, I feel like my willpower is gone.	Adapted from Christian and Ellis (2011) 1 = very slightly or not at all 2 = a little 3 = moderately 4 = quite a bit 5 = very much
Afternoon Measures	
State Depletion: 1. I feel drained right now. 2. My mind feels unfocused right now. 3. Right now, it would take a lot of effort for me to concentrate on something. 4. Right now, my mental energy is running low. 5. Right now, I feel like my willpower is gone.	Adapted from Christian and Ellis (2011) 1 = very slightly or not at all 2 = a little 3 = moderately 4 = quite a bit 5 = very much

Table 3 (cont'd)

Reactive Task-Related Helping: 1. Today, I helped subordinates who asked for my help with difficult assignments. 2. Today, I helped subordinates who asked for my help with heavy work loads. 3. Today, I went out of my way to help subordinates who asked for my help with work-related problems.	Adapted from Settoon and Mossholder, (2002) 1 = Never 2 = Once 3 = Twice 4 = Three times 5 = Four times 6 = Five or more times
Prosocial Impact for Task-Related Helping: 1. I feel that my help with the above issues made a positive difference in subordinates' lives today. 2. I am very conscious of the positive impact that my help with the above issues had on subordinates today. 3. I am very aware of the ways in which my help with the above issues benefited subordinates today.	Adapted from Grant, (2008); Sonnentag & Grant, (2012) 1= strongly disagree 2=disagree 3 =neither agree nor disagree 4 = agree 5 = strongly agree
Reactive Personal Helping: 1. Today, I helped by listening to subordinates who came to me because they had to get something off their chest. 2. Today, I helped subordinates who came to me with their personal problems and worries. 3. Today, I helped by taking an interest in subordinates who asked for my help with personal problems.	Adapted from Settoon and Mossholder, (2002) 1 = Never 2 = Once 3 = Twice 4 = Three times 5 = Four times 6 = Five or more times
Prosocial Impact for Personal Helping: 1. I feel that my help with the above issues made a positive difference in subordinates' lives today. 2. I am very conscious of the positive impact that my help with the above issues had on subordinates today. 3. I am very aware of the ways in which my help with the above issues benefited subordinates today.	Adapted from Grant, (2008); Sonnentag & Grant, (2012) 1= strongly disagree 2=disagree 3 =neither agree nor disagree 4 = agree 5 = strongly agree

Table 3 (cont'd)

Work Engagement: 1. Today, my supervisor exerted a lot of energy on the job. 2. Today, my supervisor strived hard to complete his/her job. 3. Today, my supervisor felt positive about his/her job. 4. Today, my supervisor was excited about his/her job. 5. Today, my supervisor was focused on his/her job. 6. Today, my supervisor was absorbed by his/her job.	Items from Rich et al., (2010) 1= strongly disagree 2=disagree 3 =neither agree nor disagree 4 = agree 5 = strongly agree
Creativity: 1. Today, my supervisor came up with creative solutions to problems. 2. Today, my supervisor exhibited creativity on the job. 3. Today, my supervisor had a fresh approach to problems. 4. Today my supervisor came up with new and practical ideas to improve performance.	Creativity (adapted from Zhou & George, 2001) 1= strongly disagree 2=disagree 3 =neither agree nor disagree 4 = agree 5 = strongly agree
Task-Related Helping Difficulty: On average, how difficult did you find helping your subordinates with the above problems today?	1= not at all difficult 2 = a little difficult 3 = moderately difficult 4 = quite difficult 5 = very difficult
Personal Helping Difficulty: On average, how difficult did you find helping your subordinates with the above problems today?	1= not at all difficult 2 = a little difficult 3 = moderately difficult 4 = quite difficult 5 = very difficult

Confirmatory Factor Analyses

Before testing the hypotheses, I examined the construct validity of the level 1 measures by conducting within-person confirmatory factor analyses. I performed these analyses using AMOS 20.0 after centering all item scores at each participant's mean item scores. This approach is considered appropriate when conducting confirmatory factor

analyses with experience sampling data (Scott et al., 2010; Sonnentag & Grant, 2012). First, I examined the factor structure of the task and personal reactive helping variables by comparing a two factor structure where items for task-related reactive helping loaded on one factor and the items for personal reactive helping loaded on another factor to a one-factor model where all six items loaded on one factor. The model fit for the two-factor model was acceptable (CFI = 0.99, TLI = 0.96, RMSEA = 0.07). The model fit for the one factor model was not acceptable (CFI = 0.61, TLI = 0.08, RMSEA = 0.35). The chi-square difference test showed that the two factor model was a significantly better fit to the data than a one factor model ($\Delta\chi^2 = 1084$, Δ d.f. = 1, $p < .00$). These analyses support the construct distinctiveness of task and personal reactive helping.

Next, I examined the factor distinctiveness of the two helping constructs from the two prosocial impact variables. More specifically, I compared a four factor model where the items for task related reactive helping, personal reactive helping, prosocial impact of task-related reactive helping, and prosocial impact of personal reactive helping loaded on four separate constructs, to a two factor model where items for task-related reactive helping and prosocial impact of task-related reactive helping loaded on one factor, and items for personal reactive helping and prosocial impact of personal reactive helping loaded on another factor. The four-factor model fit the data significantly better than a two factor model ($\Delta\chi^2 = 1973$, Δ d.f. = 5, $p < .00$). The model fit for the four-factor model was CFI = 0.98, TLI = 0.97, RMSEA = 0.05, and the model fit for the two factor model was CFI = 0.71, TLI = 0.57, RMSEA = 0.20.

Given the moderate within-person correlation between prosocial impact of task and personal helping ($r = 0.46$), I also compared a two factor model where their items

loaded on two separate constructs to a one factor model where all items loaded on one factor. The fit for the two factor model was CFI = 0.99, TLI = 0.98, RMSEA = 0.06, whereas the fit for the one factor model was CFI = 0.62, TLI = 0.21, RMSEA = 0.38. A two factor model fit the data significantly better than a one factor model ($\Delta\chi^2 = 1296$, Δ d.f. = 1, $p < .00$), thus supporting the construct distinctiveness of these two variables.

I also examined the factor structure of the two helping constructs, the two prosocial factors, morning affect, and morning depletion in the same model. These analyses confirmed structures that supported the distinctiveness of these constructs. For example, the 7 factor structure fit the data considerable better than a 6 factor structure that combined depletion and negative affect into one overall factor. The fit for the 7-factor model was CFI = 0.97, TLI = 0.95, RMSEA = 0.04, whereas the model fit for the 6 factor model that combined morning negative affect and depletion into one construct was CFI = 0.95, TLI = 0.93, RMSEA = 0.06. The fit for the 7-factor model was significantly better than that for the 6-factor model ($\Delta\chi^2 = 234$, Δ d.f. = 6, $p < .00$).

Finally, the average within person correlation between subordinate-rated daily work engagement and creativity was relatively high ($r = 0.74$). For this reason I compared a two factor model where the items for daily work engagement loaded on one factor, and the items for creativity loaded on another factor to a one-factor model where all items loaded on one overall factor. The fit for a two-factor model was CFI = 0.95, TLI = 0.93, RMSEA = 0.11, whereas the fit for a one factor model was CFI = 0.83, TFI = 0.69, RMSEA = .22. The chi-square difference test showed that a two factor model fit the data significantly better than a one-factor model ($\Delta\chi^2 = 2873$, Δ d.f. = 1, $p < .00$). Although

the within-person correlation was high for these two variables, their items load on two different constructs.

RESULTS

Tables 4 to 6 show the means, standard deviations, and inter-correlations of the variables at the within- and between person level respectively. In order to account for the non-independent nature of the data (e.g., daily observations nested within leaders), I conducted analyses using hierarchical linear modeling (HLM) (Raudenbush & Bryk, 2002). Before testing the hypotheses, I ran null models for all level 1 (e.g., daily) variables in order to ascertain that the use of HLM was indeed appropriate in this context. Null models estimate the partitioning of the total variance in the level 1 variables into within and between individual variance components. HLM is only appropriate when there is a considerable amount of within-individual variance in the daily variables. As Table 7 shows, there was considerable variance at the within-person level in all level 1 variables (between 34% and 73%), justifying the use of HLM for the analyses.

In all HLM models, level 1 predictors were centered at the mean of the participants. This implies that participants' means for these variables across all study days were zero. Thus, between-participant mean differences across all study days for these variables were also zero. Individual- mean centering, therefore, removes all between-level variance from level 1 variables. This approach allows for a better understanding of the within-individual relations among variables because the effects are not confounded by between-individual differences. Centering at the individual mean is a common practice used in experience sampling studies (e.g., Judge, Scott, & Ilies, 2006; Scott et al., 2010). Stable individual differences (e.g., role perceptions and trait self-control) were grand-mean centered - raw metrics or grand mean centering provide equivalent models (Hofmann & Gavin, 1998).

Table 4

Within-Individual Descriptive Statistics and Correlations^a

	Variable	M	SD	1	2	3	4	5	6	7	8
1	Positive Affect (AM)	3.51	0.89								
2	Negative Affect (AM)	1.35	0.42	-.24**							
3	State Depletion (AM)	1.33	0.36	-.40**	.31**						
4	State Depletion (PM)	1.73	0.55	-.13**	.19**	.23**					
5	Task-Related R Helping	2.33	0.79	.02	.06	.06	.07				
6	Personal R Helping	1.66	0.70	.05	-.01	.02	.08*	.46**			
7	Prosocial Impact Task	3.73	0.59	.03	-.07	-.03	-.05	.52**	.37**		
8	Prosocial Impact Personal	3.42	0.57	.06	-.10*	-.00	.01	.25**	.54**	.39**	
9	Daily Engagement (subs)	3.89	0.41	-.02	.06	.06	.06	.17**	.06	.14**	.04
10	Daily Creativity (subs)	3.73	0.41	.03	.02	.03	.01	.14**	.03	.11**	.02
11	Daily Engagement (self)	3.91	0.56	.16**	-.06	-.12**	-.08*	.25**	.15**	.23**	.10*
12	Daily Creativity (self)	3.70	0.57	.11**	.02	-.11**	-.07	.24**	.17**	.18**	.09*
13	Task-Helping Difficulty	1.55	0.55	.06	.03	-.01	.19**	.33**	.13**	.25**	.04
14	Personal Helping Difficulty	1.30	0.39	-.05	.03	.08	.07	.15**	.26**	.09*	.17**
15	Interactions w/Subordinates	2.56	0.63	.00	.08	.05	.04	.24**	.06	.18**	.07
16	Time (PM)	17.79	1.09	-.02	-.02	.05	.13**	.08*	.04	.06	.04

Table 4 (cont'd)

	Variable	M	SD	9	10	11	12	13	14	15
9	Daily Engagement (subs)	3.89	0.41							
10	Daily Creativity (subs)	3.73	0.41	.74**						
11	Daily Engagement (self)	3.91	0.56	.10*	.15**					
12	Daily Creativity (self)	3.70	0.57	.02	.05	.40**				
13	Task-Helping Difficulty	1.55	0.55	.09*	.12**	.10**	.11**			
14	Personal Helping Difficulty	1.30	0.39	-.00	-.01	.02	.03	.29**		
15	Interactions w/Subordinates	2.56	0.63	.67**	.67**	.13**	.08	.09*	.02	
16	Time (PM)	17.79	1.09	-.03	-.02	.06	.04	.08*	-.07	-.08

^aAll variables are within-individual variables. To accomplish this all daily variables were centered at the person level before the correlations were computed. N = 730-862. R = Reactive. Time (PM) = Time when afternoon survey was completed. Subs = subordinate rated variables. Means and standard deviations are based on between-individual scores. * p <.05, ** p < .01.

Table 5

Descriptive Statistics and Correlations for Daily Variables^a

	Variable	M	SD	1	2	3	4	5	6	7	8
1	Positive Affect (AM)	3.51	1.02	-							
2	Negative Affect (AM)	1.36	0.59	-.22**	-						
3	State Depletion (AM)	1.35	0.59	-.45**	.38**	-					
4	State Depletion (PM)	1.76	0.84	-.21**	.26**	.37**	-				
5	Task-Related R Helping	2.36	1.25	.10*	.12**	.06	.00	-			
6	Personal R Helping	1.65	0.98	.18**	.12**	.02	.03	.52**	-		
7	Prosocial Impact Task	3.69	0.84	.26**	-.05	-.10*	-.12**	.51**	.33**	-	
8	Prosocial Impact Personal	3.38	0.82	.23**	.00	-.04	-.01	.31**	.51**	.61**	-
9	Daily Engagement (subs)	3.88	0.58	.13**	-.03	-.11**	-.08*	.22**	.13**	.21**	.12**
10	Daily Creativity (subs)	3.74	0.59	.09*	-.01	-.05	-.08	.17**	.07	.20**	.10*
11	Daily Engagement (self)	3.86	0.75	.53**	-.06	-.26**	-.15**	.19**	.07	.40**	.30**
12	Daily Creativity (self)	3.68	0.81	.46**	-.01	-.20**	-.11**	.24**	.14**	.35**	.25**
13	Task-Helping Difficulty	1.56	0.83	-.01	.10*	.16**	.13**	.39**	.12**	.21**	.05
14	Personal Helping Difficulty	1.30	0.63	-.01	.11*	.16**	.07	.29**	.30**	.11**	.16**
15	Interactions w/Subordinates	2.56	0.93	.00	.07	.00	-.04	.24**	.07	.11**	.04
16	Time (PM)	17.71	1.78	-.01	-.01	.04	.09*	.13**	.08*	.10*	.07

Table 5 (cont'd)

	Variable	M	SD	9	10	11	12	13	14	15
9	Daily Engagement (subs)	3.88	0.58	-						
10	Daily Creativity (subs)	3.74	0.59	.81**	-					
11	Daily Engagement (self)	3.86	0.75	.24**	.20**	-				
12	Daily Creativity (self)	3.68	0.81	.14**	.12**	.61**	-			
13	Task-Helping Difficulty	1.56	0.83	.15**	.15**	.12**	.13**	-		
14	Personal Helping Difficulty	1.30	0.63	.10*	.07	.06	.07	.52**	-	
15	Interactions w/Subordinates	2.56	0.93	.67**	.69**	.10*	.08*	.09*	.09*	
16	Time (PM)	17.71	1.78	.06	.04	.02	.02	.04	-.04	.02

^aAll variables are daily variables. N = 730-862. R = Reactive. Time (PM) = Time when afternoon survey was completed. Means

and standard deviations are based on daily scores (These results were based on the raw daily data which combines within and

between person variances). Subs = subordinate rated variables.* $p < .05$, ** $p < .01$.

Table 6

Between-Individual Descriptive Statistics and Correlations^a

	Variable	M	SD	1	2	3	4	5	6	7	8
1	Positive Affect (AM)	3.51	0.89								
2	Negative Affect (AM)	1.35	0.42	-.22							
3	State Depletion (AM)	1.33	0.36	-.46**	.45**						
4	State Depletion (PM)	1.73	0.55	-.28*	.33**	.50**					
5	Task-Related R Helping	2.33	0.79	.03	.12	-.02	-.06				
6	Personal R Helping	1.66	0.70	.01	.17	-.02	.02	.57**			
7	Prosocial Impact Task	3.73	0.59	.43**	-.06	-.20	-.22	.47**	.30**		
8	Prosocial Impact Personal	3.42	0.57	.34**	.12	-.09	-.06	.35**	.51**	.83**	
9	Daily Engagement (subs)	3.89	0.41	.16	-.14	-.29*	-.24*	.31*	.15	.20	.13
10	Daily Creativity (subs)	3.73	0.41	.10	-.07	-.15	-.18	.26*	.10	.22	.11
11	Daily Engagement (self)	3.91	0.56	.77**	-.03	-.30*	-.25*	.14	.04	.58**	.47**
12	Daily Creativity (self)	3.70	0.57	.71**	-.01	-.27*	-.17	.27*	.13	.54**	.44**
13	Task-Helping Difficulty	1.55	0.55	.00	.04	.25*	.04	.44**	.08	.14	.02
14	Personal Helping Difficulty	1.30	0.39	-.04	.09	.27*	.06	.45**	.33**	.11	.11
15	Interactions w/Subordinates	2.56	0.63	-.05	-.04	-.01	-.05	.41**	.02	.02	-.07
16	Time (PM)	17.79	1.09	-.09	.03	-.02	.00	.18	.10	.15	.07
17	Task Helping Breadth	4.48	0.72	.14	-.11	-.19	-.05	.15	-.04	.02	-.09
18	Task Helping Efficacy	4.41	0.65	.24*	-.29*	-.15	-.11	-.01	-.10	.05	-.11
19	Personal Helping Breadth	3.96	0.74	.32**	-.16	-.19	-.06	.16	.19	.34**	.31**
20	Personal Helping Efficacy	4.17	0.65	.25*	-.08	-.02	-.13	-.04	.17	.30**	.38**
21	Prosocial Motivation	4.67	0.50	.32**	-.24*	-.32**	-.09	.03	-.11	.25*	.10
22	Trait Self-Control	3.81	0.56	.22	-.06	-.23*	-.29*	.09	.17	.24*	.22
23	Job Experience	3.88	3.39	-.04	-.08	.06	-.01	-.06	.02	-.05	-.04
24	Managerial Experience	9.76	6.79	.18	-.30**	-.14	-.22	-.13	-.06	.05	.03

Table 6 (Cont'd)

	Variable	M	SD	9	10	11	12	13	14	15	16
9	Daily Engagement (subs)	3.89	0.41								
10	Daily Creativity (subs)	3.73	0.41	.89**							
11	Daily Engagement (self)	3.91	0.56	.23	.17						
12	Daily Creativity (self)	3.70	0.57	.19	.17	.76**					
13	Task-Helping Difficulty	1.55	0.55	.20	.19	.13	.14				
14	Personal Helping Difficulty	1.30	0.39	.22	.18	.10	.09	.81**			
15	Interactions w/Subordinates	2.56	0.63	.64**	.70**	-.03	.08	.21	.23		
16	Time (PM)	17.79	1.09	.08	.10	-.03	-.01	.01	.06	.18	
17	Task Helping Breadth	4.48	0.72	.02	.04	.09	.13	-.06	-.11	.11	.20
18	Task Helping Efficacy	4.41	0.65	-.06	-.01	.25*	.11	-.09	-.13	.12	.19
19	Personal Helping Breadth	3.96	0.74	-.02	-.07	.36**	.22	-.11	-.10	-.10	-.05
20	Personal Helping Efficacy	4.17	0.65	-.12	.01	.24*	.12	-.30**	-.24*	-.12	.04
21	Prosocial Motivation	4.67	0.50	-.09	-.04	.32**	.33**	-.21	-.19	.07	.08
22	Trait Self-Control	3.81	0.56	.07	.04	.41**	.33**	-.02	-.01	.00	.15
23	Job Experience	3.88	3.39	-.03	.02	-.05	-.11	-.06	.05	.16	.26*
24	Managerial Experience	9.76	6.79	.08	.07	.20	.09	-.03	.10	.13	.01

Table 6 (Cont'd)

	Variable	M	SD	17	18	19	20	21	22	23
17	Task Helping Breadth	4.48	0.72							
18	Task Helping Efficacy	4.41	0.65	.62**						
19	Personal Helping Breadth	3.96	0.74	.19	.34**					
20	Personal Helping Efficacy	4.17	0.65	.00	.23*	.50**				
21	Prosocial Motivation	4.67	0.50	.22	.42**	.52**	.33**			
22	Trait Self-Control	3.81	0.56	-.04	.10	.16	.33**	.07		
23	Job Experience	3.88	3.39	.20	.31**	.15	.22	.19	.00	
24	Managerial Experience	9.76	6.79	.05	.20	.29*	.31**	.28*	.19	45**

^aN = 68-77. Variables 1 through 16 are within-individual variables. Variables 17-24 are between individual variables. Correlations are based on between-individual scores, where variables 1 to 16 were aggregated at the individual level. R = Reactive. Means and standard deviations are based on between-individual scores. Sub = subordinate rated variables. * p <.05, ** p < .01.

Table 7

Parameter Estimates and Variance Composition of Level 1 Variables^a

		Intercept	Within-Individual Variance	Between-Individual Variance	Percentage of Within- Individual Variance
	Variable	b ₀₀	(e ²)	(r ²)	
1	Positive Affect (AM)	3.52**	0.37	0.72**	34%
2	Negative Affect (AM)	1.36**	0.20	0.15**	57%
3	State Depletion (AM)	1.34**	0.24	0.11**	68%
4	State Depletion (PM)	1.75**	0.47	0.25**	65%
5	Task-Related R Helping	2.35**	0.98	0.55**	64%
6	Personal R Helping	1.67**	0.51	0.44**	54%
7	Prosocial Impact of Task	3.73**	0.38	0.32**	55%
8	Prosocial Impact of Personal	3.43**	0.39	0.29**	57%
9	Daily Work Engagement (subs)	3.89**	0.20	0.15**	57%
10	Daily Creativity (subs)	3.73**	0.21	0.15**	58%
11	Daily Work Engagement (self)	3.91**	0.26	0.29**	47%
12	Daily Creativity (self)	3.70**	0.35	0.30**	54%
13	Task-Related Helping Difficulty	1.55**	0.40	0.27**	59%
14	Personal-Helping Difficulty	1.30**	0.28	0.12**	69%
15	Interactions w/Subordinates	2.56**	0.80	0.27**	70%
16	Time (PM)	17.7**	2.34	0.84**	73%

^aN = 730-862. b₀₀ represents the average level of the variable across individuals. e² represents the within-individual variance and,

r² the between-individual variance in the variable. Percentage of within-individual variance was computed as the ratio of the

within-individual variance/(within + between variance). Subs = subordinate rated variables. * p < .05, ** p < .01.

Test of Hypotheses

Hypotheses 1 and 2 posited that task-related reactive helping and personal reactive helping would each be associated with an increase in state depletion. Because task and personal reactive helping were moderately correlated at the within person level ($r = 0.46$), I entered them simultaneously in the HLM regressions predicting state depletion. In these analyses, I also controlled for morning state depletion. This approach assesses whether task and personal reactive helping during the day are associated with *a change* in depletion levels. Similar analyses have been conducted by other organizational scholars who have studied daily effects of activities that require psychological resources (e.g., Scott & Barnes, 2011). In contrast to predictions, neither task ($B = 0.00$, $p > .05$) nor personal ($B = 0.06$, $p > .05$) reactive helping were associated with a positive change in state depletion. Thus, Hypotheses 1 and 2 were not supported. The HLM results are presented in Table 8. Given that the main effects for task and personal reactive helping were not significant, these coefficients are not significantly different from 0 or each other. Hence, Hypothesis 3 was not supported either.

Table 8

HLM Results for Predictors of Afternoon State Depletion (Hypotheses 1 and 2)^a

Predictor	<i>B</i>	<i>s.e.</i>	<i>t</i>
Intercept (b_{00})	1.75	0.07	25.44**
Morning State Depletion (b_{01})	0.36	0.07	5.38**
Task Related Reactive Helping (b_{02})	0.00	0.03	-0.11
Personal Reactive Helping (b_{03})	0.06	0.05	1.12

^a All level 1 predictors were centered at persons' means, $N = 588$. Coefficients (B s) are unstandardized effect sizes. * $p < .05$, ** $p < .01$.

Hypotheses 4a and 4b stated that the association between task-related reactive helping and personal reactive helping would be contingent on prosocial motivation, such that these associations would be weaker for high versus low prosocial motivation. The results of the HLM regressions testing these two hypotheses are shown in Table 9. The association between task-related reactive helping and depletion was not moderated by prosocial motivation ($B = -0.04$, $p > .05$), thus failing to support Hypothesis 4a. Likewise, the association between personal reactive helping and state depletion was not moderated by helping motivation ($B = -0.12$, $p > .05$), failing to support Hypothesis 4b. In sum, the effects of the two types of helping on state depletion were not contingent on prosocial motivation.

Table 9

Moderating Effects of Prosocial Motivation (Hypothesis 4a, 4b)^a

Predictor	Criterion: Afternoon State Depletion		
	<i>B</i>	<i>s.e.</i>	<i>t</i>
Intercept (b_{00})	1.74	0.07	25.70**
<i>Level 2 predictors</i>			
Prosocial Motivation (b_{01})	-0.13	0.16	-0.84
<i>Level 1 predictors</i>			
State Depletion (AM) (b_{10})	0.36	0.07	5.51**
Task-Related Reactive Helping (b_{20})	-0.01	0.03	-0.17
Personal Reactive Helping (b_{30})	0.05	0.05	1.07
<i>Cross-level predictors</i>			
Prosocial Motivation X Task Helping (b_{21})	-0.04	0.06	-0.70
Prosocial Motivation X Personal Helping (b_{31})	-0.12	0.12	-1.03

^a All level 1 predictors were centered at persons' means; level 2 variables were grand-mean centered. Level 1 $N = 588$. Level 2 $N = 71$. Coefficients (B s) are unstandardized effect sizes. * $p < .05$, ** $p < .01$.

Hypotheses 5a and 5b posited that the associations between task-related reactive helping and personal reactive helping would be moderated by task-related reactive helping breadth and personal reactive helping breadth respectively. HLM tests failed to support these hypotheses. More specifically, as shown in Table 10, task-related reactive helping breadth did not moderate the association between task-related reactive helping and depletion ($B = -0.03$, $p > .05$) failing to support Hypothesis 5a. Similarly, personal reactive helping breadth did not moderate the association between personal helping and depletion, failing to support Hypothesis 5b ($B = -0.03$, $p > .05$).

Table 10

Moderating Effects of Reactive Helping Breadth (Hypothesis 5a and 5b)^a

Predictor	Criterion: Afternoon State Depletion		
	<i>B</i>	<i>s.e.</i>	<i>t</i>
Intercept (b_{00})	1.75	0.07	25.45**
<i>Level 2 predictors</i>			
Task-Related Reactive Helping Breadth (b_{01})	0.02	0.07	0.28
Personal Reactive Helping Breadth (b_{02})	-0.07	0.10	-0.72
<i>Level 1 predictors</i>			
Morning State Depletion (b_{10})	0.36	0.07	5.29**
Task-Related Reactive Helping (b_{20})	0.00	0.03	-0.05
Personal Reactive Helping (b_{30})	0.06	0.06	1.07
<i>Cross-level predictors</i>			
Task Helping Breadth X Task-Related Helping (b_{21})	-0.03	0.05	-0.54
Personal Helping Breadth X Personal Helping (b_{32})	-0.03	0.08	-0.04

^aAll level 1 predictors were centered at persons' means, level 2 variables were grand-mean centered. Level 1 $N = 588$. Level 2 $N = 71$. Coefficients (B s) are unstandardized effect sizes. * $p < .05$, ** $p < .01$.

Hypotheses 6a and 6b predicted that the expected positive association between task-related reactive helping and personal reactive helping would be weakened by helping efficacy. These expectations were not supported. Task-related reactive helping efficacy did not moderate the relation between task-related reactive helping and depletion ($B = -0.01$, $p > .05$), failing to support Hypothesis 6a. Furthermore, personal reactive helping efficacy did not moderate the association between personal reactive helping and depletion ($B = -0.02$, $p > .05$), failing to support Hypothesis 6b. The HLM regressions are presented in Table 11.

Table 11

Moderating Effects of Reactive Helping Efficacy (Hypothesis 6a and 6b)^a

Predictor	Criterion: Afternoon State Depletion		
	B	s.e.	t
Intercept (b_{00})	1.75	0.07	25.34**
<i>Level 2 predictors</i>			
Task-Related Reactive Helping Efficacy (b_{01})	0.01	0.10	0.11
Personal Reactive Helping Efficacy (b_{02})	-0.18	0.11	-1.64
<i>Level 1 predictors</i>			
Morning State Depletion (b_{10})	0.35	0.07	5.32**
Task-Related Reactive Helping (b_{20})	0.00	0.03	-0.13
Personal Reactive Helping (b_{30})	0.06	0.06	0.91
<i>Cross-level predictors</i>			
Task Efficacy X Task-Related Helping (b_{21})	-0.01	0.06	-0.22
Personal Efficacy X Personal Helping (b_{32})	-0.02	0.13	-0.19

^a All level 1 predictors were centered at persons' means; level 2 variables were grand-mean centered. Level 1 $N = 588$. Level 2 $N = 71$. Coefficients (Bs) are unstandardized effect sizes. * $p < .05$, ** $p < .01$.

Consistent with predictions by Ego Depletion Theory that depletion of resources ought to diminish performance on other work behaviors that require resources, Hypothesis 7 stated that

state depletion would be negatively related to daily work engagement. As Table 12 shows, state afternoon depletion was not related to leaders' daily work engagement as rated by subordinates ($B = 0.04$, $p > .05$), failing to support Hypothesis 7.

Table 12

HLM Results for Predictors of Daily Work Engagement (Hypothesis 7)^a

Predictor	<i>B</i>	<i>s.e.</i>	<i>t</i>
Intercept (b_{00})	3.93	0.05	78.52**
Afternoon State Depletion (b_{01})	0.04	0.03	1.51

^aAll level 1 predictors were centered at persons' means; $N = 589$. Coefficients (B s) are unstandardized effect sizes. * $p < .05$, ** $p < .01$.

Similarly, Hypothesis 8 predicted that depletion would be negatively related to daily creativity. As Table 13 shows, controlling for state positive and negative affect, afternoon state depletion was not related to daily creativity as rated by subordinates, ($B = 0.02$, $p > .05$), failing to support Hypothesis 8.

Table 13

HLM Results for Predictors of Daily Creativity (Hypothesis 8)^a

Predictor	<i>B</i>	<i>s.e.</i>	<i>t</i>
Intercept (b_{00})	3.76	0.05	71.86**
Morning Positive Affect (b_{01})	0.02	0.03	0.87
Morning Negative Affect (b_{02})	-0.01	0.04	-0.22
Afternoon State Depletion (b_{01})	0.02	0.02	0.69

^aAll level 1 predictors were centered at persons' means; $N = 589$. Coefficients (B s) are unstandardized effect sizes. * $p < .05$, ** $p < .01$.

Testing mediation. The mediation hypotheses (9 and 10) posited that state depletion would mediate the effects of task and personal reactive helping on daily work engagement and creativity. I tested these hypotheses with the procedure recommended by Krull and MacKinnon (1999), which was specifically developed for non-independent data. Krull and MacKinnon (1999) recommended that a Sobel (1982) test is appropriate to establish whether mediation (the indirect effect) is significant. This procedure is popular among organizational scholars who have used HLM in experience sampling and multilevel studies (Chowdhury & Endres, 2010; Dimotakis, Conlon, & Ilies, 2012; Dimotakis, Scott, & Koopman, 2011; Levin, Walter, & Murnighan, 2011; Scott & Barnes, 2011).

To test Hypotheses 9 and 10, I examined whether state depletion mediated the effects of task and personal reactive helping on work engagement and creativity as rated by subordinates. Given that task and personal reactive helping did not have a main effect on state depletion, I did not expect depletion to mediate their effects on these two outcomes. Supporting these expectations, state depletion did not mediate the effects of task related reactive helping on daily work engagement (Sobel $z = 0.71$, $p > .05$), nor the effects of personal reactive helping on daily work engagement (Sobel $z = 1.13$, $p > .05$) thus failing to support Hypotheses 9a and 10a. Similarly, state depletion failed to mediate the effects of task-related reactive helping (Sobel $z = 0.47$, $p > .05$) and personal reactive helping ($z = -0.40$, $p > .05$) on daily creativity failing to support Hypotheses 9b and 10b. In sum, the mediation Hypotheses 9 and 10 were not supported.

Hypothesis 11 predicted that prosocial impact of task-related reactive helping would moderate the effects of depletion on daily work engagement, such that this association would be weaker for high versus low prosocial impact of task-related helping (Hypothesis 11a) and on daily creativity, such that this effect would be weaker for high versus low prosocial impact of

task-related helping (Hypothesis 11b). Tables 14 and 15 summarize the HLM regressions testing these hypotheses. As shown in Table 14, the interaction of state depletion with prosocial impact of task-related reactive helping did not predict daily work engagement ($B = 0.06$, $p > .05$), thus failing to support Hypothesis 11a. Failing to support Hypothesis 11b, the effect of depletion on daily creativity was not moderated by prosocial impact of task-related reactive helping ($B = 0.03$, $p > .05$) (see Table 15). Interestingly, prosocial impact of task-related reactive helping had a positive main effect on both daily work engagement and daily creativity rated by subordinates.

Table 14
Moderating Effects of Task-Related Prosocial Impact for Daily Work Engagement
(Hypothesis 11a)^a

Predictor	<i>B</i>	<i>s.e.</i>	<i>t</i>
Intercept (b_{00})	3.93	0.05	77.54**
Afternoon State Depletion (b_{01})	0.05	0.03	1.77
Prosocial Impact of Task R Helping (b_{02})	0.12	0.03	4.11*
Depletion X Prosocial Impact of Task R (b_{03})	0.06	0.05	1.13

^a All level 1 predictors were centered at persons' means, $N = 583$, $R = \text{Reactive}$. * $p < .05$,

** $p < .01$.

Table 15

Moderating Effects of Task-Related Prosocial Impact for Daily Creativity (Hypothesis 11b)^a

Predictor	B	s.e.	t
Intercept (b ₀₀)	3.76	0.05	71.08
Afternoon State Depletion (b ₀₁)	0.03	0.03	1.00
Prosocial Impact of Task R Helping (b ₀₂)	0.08	0.04	2.12*
Depletion X Prosocial Impact of Task R (b ₀₃)	0.03	0.05	0.61
State Positive Affect (b ₀₄)	0.02	0.03	0.63
State Negative Affect (b ₀₅)	0.00	0.03	-0.28

^a All level 1 predictors were centered at persons' means, N = 486, R = Reactive.* p < .05,

** p < .01.

Hypothesis 12a predicted that the association between depletion and daily work engagement would be weaker when prosocial impact of personal reactive helping is high versus low. As shown in Table 16, this expectation was not supported (B = -0.04, p > .05). Hypothesis 12b predicted that the association between depletion and daily creativity would be weaker for high versus low prosocial motivation of personal helping. This hypotheses was also not supported (B = -0.05, p > .05) (see Table 17).

Table 16**Moderating Effects of Personal Prosocial Impact for Daily Work Engagement (Hypothesis 12a)^a**

Predictor	B	s.e.	t
Intercept (b ₀₀)	3.93	0.05	78.64
Afternoon State Depletion (b ₀₁)	0.04	0.03	1.64
Prosocial Impact of Personal R Helping (b ₀₂)	0.03	0.03	1.14
Depletion X Prosocial Impact of Personal R (b ₀₃)	-0.04	0.04	-0.86

^a All level 1 predictors were centered at persons' means; N = 583, R = Reactive. * p < .05,

** p < .01.

Table 17**Moderating Effects of Personal Prosocial Impact for Daily Creativity (Hypothesis 12b)^a**

Predictor	B	s.e.	t
Intercept (b ₀₀)	3.76	0.05	71.87**
Afternoon State Depletion (b ₀₁)	0.02	0.03	0.78
Prosocial Impact of Personal R Helping (b ₀₂)	0.03	0.03	1.20
Depletion X Prosocial Impact of Personal R (b ₀₃)	-0.05	0.04	-1.35
State Positive Affect (b ₀₄)	0.02	0.03	0.63
State Negative Affect (b ₀₅)	0.00	0.03	-0.13

^a All level 1 predictors were centered at persons' means, N = 486, R = Reactive. * p < .05,

** p < .01.

Hypothesis 13 posited that the association between depletion and daily work engagement would depend on trait self-control. People high in trait self-control have a larger pool of self-control resources. Hence, I expected that these people would be less vulnerable to the negative consequences of depletion. Results of HLM regressions are summarized in Table 18. In contrast

to expectations, trait self-control did not moderate the association between afternoon state depletion and daily creativity rated by subordinates ($B = 0.01$, $p > .05$). Thus, Hypothesis 13 was not supported.

Table 18

Moderating Effects of Trait Self-Control for Work Engagement (Hypothesis 13)^a

Predictor	Criterion: Work Engagement		
	B	s.e.	t
Intercept (b_{00})	3.93	0.05	79.16**
<i>Level 2 predictors</i>			
Trait Self-Control (b_{01})	0.06	0.08	0.74
<i>Level 1 predictors</i>			
Afternoon State Depletion (b_{10})	0.04	0.03	1.44
<i>Cross-level predictors</i>			
Depletion X Trait Self-Control (b_{11})	0.01	0.04	0.31

^a All level 1 predictors were centered at persons' means; level 2 variables were grand-mean centered. Level 1 $N = 584$. Level 2 $N = 66$. Coefficients (Bs) are unstandardized effect sizes. * $p < .05$, ** $p < .01$.

Finally, Hypothesis 14 posited that the effects of depletion on daily creativity rated by subordinates would also depend on trait self-control (Table 19). Controlling for state positive and negative affect at level 1, the effects of depletion on daily creativity were not contingent on trait self-control ($B = 0.04$, $p > .05$). Hypothesis 14, therefore, was also not supported.

Table 19**Moderating Effects of Trait Self-Control for Creativity (Hypothesis 14)^a**

Predictor	Criterion: Creativity		
	B	s.e.	t
Intercept (b ₀₀)	3.76	0.05	72.21**
<i>Level 2 predictors</i>			
Trait Self-Control (b ₀₁)	0.06	0.09	0.68
<i>Level 1 predictors</i>			
State Positive Affect (b ₀₂)	0.03	0.03	0.93
State Negative Affect (b ₀₃)	0.00	0.03	-0.28
Afternoon State Depletion (b ₄₀)	0.03	0.03	0.94
<i>Cross-level predictors</i>			
Depletion X Trait Self-Control (b ₄₁)	0.04	0.04	0.82

^aAll level 1 predictors were centered at persons' means; level 2 variables were grand-mean centered. Level 1 N = 487. Level 2 N = 64. Coefficients (Bs) are unstandardized effect sizes. * p < .05, ** p < .01.

In sum, none of the hypotheses proposed in this dissertation were supported when tested with the proposed HLM regressions (e.g., regression that did not include many control variables). The HLM regressions that were used to test all hypotheses are included in the Appendix. Theory and research suggests that several of the constructs examined in this study are moderately associated with each other. Hence, the relatively simple manner in which I initially proposed to test my hypotheses may not reliably and appropriately account for spurious variables that were not included as control variables, but that may have interfered with the associations examined here. It is possible that the large amount of within-person variance in depletion (e.g., 65% of variance) may be due to a host of within-person phenomena. In attempts to further examine the within-person associations between reactive helping and depletion, I conducted a set of rigorous post hoc analyses, which are outlined in the subsequent sections of this manuscript.

POST HOC ANALYSES

Main Effects of Reactive Helping on Depletion

Although Ego Depletion Theory suggests that reactive helping is likely to consume self-regulatory resources, I did not find main effects for task-related and personal reactive helping on changes in state depletion. It is possible that the HLM regressions that I constructed to test Hypotheses 1 and 2 omitted substantive variables that relate to the dependent variable, independent variables, or both dependent and independent variables. Such spurious variables could have suppressed the true associations between reactive helping and depletion. Not including substantive control variables in the HLM regressions, therefore, may explain why I did not find main effects for reactive helping on state depletion. To test for this possibility, I drew from theory and research and selected control variables that ought to relate to the dependent variable, independent variables, or both. I then regressed task-related and personal reactive helping on state depletion controlling for morning state depletion, and these new control variables.

Specifically, I decided to control for positive and negative affect, prosocial impact of reactive helping, time when the afternoon survey was completed, and average amount of daily interactions with subordinates because theory and empirical research suggest that these variables share significant variance with the dependent and/or independent variables.

I controlled for daily positive and negative affect because work by Glomb and coauthors (2011) suggests that employees may decide to help in attempts to either maintain a positive mood or to alleviate negative mood. Furthermore, Ego Depletion Theory also posits that both mood maintenance and management consumes self-regulatory resources (Baumeister et al., 2000). So there are theoretical reasons to expect that morning affect could affect both reactive

helping (the independent variables) and state depletion (the dependent variable) in this model. Consequentially, I decided to control for morning positive and negative affect in the equations involving state depletion.

Work by Grant and Sonnentag (2012) conceptualizes perceptions of prosocial impact of helping as positive affective events and Ego Depletion Theory (Tice et al., 2007) posits that positive events replenish depleted resources. Furthermore in a recent conceptual piece, Lilius (2012) argued that prosocial impact is a restorative resource. She explained that most interactions simultaneously consume and generate regulatory resources and that “simultaneous consideration of both dimensions will illuminate that certain interactions will be experienced as more restorative than depleting with short and longer-term implications...” (p.571). Thus, simultaneous consideration of both 1) the depleting nature of helping and 2) prosocial impact of helping is appropriate in this current context. For these reasons, I decided to control for prosocial impact of both task and personal reactive helping in the HLM regressions that tested the effects of reactive helping on state depletion.

Empirical evidence suggests that leaders spend one-third to half of their day in contact with subordinates (Kurke & Aldrich, 1983; Mintzberg, 1975), yet not all of these interactions represent helping behaviors. Indeed, my analyses show that, on average, leaders engage in task-related helping slightly more than once a day, and in personal helping slightly less than once a day. In addition, Ego Depletion Theory suggests that other interpersonal events (e.g., meetings) could be depleting (e.g., Finkel et al., 2006). For this reason, I decided to control for the average daily amount of interactions that leaders had with subordinates on any given day. This was operationalized as the average of the following item rated by subordinates: “How much did you

interact with Jane Doe today at work” (response format: 1 = “Not at All” to 5 = “Very Much”). The average daily interaction reported by subordinates was 2.5 (SD = 1.1).

Finally, Ego Depletion Theory states that “most forms of self-regulation failure escalate over the course of the day” (Baumeister, 2003, p. 283) because resources are consumed by multiple ongoing daily activities. For this reason, I controlled for the time of day when leaders responded to items about state depletion each afternoon (e.g., the time of day when the afternoon survey was completed). The later in the day leaders completed the afternoon survey, the more likely it is that they were depleted from other work-related activities beyond reactive helping. Time in the afternoon was operationalized as the time when afternoon responses were submitted to the Qualtrics survey system. Other experience sampling studies also control for the time of day when surveys are completed (e.g., Scott & Barnes, 2011).

Table 20 summarizes the HLM regressions that control for morning affect, prosocial impact, average daily interactions with subordinates, and time of day when depletion was reported each afternoon. Compared to the null model, this model explains 42% of the within-person variance in afternoon depletion. The two types of reactive helping explain 15% of the within person variance in depletion. Thus, this model has considerable explanatory power.

As Table 20 illustrates, in this model personal reactive helping had a main positive effect on afternoon depletion ($B = 0.14, p < .05$). This means that leaders experience an increase in depletion on days when they engage in more than their average amount of personal reactive helping. Task-related reactive helping, however, did not have a main effect on state depletion. With regards to the control variables, negative affect was associated with an increase in depletion levels at the day level. This finding is consistent with arguments by Ego Depletion Theory that attempts at managing negative mood may deplete resources. Interestingly, average daily

interactions with subordinates was also associated with an increase in depletion. This finding resonates with arguments by Ego Depletion Theory that interpersonal events are effortful and may deplete resources. This is especially likely to be the case in work contexts where most interactions among leaders and their subordinates are work-focused rather than leisurely in nature.

Table 20

Post Hoc Analyses: Main Effects of Reactive Helping on Depletion^a

Predictor	B	s.e.	t
Intercept (b ₀₀)	1.73	0.07	24.77**
State Positive Affect (b ₁₀)	-0.11	0.07	-1.59
State Negative Affect (b ₂₀)	0.24	0.07	3.24*
Prosocial Impact of Task R (b ₃₀)	-0.08	0.05	-1.55
Prosocial Impact of Personal R (b ₄₀)	-0.07	0.07	-1.10
Time Afternoon (b ₅₀)	0.08	0.02	4.14**
Daily Interactions with Subordinates (b ₆₀)	0.08	0.03	2.64*
Morning State Depletion (b ₇₀)	0.23	0.09	2.70*
Task-Related Reactive Helping (b ₈₀)	-0.02	0.04	-0.38
Personal Reactive Helping (b ₉₀)	0.14	0.06	2.41*

^a All level 1 predictors were centered at persons' means; Level 1 N = 473. Level 2 N =

64. Coefficients (Bs) are unstandardized effect sizes, R = Reactive helping. * p <.05, ** p < .01.

In sum, these post hoc analyses fail to support Hypothesis 1, which stated that task-related reactive helping had a main effect on stated depletion, but supported Hypothesis 2, which predicted that personal helping would be associated with a positive change in depletion of self-regulatory resources.

Hypothesis 3 stated that compared to task-related reactive helping, engaging in personal reactive helping would be more depleting because of the sensitive and uncomfortable nature of personal helping episodes. To examine whether this expectation was supported in post-hoc analyses, I computed and compared the standardized regression coefficients of task and personal reactive helping using the Hotelling-Williams t-test. Originally developed by Steiger (1980), this test establishes whether two dependent regression coefficients are significantly different from each other. The Hotelling-Williams t-test showed that the difference between the coefficients for task-related and personal reactive helping is statistically significant (Hotelling-Williams $t = -3.78$, $p < .01$). The main effect of personal helping on depletion, therefore, was significantly stronger than that of task-related helping, supporting Hypothesis 3.

Moderated Effects of Reactive Helping on Depletion: Prosocial Motivation

I used the HLM regression model that included the controls described above to test Hypotheses 4-6. In these post-hoc analyses, I found partial support for Hypothesis 4 only. More specifically, Hypothesis 4 stated that prosocial motivation would have a cross-level moderating effect on the relation between reactive helping and depletion such that a) task-related helping and b) personal helping would be less depleting for high versus low prosocial motivation. The regression model is shown in Table 21. Prosocial motivation moderated only the association between personal reactive helping and state depletion ($B = 0.25$, $p < .05$). The plot of this interaction – depicted in Figure 2 - shows that the positive association between personal reactive helping and state depletion is weaker for leaders high in prosocial motivation. These findings support Hypothesis 4a. I computed the pseudo R-square which showed that prosocial motivation explained 25% of the variance in the random slope of personal reactive helping.

Table 21

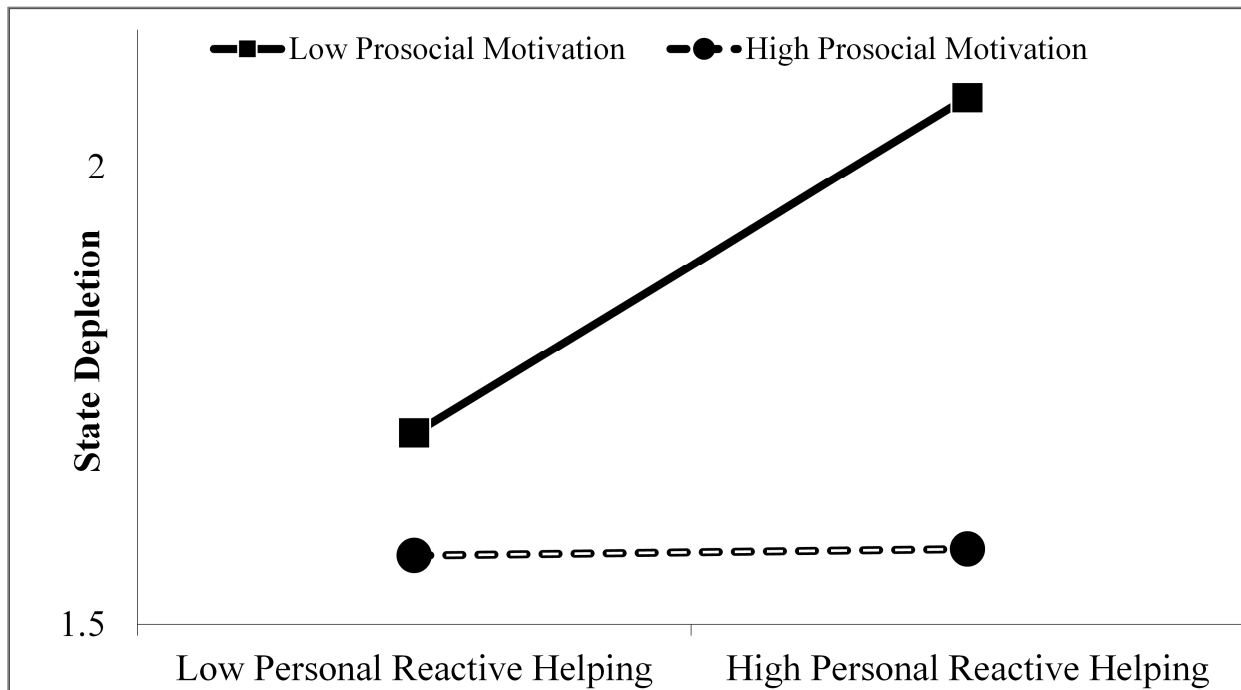
Post Hoc Analyses: Moderating Effects of Prosocial Motivation^a

Predictor	Criterion: Afternoon Depletion		
	B	s.e.	t
Intercept (b ₀₀)	1.74	0.07	25.36**
<i>Level 2 predictors</i>			
Prosocial Motivation (b ₀₁)	-0.31	0.13	-2.44*
<i>Level 1 predictors</i>			
State Positive Affect (b ₁₀)	-0.11	0.07	-1.57
State Negative Affect (b ₂₀)	0.26	0.08	3.43*
Prosocial Impact of Task R (b ₃₀)	-0.08	0.05	-1.50
Prosocial Impact of Personal R (b ₄₀)	-0.06	0.07	-0.84
Time Afternoon (b ₅₀)	0.08	0.02	4.10**
Daily Interactions w/Subordinates (b ₆₀)	0.08	0.03	2.72*
Morning State Depletion (b ₇₀)	0.24	0.09	2.84*
Task-Related Reactive Helping (b ₈₀)	-0.01	0.04	-0.31
Personal Reactive Helping (b ₉₀)	0.13	0.06	2.36*
<i>Cross-level predictors</i>			
Task-Related Helping X Motivation (b ₈₁)	0.02	0.06	0.25
Personal Helping X Motivation (b ₉₁)	-0.25	0.08	-3.01*

^a All level 1 predictors were centered at persons' means; level 2 variables were grand-mean centered. Level 1 N = 473. Level 2 N = 64. Coefficients (Bs) are unstandardized effect sizes, R = Reactive helping. * p < .05, ** p < .01.

Figure 2

Moderating Effects of Prosocial Motivation



Moderated Effects of Reactive Helping on Depletion: Job Experience

Ego Epletion theory suggests that people's ability to self-regulate works like a muscle, in that repeated exposure to similar situations ought to strengthen one's ability to self-regulate. Ego Depletion Theory suggests that experience improves people's ability to self-regulate over time (Muraven et al., 1998). For example, leaders who have been on the job for a longer period of time may have helped subordinates with similar problems in previous occasions. Job experience, therefore, may moderate the extent to which task-related and personal reactive helping are associated with state depletion such that these effects may be weaker for leaders with high versus low work experience.

Although not a formal part of my conceptual model, I explored these possibilities in post-hoc supplementary analyses. I measured job experience in the one-time survey with the following item: “How many years have you worked in your current job.” I then examined whether the associations posited in Hypotheses 1 and 2 were moderated by leader job experience. These regressions (see Table 22) show that job experience moderates the association between task-related reactive helping and state depletion ($B_{21} = 0.03$, $p < .05$), and marginally moderates the relation between personal reactive helping and state depletion ($B_{31} = -0.03$, $p < 0.10$). Job experience explained 26% of the variance in the random slope of task-related reactive helping, and 4.7% in the slope of personal reactive helping.

Table 22

Post Hoc Analyses: Moderating Effects of Job Experience^a

Predictor	Criterion: Afternoon Depletion		
	B	s.e.	t
Intercept (b ₀₀)	1.73	0.07	24.96**
<i>Level 2 predictors</i>			
Job Experience (b ₀₁)	-0.02	0.02	-1.04
<i>Level 1 predictors</i>			
State Positive Affect (b ₁₀)	-0.12	0.07	-1.71
State Negative Affect (b ₂₀)	0.24	0.08	3.20*
Prosocial Impact of Task R (b ₃₀)	-0.07	0.05	-1.48
Prosocial Impact of Personal R (b ₄₀)	-0.08	0.07	-1.11
Time Afternoon (b ₅₀)	0.07	0.02	4.15**
Daily Interactions w/Subordinates (b ₆₀)	0.07	0.03	2.50*
Morning State Depletion (b ₇₀)	0.24	0.09	2.76*
Task-Related Reactive Helping (b ₈₀)	-0.01	0.04	-0.23
Personal Reactive Helping (b ₉₀)	0.15	0.06	2.56*
<i>Cross-level predictors</i>			
Task-Related Helping X JExp (b ₈₁)	0.03	0.01	4.10**
Personal Helping X JExp (b ₉₁)	-0.03	0.01	-1.80

^a All level 1 predictors were centered at persons' means; level 2 variables were grand-mean centered. Level 1 N = 473. Level 2 N = 64. Coefficients (Bs) are unstandardized effect sizes, R = Reactive Helping. JExp = Job experience. * p < .05, ** p < .01.

In order to examine the pattern of these associations, I plotted the interaction of task-related reactive helping and job experience (see Figure 3). Figure 3 suggest that there is a positive association between task-related reactive helping and depletion for leaders who are high in job experience, but a negative association for leaders who are low in job experience (e.g., task-related reactive helping seems to be replenishing for these leaders). Following procedures by Preacher, Curran, and Bauer (2006), I conducted tests of simple slopes, which revealed that both

slopes were significant. The slope for leaders high in job experience (i.e., 1 *sd* above the mean) was significant ($B = 0.10, z = 2.47, p < .05$), and the slope for leaders low in job experience (i.e., 1 *sd* below the mean) was also significant ($B = -0.11, z = -2.27, p < .05$). Overall, these results suggest that task-related reactive helping is depleting for leaders high in job experience, but replenishing for leaders low in job experience. I discuss implications of these findings in the discussion section.

I also plotted the interaction of personal reactive helping and job experience to examine the pattern of these associations (see Figure 4). Although the interaction was marginally significant ($p = 0.08$), Figure 4 suggests that the association between personal reactive helping and depletion is stronger for leaders low in job experience. Consistent with arguments by Ego Depletion Theory, therefore, job experience seems to buffer the depleting effects of personal reactive helping. Tests of simple slopes revealed that the slope for leaders low in job experience was significant ($B = 0.24, z = 3.17, p < .05$), whereas the slope for leaders high in job experience was not significant ($B = 0.06, z = 0.0, p < .05$). Overall, these results indicate that personal reactive helping is depleting for leaders low in job experience only.

Figure 3

Moderating Effects of Job Experience: Task-Related Reactive Helping

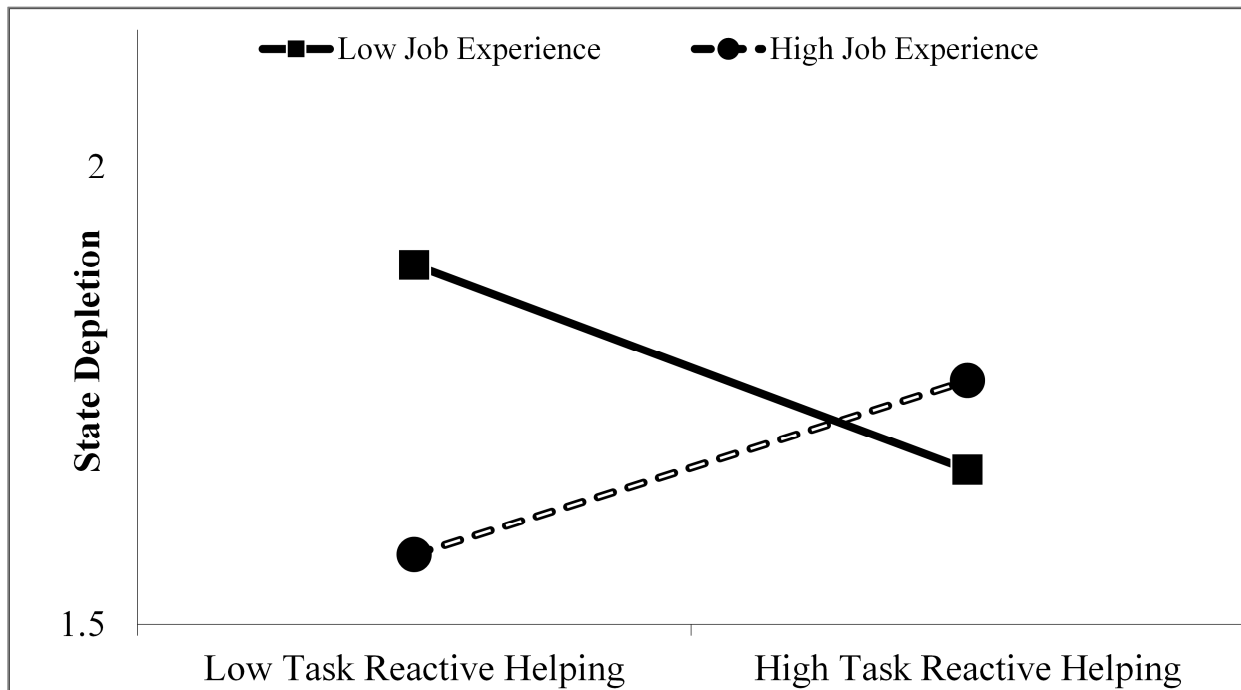
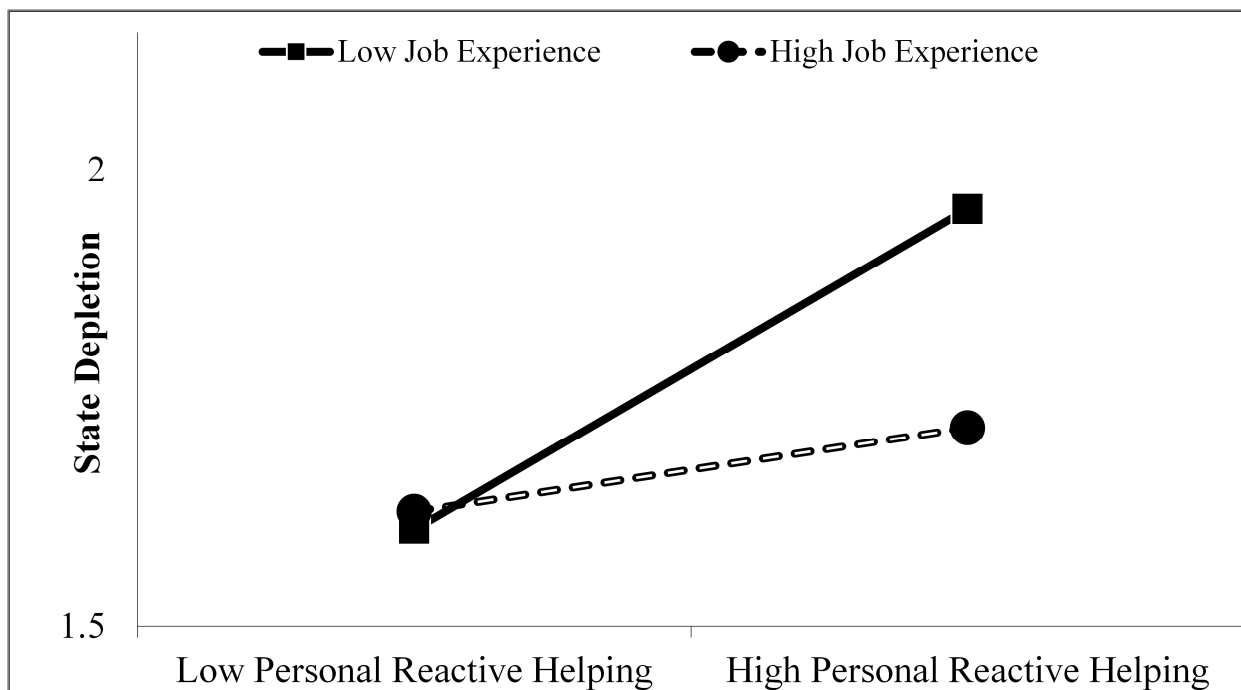


Figure 4

Moderating Effects of Job Experience: Personal Reactive Helping



I also examined whether managerial experience and helping difficulty moderated the extent to which task and personal reactive helping were associated with state depletion. I did not find effects for moderation. Managerial experience however had a main effect on state depletion such that leaders with more managerial experience experienced, on average, less overall state depletion. I also found a main effect of task-related helping difficulty on state depletion. Personal helping difficulty did not affect depletion.

Outcomes of Depletion: Self-Rated Work Engagement

Originally, I proposed that state depletion would be negatively related to daily work engagement (Hypothesis 7) and daily creativity (Hypothesis 8) as rated by subordinates. I did not find support for these two hypotheses. As mentioned previously, in addition to collecting subordinate ratings of leaders' work engagement and creativity, I also measured self-ratings of these behaviors. Entertaining the possibility that leaders may have a more accurate understanding of their own daily work engagement and creativity than their subordinates do, I reran the regressions that tested Hypotheses 7 and 8 with self-rated measures of work engagement and creativity. Although privy to common method bias, self-ratings of work engagement and creativity are the most common assessment of these variables in experience sampling studies (Bakker & Xanthopoulou, 2009; Binnewies & Wornlein, 2011; Bledow, Schmitt, Frese, & Kuhnel, 2011; Ohly & Fritz, 2010). In support of Hypothesis 7, these supplementary analyses showed that depletion was negatively related to self-rated daily work engagement ($B = -0.06$, $p < .05$). The results are summarized in Table 23.

Table 23

Post Hoc Analyses: Predictors of Daily Work Engagement^a

Predictor	B	s.e.	t
Intercept (b ₀₀)	3.91	0.07	59.00**
Afternoon State Depletion (b ₀₁)	-0.06	0.03	-2.17*

^aAll level 1 predictors were centered at persons' means, N = 715. * p <.05, ** p < .01.

Depletion, however, was not related to self-rated daily creativity. These results are shown in Table 24.

Table 24

Post Hoc Analyses: Predictors of Daily Creativity^a

Predictor	B	s.e.	t
Intercept (b ₀₀)	3.71	0.07	50.51**
Morning Positive Affect (b ₀₁)	0.10	0.04	2.71*
Morning Negative Affect (b ₀₂)	0.10	0.04	2.36*
Afternoon State Depletion (b ₀₁)	-0.05	0.05	-1.28

^aAll level 1 predictors were centered at persons' means, N = 588. * p <.05, ** p < .01.

I retested the mediation Hypothesis 9b using these updated analyses. More specifically, I used procedures by Krull and MacKinnon (1999) to examine whether state depletion mediated the effect of personal reactive helping on self-rated daily work engagement. I did not find support for this hypothesis (Sobel $z = -1.6$, $p = .11$). A reason for this non-finding may be because the effects of helping on state depletion are moderated by job experience and helping motivation on one hand, but also because the effects of depletion on work engagement are moderated by prosocial impact, as I explain in the subsequent sections.

Hypotheses 11a and 12a suggested that the effects of depletion on daily work engagement would be contingent on prosocial impact of personal helping and prosocial impact of task-related helping. Given that prosocial impact of task and prosocial impact of personal reactive helping were moderately correlated ($r = .39$), I reran these analyses by entering these variables simultaneously in the regression that predicted self-ratings of daily work engagement. These regressions are shown in Table 25. I found that the effects of depletion on daily work engagement were contingent on prosocial impact of personal helping only. Figure 4 portrays the pattern of this interaction. The negative effect of depletion on daily work engagement was weaker when prosocial impact of personal helping was low. This finding is consistent with Hypothesis 12a.

Table 25

Post Hoc Analyses: Moderating Effects of Depletion^a

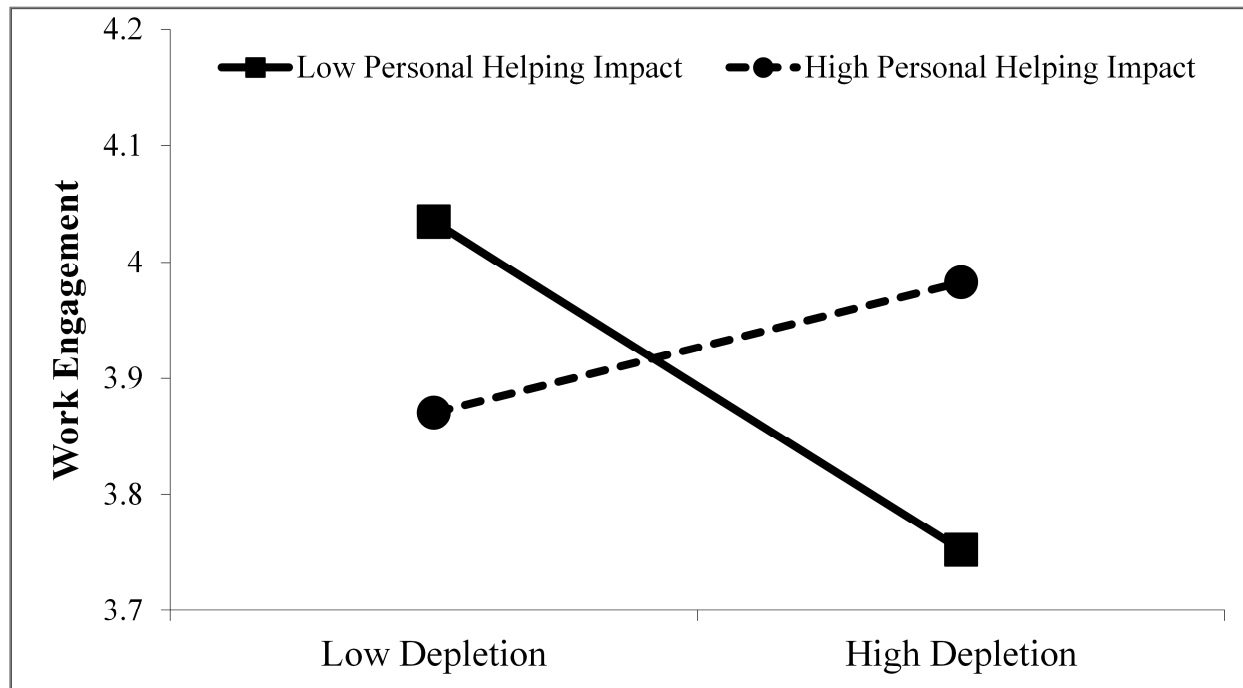
Predictor	Criterion: Daily Work Engagement		
	<i>B</i>	<i>s.e.</i>	<i>t</i>
Intercept (b_{00})	3.91	0.07	59.86**
Afternoon State Depletion (b_{10})	-0.05	0.02	-1.90
Prosocial Impact of Task R (b_{20})	0.16	0.04	3.95**
Prosocial Impact of Personal R (b_{30})	0.02	0.03	0.55
Depletion X Impact of Task (b_{40})	0.00	0.08	-0.05
Depletion X Impact of Personal (b_{50})	0.14	0.06	2.46*

^a All level 1 predictors were centered at persons' means, $N = 588$, $R = \text{Reactive Helping}$.*

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

Figure 5

Moderating Effects of Prosocial Helping Impact



Outcomes of Depletion: Daily Creativity

Ego Depletion Theory suggests that creativity is a resource intensive process. For this reason, I proposed that depletion of self-regulatory resources would have a direct negative effect on leaders' daily creativity. My HLM analyses, however, showed that state depletion was not related to daily creativity either when it was self-rated or rated by subordinates. As reported previously, state depletion had a negative effect on self-rated daily work engagement. Research at the between person level indicates that work engagement is related to creativity (Hakanen, Perhoniemi, & Toppinen-Tanner, 2008). The more engaged employees are at work, the more they are able to come up with innovative and creative ideas. It is possible; therefore, that state depletion may affect daily creativity through work engagement. To test this possibility, I regressed daily creativity (rated by subordinates) on daily work engagement controlling for daily

affect. Table 25 contains the results of these regressions. As shown in Table 26, daily work engagement had a main effect on daily creativity as rated by coworkers ($B = 0.14$, $p < .05$).

Table 26

Post Hoc Analyses: Effects of Work Engagement on Daily Creativity^a

Predictor	Criterion: Daily Creativity		
	B	s.e.	t
Intercept (b_{00})	3.76**	0.05	71.91**
State Positive Affect (b_{10})	0.01	0.03	0.19
State Negative Affect (b_{20})	0.01	0.03	0.32
Daily Work Engagement (b_{30})	0.14	0.06	2.46*

^aAll level 1 predictors were centered at persons' means; $N = 485$. * $p < .05$, ** $p < .01$.

A one-tailed Sobel test showed that work engagement mediated the effects of depletion on daily creativity ($z = -1.70$, $p < .05$). Depletion, therefore, has a negative indirect effect on creativity through daily work engagement.

Another set of results further support the idea that creativity is a resource intensive process. More specifically, I examined whether the effect of work engagement on creativity was contingent on trait self-control. People high in trait self-control have a larger pool of resources at their disposal and they are more efficient at self-regulating their resources. Hence, the impact of daily work engagement on creativity ought to be stronger for people who are high versus low in trait self-control. The regressions for these analyses are shown in Table 27 and the interaction graph is shown in Figure 6. The effect of self-ratings of daily work engagement on daily creativity rated by subordinates was stronger for people who were high in trait self-control ($B = 0.16$, $p < .05$).

Table 27

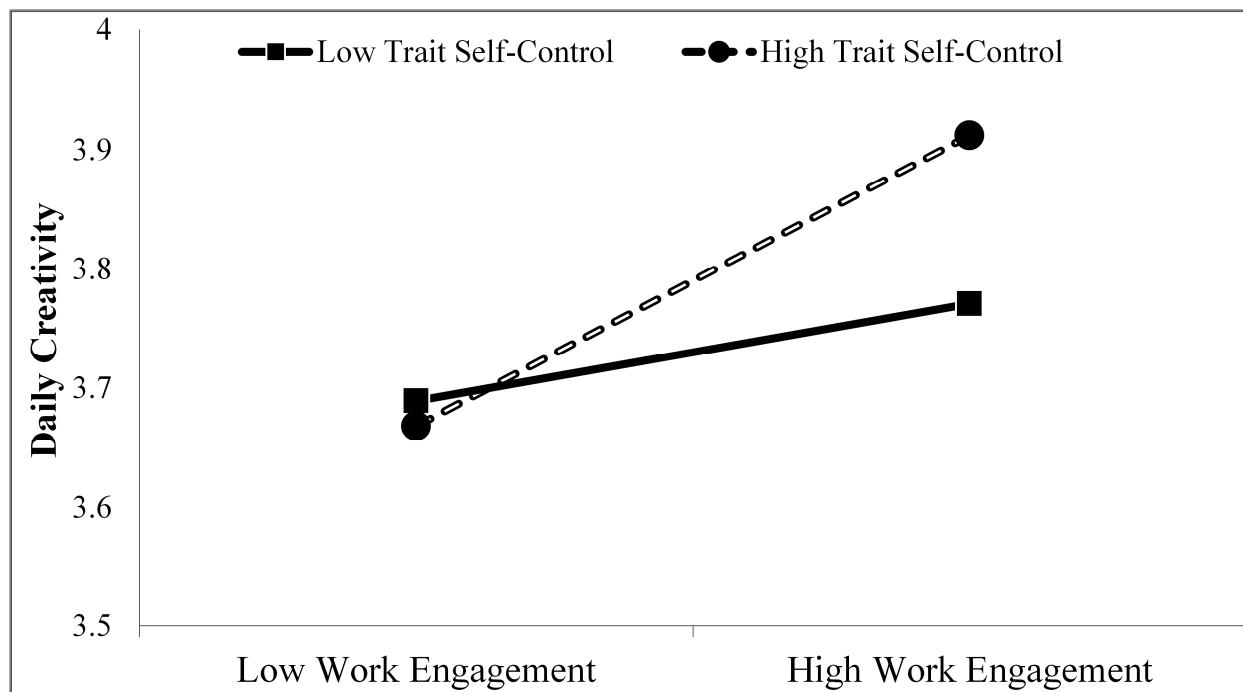
Post Hoc Analyses: Moderated Effects of Work Engagement^a

Predictor	Criterion: Daily Creativity		
	<i>B</i>	s.e.	<i>t</i>
Intercept (<i>b</i> ₀₀)	3.76**	0.05	71.33**
<i>Level 2 Predictor</i>			
Trait Self-Control (<i>b</i> ₀₁)	0.06	0.09	0.65
<i>Level 1 Predictors</i>			
State Positive Affect (<i>b</i> ₁₀)	0.02	0.03	0.44
State Negative Affect (<i>b</i> ₂₀)	0.01	0.03	0.66
Daily Work Engagement (<i>b</i> ₃₀)	0.16	0.06	2.87*
<i>Cross Level Predictor</i>			
Work Engagement X Self-Control	0.16	0.07	2.28*

^a All level 1 predictors were centered at persons' means; N = 485. * *p* < .05, ** *p* < .01.

Figure 6

Moderating Effects of Trait Self-Control



Subordinates' Perspective on Helping

Although not a formal part of my dissertation model, I also looked at the effects of reactive task and personal helping on followers' perceptions of leader supportiveness. If leaders respond to employee requests for help on a given day, than subordinates ought to rate these leaders as more supportive. I measured leader supportiveness with three items adapted from the Leader Behavior Description Questionnaire (Stogdill, Goode, & Day, 1962). Subordinates indicated their agreement (1 = "Strongly Disagree" to 5 = "Strongly Agree") to the following three items every afternoon: "Today, Jane Doe showed concern for work group members," "Today, Jane Doe was friendly and approachable to work group members," "Today, Jane Doe looked out for the personal welfare of group members." Average internal reliability was $\alpha = 0.91$. Because subordinate-rated supportiveness and work engagement were highly correlated ($r = .77$), I controlled for leaders' work engagement when examining the effects of reactive helping on leader supportiveness. Controlling for daily work engagement, reactive task-related helping had a positive main effect on ratings of leader supportiveness ($B = 0.06, p < .05$).

Surprisingly, personal reactive helping did not have a main effect on ratings of leader supportiveness. As Table 28 shows, the coefficient of personal helping had a negative sign. This prompted me to examine the interactive effects of task and personal reactive helping on ratings of daily leader supportiveness. I centered task and personal reactive helping at the person level and then computed an interaction term for each day. I found that task and personal reactive helping interacted such that task-related reactive helping had a stronger effect on daily ratings of leader supportiveness on days when leaders engaged in low (vs. high) personal reactive helping. These findings are suggestive of the fact that personal helping episodes may consume other leader resources that diminish the value of task-related reactive helping to subordinates. For

example, helping a lot with both task and personal problems may diminish the quality of the help given to subordinates. The results of the regressions are shown in Tables 28 and 29, and the interaction graph in Figure 7.

Table 28

Post Hoc Analyses: Subordinate Reactions to Leader Helping^a

Predictor	Criterion: Daily Leader Supportiveness		
	B	s.e.	t
Intercept (b ₀₀)	4.06**	0.07	56.93**
Task Related Reactive Helping (b ₁₀)	0.06	0.02	2.95*
Personal Reactive Helping (b ₂₀)	-0.03	0.04	-0.78
Daily Work Engagement (b ₃₀)	0.81	0.06	13.52**

^aAll level 1 predictors were centered at persons' means; N at level 1 = 380 *; N at level 2

= 40. p <.05, ** p < .01.

Table 29

Post Hoc Analyses: Interactive Effects of Helping on Ratings of Supportiveness^a

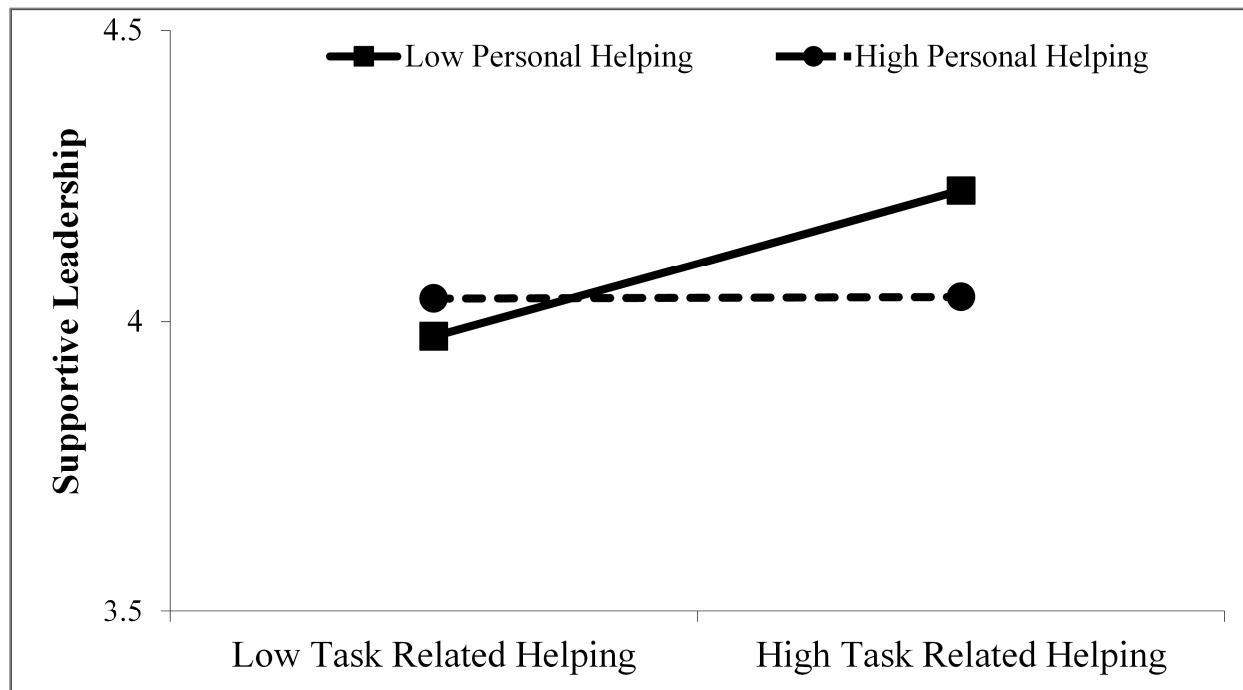
Predictor	Criterion: Daily Leader Supportiveness		
	B	s.e.	t
Intercept (b ₀₀)	4.07**	0.07	59.97**
Task Related Reactive Helping (b ₁₀)	0.05	0.02	2.60*
Personal Reactive Helping (b ₂₀)	-0.03	0.04	-0.65
Daily Work Engagement (b ₃₀)	0.79	0.06	13.17**
Task X Personal Helping (b ₄₀)	-0.05	0.02	-2.97*

^aAll level 1 predictors were centered at persons' means, N at level 1 = 380, N at level 2

= 40. *p <.05, ** p < .01.

Figure 7

Interactive Effects of Both Types of Helping



Summary of Post Hoc Findings

These post hoc analyses showed that personal reactive helping is associated with an increase in depletion, controlling for several theory-informed variables (state affect, prosocial impact, time, and coworker interactions). This effect is weaker for leaders high in job experience and for leaders high in helping motivation. Task-related reactive helping is replenishing for leaders low in job experience, but depleting for leaders high in job experience. Depletion, on the other hand, has a negative effect on self-ratings of daily work engagement. This negative association is weakened when prosocial impact of personal reactive helping is high (vs. low).

Furthermore, daily work engagement is positively related to daily creativity as rated by followers and it marginally mediates the effects of depletion on daily creativity. The effect of daily work engagement on creativity rated by subordinates is stronger for people who are high

(vs. low) in trait self-control. Finally, I examined subordinate ratings of leader supportiveness. I found that reactive task-related helping contributed to subordinate perceptions of leader supportiveness. Performance of personal helping, on the other hand, detracted from these perceptions. More specifically, task-related reactive helping was associated with perceptions of leader supportiveness only on days when leaders performed little personal reactive helping. This finding may suggest that in addition to self-regulatory resources, personal helping may also consume other important resources.

DISCUSSION

Most of the leadership research has taken a top-down approach to leader-follower interactions by focusing mostly on how leader behavior affects followers. Leaders, however, spend considerable time in contact with their subordinates and respond often to their requests for help. Yet, little is known about how responding to help requests affects leaders' ability to self-regulate at work. Informed by Ego Depletion Theory, the purpose of this study was to examine the effects of task-related and personal reactive helping on leaders' self-regulatory resources and subsequent behavior. The main premise of this study was that responding to follower help requests consumes self-regulatory resources, which subsequently impairs leaders' work engagement and creativity. To empirically test the research questions proposed in this dissertation, I conducted an experience sampling study and collected data from 77 leaders and up to five of their subordinates over three work weeks. In the discussion of this study I first overview the main findings, focusing primarily on the post-hoc analyses. I then discuss strengths, limitations, and ideas for future research.

Summary of Findings

As I previously reviewed in the results section, the hypotheses that I originally proposed to test in this dissertation were not supported. These null findings may have occurred for theoretical or empirical reasons. With regards to theory, Ego Depletion Theory has predominantly been tested in laboratory settings where participants' self-regulatory resources are measured right after they participated in a resource-intensive experiment. It is possible that self-regulatory resources fluctuate rapidly within person and as a result depletion of self-regulatory resources may be best measured right after a helping event. In this study, however, I was not able to look at individual helping events. Rather, I looked at the totality of helping events that

occurred in a given day and their impact on leaders' depletion of self-regulatory resources as measured at the end of the work day. Arguably, leaders are exposed to a host of daily work activities that may consume as well as generate resources and not examining helping right after it occurred (e.g., at the event level) may have masked the true association between reactive helping and depletion of self-regulatory resources. On the other hand, I did find that both task-related and personal reactive helping consume resources for certain groups of leaders. For example, in post-hoc analyses I found that personal reactive helping is depleting for leaders low in job experience and for leaders high in job experience. The way I originally tested the main effects of reactive helping on depletion, therefore, may represent conservative tests of Ego Depletion Theory in a work context.

With regards to empirical reasons for the null effects, it is possible that control variables (e.g., confounds, contaminants, suppressors), which affect the dependent variable and/or the independent variables may have interfered and masked the true associations examined here. For these reasons, I drew on theory and prior research to select a number of control variables shown to affect the dependent variable and/or the independent variables. I retested all hypotheses with these new regression models in post hoc analyses and found support for several of them. I review these findings in the subsequent sections.

Reactive Helping

The primary question that I sought to address in this dissertation is whether task and personal reactive helping deplete leaders' self-regulatory resources. Results from this study suggest that personal reactive helping had a main effect on state depletion. This effect was unique to personal helping and independent of several control variables such as affect and perceived impact. The effects of personal reactive helping on depletion, however, were weaker

for leader high in prosocial motivation. These findings are consistent with propositions by Ego Depletion Theory. Ego Depletion theory posits that sensitive and uncomfortable social interactions deplete resources, which dovetails well with the main effect of personal reactive helping on depletion. Furthermore, this theory also suggests that motivation to achieve a social goal moderates depletion. Prosocial motivation coincides with a heightened motivation to benefit others (Grant & Berg, 2011), and was found to buffer the depleting effects of personal reactive helping.

The findings for task-related reactive helping were more complicated. Results suggested that task related reactive helping was associated with an increase in depletion for leaders who were high (vs. low) in job experience. In contrast, task-related reactive helping was associated with a decrease in depletion for leaders who were low (vs. high) in job experience. Thus, helping with task-related problems is depleting for leaders with more experience in a particular job but is replenishing for leaders with less experience. These findings are inconsistent with predictions by Ego Depletion Theory.

More specifically, Ego Depletion Theory suggests that experience with a particular activity renders that activity less depleting over time (Muraven, 2010; Muraven et al., 1998). According to this theory, self-control operates like a muscle and repeated exposure to an activity ought to render this muscle less vulnerable to depletion. The findings of this dissertation, however, challenge this theoretical assumption. In contrast to predictions by Ego Depletion Theory, I found that leaders with more job experience are depleted even more by reactive task-related helping and that leaders with less job experience are in fact replenished rather than depleted by task-related reactive helping.

There are several potential explanations for these findings. In terms of understanding the depleting effects for leaders with more job experience, it may be that experienced leaders resent having to repeatedly help with the same task-related problems. They may expect their subordinates to have accumulated the necessary know-how to deal with task-related issues. They may also derive less satisfaction from tackling issues that they have addressed before. Thus, task-related helping episodes may be less engaging and interesting for experienced leaders. Managing feelings of resentment and frustration may render helping with task-related issues even more depleting for experienced leaders. The absence of data to properly examine these explanatory mechanisms, however, calls for future research that explores these possibilities.

In terms of leaders new to their job (e.g., low in job experience), they may be replenished by task-related reactive helping for two main reasons. First, when a leader who has not been on the job for long is approached for help with task-related problems by subordinates, that leader is likely to experience self-affirmation as a leader in that new environment. Theoretical and empirical work on Ego Depletion Theory suggests that self-affirmation is energizing (Lilius, 2012; Schmeichel & Vohs, 2009). Thus, even though engaging in task-relating helping may consume resources, the experience of affirmation as a leader may more than offset depletion and energize new leaders.

Task-related helping may be energizing also because these events represent interesting learning opportunities for leaders who are new on the job. By helping a subordinate solve a work problem, leaders may acquire a new understanding of the task, subordinates' skills, or the organization. Indeed, there is some experimental evidence that engaging in an interesting task replenishes resources even when the task is complex and requires effort (Thoman, Smith, & Silvia, 2011). Whether self-affirmation or learning are explanatory mechanism for the

replenishing effects of task-related helping remain empirical questions that ought to be examined in the future.

With regards to other activities that consume resources, I also found a main effect of daily interactions on state depletion. Leaders reported an increase in state depletion on days when they interacted with their subordinates more than their average. This finding is consistent with arguments by Ego Depletion Theory that demanding interactions consume resources (Finkel et al., 2006). Although the measure that I used to assess interactions does not distinguish between different types of leader-follower interactions, it is safe to assume that most leader-follower interactions are work-related rather than leisurely in nature and ought to consume resources.

Outcomes of Depletion

One of the main predictions of Ego Depletion Theory is that depletion of self-regulatory resources due to an activity impairs performance on other activities that require similar resources. Work engagement and creativity are work behaviors likely to be affected by depletion of self-regulatory resources. Consistent with expectations, I found that depletion had a negative effect on daily work engagement, but this effect was weakened when prosocial impact of personal reactive helping was high (vs. low). This is because prosocial impact is a positive affective event likely to replenish resources and to buffer the negative effects of depletion (Lilius, 2012; Sonnentag & Grant, 2012).

Although I did not find a main effect of depletion on daily creativity, results suggested that creativity is a resource intensive process. For example, work engagement was positively related to daily creativity and partially mediated the effect of depletion on daily creativity. Furthermore, the effect of daily work engagement on creativity was stronger for leaders high in trait self-control. The examination of daily creativity as a resources intensive process, however,

is a relatively new idea in the management research and future studies ought to replicate these results in different contexts. For example, the linkage between resources and creativity may be more relevant in occupations where creativity is particularly important such as in product development or in marketing.

Subordinates' Perspective

Although not a focal part of this dissertation, I was also interested in examining subordinate reactions to leader reactive helping. In order to do so, I collected subordinate daily ratings of leader supportiveness. Subordinates seemed to appreciate task-related reactive helping. More specifically, daily task-related reactive helping contributed positively to subordinate perceptions of leader supportiveness. Surprisingly, however, these effects were weakened when leaders also performed high personal reactive helping. Personal reactive helping, therefore, may be associated with other costs for the leader. Perhaps the quality of helping diminishes when leaders help a lot with both task and personal problems. This may in turn reduce the benefit that subordinates derive from task-related helping.

In summary, the findings of this dissertation paint a rather complex picture of the costs and benefits of leader reactive helping. On one hand, personal reactive helping was associated with an increase in depletion of self-control resources. On the other hand, prosocial impact of personal reactive helping buffered the negative effect of depletion on work engagement. Thus, although personal reactive helping is costly, the prosocial impact of personal helping seems to offset its costs. Similarly, although task-related reactive helping was detrimental for leaders who had been on the job for a longer time, it energized leaders who were less experienced. There is a need for more research that explores the underlying mechanisms for the depleting and replenishing effects of task-related helping.

Strengths, Limitations, and Future Research

This dissertation has several strengths. First, its focus on reactive helping addresses a limitation in existing research. Organizational research has predominantly conceptualized helping as a proactive behavior, and the general consensus in this literature is that proactive behavior has positive effects for the actor, recipient, and the organization (Grant & Ashford, 2008). Many forms of proactive behavior, however, often necessitate a reactive behavior by the person they target. Reactive helping, for example occurs in response to proactive help-seeking, defined as acts of asking others for assistance, information, advice, and support (D. A. Hofmann, Z. Lei, & A. M. Grant, 2009a). The helping literature has not specifically focused on reactive helping. This is surprising because as much as 75-90% of all help in organizations is purported to be in response to a direct request from another person (Grant & Hofmann, 2011). Hence, most helping is reactive in nature. Examining the effects of reactive helping on the helper is relevant particularly in light of arguments by Ego Depletion Theory that helping consumes resources and may be detrimental to the helper (Gailliot, 2010).

The second strength of this study is its focus on leader outcomes. Responding to help requests with both task and personal problems tends to fall within the scope of leader responsibilities (Morgeson et al., 2010; Toegel, Kilduff, & Anand, 2012; Yukl, 2010). For example, in offering problem solving advice to managers, Yukl (2010) wrote: “If a person’s performance is being affected by personal problems (e.g., family problems, financial problems, substance abuse) be prepared to offer assistance...” (Yukl, 2010, p.133). Despite evidence that leaders spend considerable time responding to requests for help with personal and task related problems (Kaplan & Cowen, 1981), we know surprisingly little about how reactive helping

affects leaders. This dissertation shows that responding to help requests with personal and task-related issues has consequences for leaders' regulatory resources and other work behaviors.

Another strength of this dissertation is the study design. This research employed multiple sources of data to capture discrete experiences at work over three work weeks. I measured demographics and between individual differences approximately a week prior to the start of the daily surveys. I then surveyed participants over a period of 15 consecutive working days. Moreover, I was able to measure variables at different times each day. I measured leaders' affect and state depletion in the morning, which allowed me to test whether daily helping behaviors were associated with a change in depletion that was independent of affect. I also measured daily ratings of leaders' work engagement and creativity from their subordinates. This approach provides a more robust test of the study hypotheses while minimizing common method bias as a potential explanation for my findings.

Despite these strengths, this study has several limitations that should be noted. First, this research relied on self-reported measures of task and personal helping events. Self-reported measures are subject to recall and memory biases and are not perfect measures of their underlying constructs. Some of these concerns were mitigated by the fact that leaders responded to questions about reactive helping every day. Their ability to recall what happened that day at work is unlikely to have been markedly affected by recall and memory biases. Furthermore, person-centered HLM analyses effectively control for between-person differences (e.g., response desirability) that may otherwise confound relations among daily variables.

A second limitation of this study involves the manner in which the helping behaviors were rated. Leaders indicated the frequency with which they performed reactive task and personal helping. This approach did not capture the actual nature of helping episodes. For

example, I did not collect data on how long the helping episodes took, or whether leaders helped one subordinate several times, or several subordinates only once a day. These nuances are important and may have confounded some of the findings of this dissertation. Given the nature of the sample, however, I was constrained in the number of items that I could measure each day. The participants were busy leaders who may have refused to participate if the surveys were long and burdensome. Future research that discriminates between different types of helping events would shed further light onto the findings reported here.

A third limitation of this study has to do with data collected from subordinates. Participation in this study was voluntary and both leaders and subordinates could quit at any time if they so decided. In addition, all participants were assured that their data were confidential. However, it is possible that subordinates felt obligated to participate or that they doubted that their responses were confidential. This may have inflated their ratings of leaders' daily work engagement and creativity. However, this does not seem to be the case when one compares leader self-ratings with subordinate ratings of the same variables. For example, the average of daily work engagement self-rated by leaders was very similar to the daily average of leader daily work engagement rated by subordinates (3.86 vs. 3.88 respectively). Similarly, the average daily creativity self-rated by leaders was very similar to leader daily creativity rated by subordinates (3.68 vs. 3.88).

A fourth limitation is that some of the significant findings derived in the post-hoc analyses of this study are sensitive to the inclusion of multiple control variables in the HLM regressions. Although I based the selection of the control variables on prior theory and research, it is possible, for example that the main effect of personal reactive helping on depletion may not replicate in other samples. It is worth noting, however, that the moderated effects of reactive

helping hold even when no controls are included in the HLM regressions. Thus, both types of helping are depleting for specific groups of leaders: task-related helping remains depleting for leaders high in job experience, whereas personal helping remains depleting for leaders low in job experience.

In addition to the above methodological limitations, this study has several conceptual limitations. First, only task-related and personal reactive helping behaviors were assessed. It is unclear whether proactive helping would have had the same effects on leaders' self-regulatory resources. Future research ought to examine the effects of reactive helping relative to proactive helping in terms of their effects on self-regulatory resources.

Second, I only focused on creativity and work engagement as leader behaviors in this study. The selection of these variables was informed by theoretical arguments that both behaviors require resources. However, it is likely that other leader behaviors may be vulnerable to depletion. For example, leaders' decision making quality may be affected by depletion of self-regulatory resources. Future research ought to examine such other outcomes.

Another conceptual limitation was the moderators examined in this study. The findings illustrated that helping role perceptions did not moderate the effects of reactive helping on depletion, but that prosocial motivation and job experience did. It is possible that other between-individual differences may either amplify or buffer the effects of reactive helping on depletion. For example, leaders' need for autonomy, competence, and relatedness may moderate the extent to which helping episodes affect leaders both at the between and within person level. For example, leaders high in need for relatedness and competence may be energized by both types of helping, whereas leaders high in autonomy may experience more depletion. These research questions remain to be investigated in the future.

Conclusion and Implications

This study offers several contributions to the management literature, which I highlight in this section. First, this research acknowledges that responding to help request by subordinates is a daily activity for leaders. For example, my results suggested that leaders respond to help requests with task issues a little more than once a day and with personal requests about once a day. Responding to help requests has implications for leaders, subordinates, and the organizations.

Leaders ought to be aware of the effects that reactive helping has on their daily self-regulatory resources. To the extent possible, leaders can then use that knowledge to properly manage help requests. For example, leaders can decide to help with personal problems just before lunch break because workday breaks help recover depleted resources (Troughakos, Beal, Green, & Weiss, 2008). Scheduling times when subordinates can approach leaders with help requests or when leaders agree to help may not always be feasible. For instance, some task and personal problems are time sensitive and require immediate attention. In such situations subordinates may play a more important role in alleviating the depleting effects of reactive helping. For example, my results suggested that prosocial impact of task and personal helping played an important role in replenishing self-regulatory resources and in buffering the negative effects of depletion on other work activities. It may be beneficial for organization to promote a culture where subordinates are encouraged to express gratitude when they receive help from leaders. Perceptions of prosocial impact are likely to be reinforced in such instances and the depleting effects of reactive helping may be lessened or even offset.

This study identified a set of between individual differences that moderate the extent to which helping episodes affected self-regulatory resources. For example, leaders high in prosocial

motivation were not as affected by personal problems as were leaders low in prosocial motivation. Similarly, leaders low in job experience were energized by task episodes, but were more depleted by personal helping episodes. On the other hand, experienced leaders were more depleted by task-related helping but less by personal helping. This information could be incorporated in training programs that educate leaders about the costs of helping behaviors. For example, in orientation trainings for new leaders organizations may share information about the costs of helping and may even discourage new leaders from helping with personal problems. Although refraining from helping may not always be feasible, being aware about the costs of helping may improve leaders' ability to self-regulate at work.

The findings as well as the limitations of this dissertation represent opportunities for future research. As previously mentioned it is unclear why task-related helping acts are energizing for inexperienced leaders but depleting for experienced leaders. Future research should seek to identify meaningful and theoretically driven mediators that explain these processes. Similarly, future research should examine how other leader-follower interactions (e.g., follower expressions of voice, information sharing etc.) affect leaders' self-regulatory resources and whether leader-follower relationship quality moderates these effects. In conclusion, this dissertation is only the first step in examining how leader-follower interactions affect leader's self-regulation at work. It is my hope that this study motivates future work in the area of leader self-regulation.

APPENDICES

APPENDIX A

Table 30

HLM Equations Testing Hypotheses

Hypothesis	Equation
Hypothesis 1, 2, 3	Level 1: $\text{State Depletion (afternoon)}_{ij} = \beta_{0j} + \beta_{1j}(\text{Morning Depletion}_{ij}) + \beta_{2j}(\text{Task-Related Helping}_{ij}) + \beta_{3j}(\text{Personal Helping}_{ij}) + r_{ij}$ Level 2: $\beta_{ij} = \gamma_{i0} + U_{ij}$
Hypothesis 4a,b	Level 1: $\text{State Depletion (afternoon)}_{ij} = \beta_{0j} + \beta_{1j}(\text{Morning Depletion}_{ij}) + \beta_{2j}(\text{Task-Related Helping}_{ij}) + \beta_{3j}(\text{Personal Helping}_{ij}) + r_{ij}$ Level 2: $\beta_{0j} = \gamma_{00} + \gamma_{01}(\text{Prosocial Motivation}) + U_{0j}$ $\beta_{1j} = \gamma_{10} + U_{1j}$ $\beta_{2j} = \gamma_{20} + \gamma_{21}(\text{Prosocial Motivation}) + U_{ij}$ $\beta_{3j} = \gamma_{30} + \gamma_{31}(\text{Prosocial Motivation}) + U_{ij}$
Hypothesis 5a,b	Level 1: $\text{State Depletion (afternoon)}_{ij} = \beta_{0j} + \beta_{1j}(\text{Morning Depletion}_{ij}) + \beta_{2j}(\text{Task-Related Helping}_{ij}) + \beta_{3j}(\text{Personal Helping}_{ij}) + r_{ij}$ Level 2: $\beta_{0j} = \gamma_{00} + \gamma_{01}(\text{Task-Related Helping Breadth}) + \gamma_{02}(\text{Personal Helping Breadth}) + U_{0j}$ $\beta_{1j} = \gamma_{10} + U_{1j}$ $\beta_{2j} = \gamma_{20} + \gamma_{21}(\text{Task-Related Helping Breadth}) + U_{ij}$ $\beta_{3j} = \gamma_{30} + \gamma_{31}(\text{Personal Helping Breadth}) + U_{ij}$

Table 30 (cont'd)

Hypothesis 6a,b	Level 1: $\text{State Depletion (afternoon)}_{ij} = \beta_{0j} + \beta_{1j}(\text{Morning Depletion}_{ij}) + \beta_{2j}(\text{Task-Related Helping}_{ij}) + \beta_{3j}(\text{Personal Helping}_{ij}) + r_{ij}$ Level 2: $\beta_{0j} = \gamma_{00} + \gamma_{01}(\text{Task-Related Helping Efficacy}) + \gamma_{02}(\text{Personal Helping Efficacy}) + U_{0j}$ $\beta_{1j} = \gamma_{10} + U_{1j}$ $\beta_{2j} = \gamma_{20} + \gamma_{21}(\text{Task-Related Helping Efficacy}) + U_{2j}$ $\beta_{3j} = \gamma_{30} + \gamma_{31}(\text{Personal Helping Efficacy}) + U_{3j}$
Hypothesis 7	Level 1: $\text{Work Engagement}_{ij} = \beta_{0j} + \beta_{1j}(\text{Afternoon Depletion}_{ij}) + r_{ij}$
Hypothesis 8	Level 1: $\text{Creativity}_{ij} = \beta_{0j} + \beta_{1j}(\text{Afternoon Depletion}_{ij}) + \beta_{2j}(\text{State Positive Affect}_{ij}) + \beta_{3j}(\text{State Negative Affect}_{ij}) + r_{ij}$ Level 2: $\beta_{ij} = \gamma_{i0} + U_{ij}$
Hypothesis 9a, 10a	Level 1: $\text{Work Engagement}_{ij} = \beta_{0j} + \beta_{1j}(\text{Afternoon Depletion}_{ij}) + \beta_{2j}(\text{Task-Related Helping}_{ij}) + \beta_{3j}(\text{Personal Helping}_{ij}) + r_{ij}$ Level 2: $\beta_{ij} = \gamma_{i0} + U_{ij}$
Hypothesis 9b, 10b	Level 1: $\text{Creativity}_{ij} = \beta_{0j} + \beta_{1j}(\text{Afternoon Depletion}_{ij}) + \beta_{2j}(\text{Task-Related Helping}_{ij}) + \beta_{3j}(\text{Personal Helping}_{ij}) + \beta_{4j}(\text{State Positive Affect}_{ij}) + \beta_{5j}(\text{State Negative Affect}_{ij}) + r_{ij}$ Level 2: $\beta_{ij} = \gamma_{i0} + U_{ij}$

Table 30 (cont'd)

Hypothesis 11a	Level 1: $\text{Work Engagement}_{ij} = \beta_{0j} + \beta_{1j}(\text{Afternoon Depletion}_{ij}) + \beta_{2j}(\text{Perceived Prosocial Impact of Task-Related Helping}) + \beta_{3j}(\text{Perceived Prosocial Impact of Task-Related Helping} * \text{Afternoon Depletion}_{ij}) + r_{1j}$ Level 2: $\beta_{ij} = \gamma_{i0} + U_{ij}$
Hypothesis 11b	Level 1: $\text{Creativity}_{ij} = \beta_{0j} + \beta_{1j}(\text{Afternoon Depletion}_{ij}) + \beta_{2j}(\text{Perceived Prosocial Impact of Task Related Helping}) + \beta_{3j}(\text{Perceived Prosocial Impact of Task Related Helping} * \text{Afternoon Depletion}_{ij}) + \beta_{4j}(\text{State Positive Affect}_{ij}) + \beta_{5j}(\text{State Negative Affect}_{ij}) + r_{1j}$ Level 2: $\beta_{ij} = \gamma_{i0} + U_{ij}$
Hypothesis 12a	Level 1: $\text{Work Engagement}_{ij} = \beta_{0j} + \beta_{1j}(\text{Afternoon Depletion}_{ij}) + \beta_{2j}(\text{Perceived Prosocial Impact of Personal Helping}) + \beta_{3j}(\text{Perceived Prosocial Impact of Personal Helping} * \text{Afternoon Depletion}_{ij}) + r_{1j}$ Level 2: $\beta_{ij} = \gamma_{i0} + U_{ij}$
Hypothesis 12b	Level 1: $\text{Creativity}_{ij} = \beta_{0j} + \beta_{1j}(\text{Afternoon Depletion}_{ij}) + \beta_{2j}(\text{Perceived Prosocial Impact of Personal Helping}) + \beta_{3j}(\text{Perceived Prosocial Impact of Personal Helping} * \text{Afternoon Depletion}_{ij}) + \beta_{4j}(\text{State Positive Affect}_{ij}) + \beta_{5j}(\text{State Negative Affect}_{ij}) + r_{1j}$ Level 2: $\beta_{ij} = \gamma_{i0} + U_{ij}$

Table 30 (cont'd)

Hypothesis 13	Level 1: $\text{Work Engagement}_{ij} = \beta_{0j} + \beta_{1j}(\text{Afternoon Depletion}_{ij}) + r_{ij}$ Level 2: $\beta_{0j} = \gamma_{00} + \gamma_{01}(\text{Trait Self-Control}) + U_{0j}$ $\beta_{1j} = \gamma_{10} + \gamma_{11}(\text{Trait Self-Control}) + U_{1j}$
Hypothesis 14	Level 1: $\text{Creativity}_{ij} = \beta_{0j} + \beta_{1j}(\text{Afternoon Depletion}_{ij}) + \beta_{2j}(\text{State Positive Affect}_{ij}) + \beta_{3j}(\text{State Negative Affect}_{ij}) + r_{ij}$ Level 2: $\beta_{0j} = \gamma_{00} + \gamma_{01}(\text{Trait Self-Control}) + U_{0j}$ $\beta_{1j} = \gamma_{10} + \gamma_{11}(\text{Trait Self-Control}) + U_{1j}$

APPENDIX B

Table 31

Summary of Hypotheses

Hypotheses

Hypothesis 1: Reactive task-related helping will be positively associated with state depletion, controlling for morning state depletion.

Hypothesis 2: Reactive personal helping will be positively associated with state depletion, controlling for morning state depletion.

Hypothesis 3: Reactive personal helping will be more depleting than task-related helping, controlling for morning state depletion.

Hypothesis 4: Prosocial motivation will have a cross-level moderating effect on the relation between reactive helping and depletion such that a) task-related helping and b) personal helping will be less depleting for high versus low prosocial motivation.

Hypothesis 5a: Task-related helping breadth will have a cross-level moderating effect on the relation between task-related helping and state depletion such that the relation will be stronger for high versus low task-related helping breadth.

Hypothesis 5b: Personal helping breadth will have a cross-level moderating effect on the relation between personal helping and state depletion such that the relation will be stronger for high versus low personal helping breadth.

Hypothesis 6a: Task-related helping efficacy will have a cross-level moderating effect on the relation between task-related helping and state depletion such that the relation will be weaker for high versus low task-related helping efficacy.

Hypothesis 6b: Personal helping efficacy will have a cross-level moderating effect on the relation between personal helping and state depletion such that the relation will be weaker for high versus low personal helping efficacy.

Table 31 (cont'd)

Hypothesis 7: State depletion will be negatively related to daily work engagement.

Hypothesis 8: State depletion will be negatively related to daily creativity.

Hypothesis 9: State depletion will mediate the effects of task-related helping on a) work engagement, and b) creativity.

Hypothesis 10: State depletion will mediate the effects of personal helping on a) work engagement, and b) creativity.

Hypothesis 11: Perceived prosocial impact of task-related helping will moderate the effect of state depletion on a) work engagement and b) creativity such that these relations will be weaker when perceived prosocial impact of task-related helping is high versus low.

Hypothesis 12: Perceived prosocial impact of personal helping will moderate the effect of state depletion on a) work engagement and b) creativity such that these relations will be weaker when perceived prosocial impact of personal helping is high versus low.

Hypothesis 13: The negative association between state depletion and daily work engagement will be weaker for leaders who are high versus low in trait-state control.

Hypothesis 14: The negative association between state depletion and daily creativity will be weaker for leaders who are high versus low in trait-state control.

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