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I, Daniele A Bologna, hereby submit this original work as part of the requirements for the degree of Doctor of Philosophy in Psychology.

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Role Ambiguity in the Face of Incongruent Demands: A Dynamic Role Theory Perspective

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Role Ambiguity in the Face of Incongruent Demands: A Dynamic Role Theory Perspective

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by

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Abstract

Management of job demands is central to the employee experience. *Job demands* refer to physical, psychological, social, or organizational aspects of a job that necessitate sustained physical or mental effort and are, as a result, associated with physiological or psychological costs. In regards to well-being, job demands are associated with psychological costs, which in turn produce higher levels of job burnout and reduced employee engagement. Though much is known about the basic relationship between job demands and well-being, job demands are largely viewed as predictable in nature. Due to this assumption, it is unknown whether employees possess accurate assessments of pending demands or whether such accurate knowledge affords psychological benefits. Through the lens of role theory, the current study investigated the impact of congruencies and discrepancies between expected demands and demands actually experienced at work on employee engagement and emotional exhaustion, using day-level role ambiguity as a mediator. Ninety-four full-time employees from various industries and occupations completed two surveys per day for three weeks with an average of 10.7 matched surveys per employee, leading to a final sample of 1,004 observations. Findings suggest that employees do experience differences between expected demands and the level of demands actually experienced, with 46.6% being inaccurate in their estimates. Polynomial regression analyses revealed that incongruent demands did not have a relationship with day-level role ambiguity. However, post-hoc analyses reveal that discrepant relationships between expected and actual demands, or incongruent demands, may result in higher levels of emotional exhaustion. I conclude that though demand incongruence did not impact role ambiguity directly, this new construct shows promise as an understudied construct with potential for directly impacting psychological well-being.

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Management of job demands is central to the employee experience (e.g. Demerouti, Bakker, Nachreiner, & Schaufeli, 2001; Schaufeli & Bakker, 2004). An employee may work to efficiently fulfill as many demands as possible, whereas an employer may attempt to establish a work environment with similar goals in mind. *Job demands* refer to physical, psychological, social, or organizational aspects of a job that necessitate sustained physical or mental effort and are, as a result, associated with physiological or psychological costs (Demerouti et al., 2001). Examples of demands include time pressure, physical workload, and role conflict (Bakker, Demerouti, & Sanz-vergel, 2014; Demerouti et al., 2001; Schaufeli & Bakker, 2004).

Studies relating to job demands pervade the management literature (Bakker, Demerouti, & Sanz-vergel, 2014; Demerouti et al., 2001; Schaufeli & Bakker, 2004). In regards to well-being, these studies show that job demands are associated with psychological costs, which in turn produce higher levels of job burnout (Demerouti et al., 2001; Schaufeli, Bakker, & van Rhenen, 2009) and may negatively impact engagement (Crawford, LePine, & Rich, 2010; LePine, Podsakoff, & LePine, 2005). An underlying assumption of this research is that employees generally understand and can thus anticipate the level and types of job demands they will experience. Said differently, the inference is that employees enter a job situation or report to work each day with some minimal understanding of the demands they will face. Knowing or anticipating these demands may afford employees the opportunity to mentally prepare and gather the psychological, social, or environmental resources needed to meet pending demands (e.g. Bertollo, Saltarelli, & Robazza, 2009). Evidence of these types of anticipatory processes, specifically within the context of job demands, exists in several streams of research, including realistic job previews (Buckley, Fedor, Veres, Wiese, & Carraher, 1998; Earnest, Allen, &

Landis, 2011; Phillips, 1998), demand-abilities (DA) fit (Diefendorff, Greguras, & Fleenor, 2016; Edwards, Cable, Williamson, Lambert, & Shipp, 2006; Edwards & Shipp, 2007; Yu, 2012), and psychological contracts (Karagonlar, Eisenberger, & Aselage, 2016; Rousseau, 1995; Zhao, Wayne, Glibkowski, & Bravo, 2007). In each of these areas of research, employees tend to experience more positive outcomes when their expectations (e.g., of the demands of a job or the inducements associated with work) match their actual experiences.

The management literature contends that desirable outcomes, such as increased job performance, heightened organizational commitment, reduced turnover, and higher job satisfaction, ensue when perceptions of actual work experiences are consistent with the information employees were initially given (Lang, Thomas, Bliese, & Adler, 2007; Meglino, Ravlin, & DeNisi, 2000; Premack & Wanous, 1985; Rousseau, 1995; Weitz, 1956) and the employee has the resources to meet demands (Diefendorff et al., 2016). Yet, in most management and psychological studies demands are inferred to be relatively predictable in nature, such that demands at Time 1 predict some outcome(s) at Time 2 (e.g. Garrick et al., 2014; Hakanen, Schaufeli, & Ahola, 2008; Schaufeli & Bakker, 2004; Schaufeli et al., 2009). Though beneficial in developing an understanding of how perceptions of demands correlate with various outcomes, such an approach is problematic as actual demands can fluctuate significantly (Butler, Grzywacz, Bass, & Linney, 2005; Daniels, Boocock, Hartley, & Holland, 2009; Gabbay & Bukchin, 2009; Simbula, 2010; Teuchmann, Totterdell, & Parker, 1999). Demand fluctuations may make an employee's work less predictable, making decisions regarding how to allocate or when to use resources difficult for the employee to determine. That is, if demands were constant, in an extreme sense, a single demand estimation would suffice. Since two days may have

different levels of demands, the individual is forced to differentially estimate the demands of each day depending on day to day expectations.

Importantly, the nature of unexpected or unanticipated demands is bi-directional such that actual job demands can be *greater than* or *less than* anticipated. In either condition, employees may experience greater role ambiguity than those whose demands met expectations (i.e., demand congruence). Surprisingly, current models do not consider the possibility of differences in psychological experiences as a function of demand congruence. It is possible that the negative outcomes associated with job demands may partially reflect the fact that employees had not prepared appropriately (i.e., mustered the physical, cognitive, or emotional resources) for demands that were either greater or less than they anticipated. To date, however, research has not considered the level of congruence between demand expectations and actual demand experiences.

The purpose of this dissertation is to address this discrepancy. In doing so, this study offers multiple contributions to the literature. First, this study offers greater conceptual and theoretical clarity regarding the constructs and relationships of interest. In response to calls for more work investigating the impact of changes in workload throughout organizational contexts (Parker, Jimmieson, & Amiot, 2013), I develop and test a series of hypotheses regarding the relationship between demand (in)congruence and employee well-being, as captured by engagement and exhaustion (Feldt et al., 2013). Though the negative relationship between job demands and desirable outcomes are known (Crawford et al., 2010; Demerouti et al., 2001; LePine et al, 2005; Schaufeli, Bakker, & van Rhenen, 2009), I add to the long history of demand research by examining the direct impact of demand expectations and what effects discrepancies between demand expectations and actual demand experiences may have on the individual.

Within this framework, e*xpected demands* represent prospective beliefs or perceptions of future demand experiences while *actual demands* represent demands experienced by the individual. Further, by integrating role theory and expectation frameworks (Katz & Kahn, 1978; Thomas & Biddle, 1966) with complementary affective-motivational well-being (i.e. employee engagement and employee exhaustion), I build an understanding regarding demand congruence at the individual level of analysis as well as call for a shift in theoretical thinking and subsequent models to consider demand incongruence. Though much is known about the nature of actual job demands, little is known about the impact of demand expectations or the relationship between the two. Further adding to this conceptual and theoretical clarity, demand congruence and incongruence are introduced as potential types of role consensus and role discrepancy, respectively. As such, incongruences between demand expectations and actual demand experiences are proposed to lead to reductions in personal well-being (i.e. lower engagement, higher exhaustion) through reductions in role ambiguity. The latter, which positions role ambiguity as a mediator in this process, represents a further contribution of the study. Finally, study findings also contribute to practice in that it may be used to better understand the employee experience by focusing on how employees manage demands *as well as* demand expectations in order to maximize well-being (i.e. higher engagement, reduced exhaustion).

Demand Incongruence

Demand congruence is concerned with the *amount* of work expected, not the *content* of what a specific task set may be. As argued by Biddle (1979, p. 215), it would be difficult to consider all of the possible expectations that may be held in consensus regarding a particular role for a particular focal person. Thus, researchers may restrict the range of coverage to investigate specific role expectations. Demand congruence is therefore analyzed through generalized work

activities (Dierdorff & Rubin, 2007), where generic behaviors throughout a work period may be considered and grouped into overall demands. In the case of demand volume, the focal person enters the workday with a set of expectations regarding how much work they will have and thus how hard they will be required to work in order to fulfill role demands. These expectations, or demands, likely stem from some combination of previous experiences (Biddle, 1979). Specific sources of demand expectations may include, but are not limited to past experiences and knowledge of the job, previous conversations with coworkers, job descriptions, and observations of other organizational members in similar roles. As input from these various expectation sources are dynamic, demand expectations likely evolve and change over time. The focal person uses this information to construct a general expectation regarding the amount of demands they believe they will face during the upcoming workday. I refer to such beliefs as *demand expectations*.

From a general psychological standpoint, individuals may *expect* demands on a spectrum of low to high and these demands may be *actually experienced* on a similar spectrum (i.e. low to high). In general, demand congruence/incongruence thus includes varying degrees of; 1) high expected and high actual demands (Congruence – High Demand), 2) high expected but low actual demands (Overestimated Demands), 3) low expected but high actual demands (Underestimated Demands), and 4) low expected and low actual demands (Congruence – Low Demand). These conditions are illustrated in *Figure 1*.

Consistent with the congruence literature (e.g. Carter & Mossholder, 2015; Cole, Carter, & Zhang, 2013; Edwards & Cable, 2009; Matta, Scott, Koopman, & Conlon, 2015), it is expected that employee outcomes will vary as a function of whether there is congruence between actual and expected demands. Previous research has shown positive effects of congruence resulting in employee outcomes such as affective trust and communication (Carter &

Mossholder, 2015; Edwards & Cable, 2009). Laboratory experiments show initial support for such effects as well (Bologna, Thomas, & Sehgal, 2015). Specifically, individuals who expect to work on a task for 5-minutes, but actually work for 15-minutes experience less task engagement (Bologna, Thomas, & Sehgal, 2015). Such an incongruence between demand expectations and actual experiences likely produces ambiguity regarding the task, task instructions, and the greater role in which the individual is acting within. To further understand this phenomenon, I turn to role theory to better understand the nature of this model and its relationships.

Theoretical Framework

The phenomena of interest, demand incongruence, may be investigated through a number of theoretical lenses. For example, conservation of resources (COR) theory and the greater stress literature would argue individuals are motivated to protect their current resources and to acquire additional resources (Halbesleben, Neveu, Paustian-Underdahl, & Westman, 2014; Hobfoll, 1989). Specifically, one line of research within COR theory indicates that individuals may perceive signals that an investment of resources will lead to a higher likelihood that one's goals will be achieved, which in turn increases the perceived value of the signaled resource. Similarly, ego depletion theory (Baumeister, Bratslavsky, Muraven, & Tice, 1998) argues individuals have a limited amount of regulatory resources to exert self-control (Lin, Ma, & Johnson, 2016). Thus, while both perspectives focus on how individuals perceive their resources or make decisions in terms of how to allocate those resources, they are limited in their application to demand congruence and describe mere components of the overall process. For example, neither theory offers an explanation or framework for how underestimated and overestimated demands may differ in how they are experienced and reacted to by the individual. In contrast to those perspectives, role theory offers a much more comprehensive lens.

Role theory is concerned with human behavior and argues that role-making processes result from misunderstandings regarding what behaviors one is expected to enact in their role (Thomas & Biddle, 1966; Kahn, Wolfe, Quinn, & Snoeck, 1964). Individual behavior is molded and guided by the demands and rules set by others, by their reinforcing affirmations and disconfirmations, and by the individual's understanding of what specific behaviors and tasks are expected of them (Thomas & Biddle, 1966; Fischer, 2010). A *role* represents the perception of expected or required patterns of behavior by organizational members (Ilgen & Hollenbeck, 1991). Researchers have applied role theory extensively to investigate how individuals interpret role expectations in the workplace (Dierdorff, Rubin, & Bachrach, 2012; Graen, 1976; Katz & Kahn, 1978; Morrison, 1994). Much of the management literature utilizing role theory investigates the impact of disagreements regarding expectations between the individual of interest, referred to as the *focal person*, and others (e.g. Matta et al., 2015). In general, role theory argues that better outcomes occur, when the focal employee fulfills expectations from others or of themselves for the role they possess (Pereira, Semmer, & Elfering, 2014).

Multiple organizational stakeholders, including supervisors, subordinates, work group members, and peers may influence a focal person's behavior on the job (Kahn et al., 1964). Together, unique stakeholder motivations, including those of the focal employee's, morph into beliefs and attitudes regarding what behaviors the focal person should enact during role performance. Such expectations are time binding as they presumably form on the basis of prior experiences (Biddle, 1979). Expected behaviors are also assessed by the focal employee, whether explicitly or implicitly, into expectations regarding how hard and how long he or she will be required to work. These beliefs are referred to as *role expectations*. Further, one's job description is not the sole source for all role expectations, as these expectations are often informal and

vague, lending the focal person vulnerable to misinterpreting or misreading expectations. Role expectations may also be influenced by observing others, an individual's preconceived understandings, naturally occurring workload fluctuations, normative expectations, conversations with and instructions from others, organizational norms and culture, and by the ebb and flow of positive and negative feedback regarding previously met and unmet expectations. In contrast to role expectations, actual demands are truly experienced by the employee and may produce increases in job burnout and negatively impact employee engagement (Crawford, LePine, & Rich, 2010; Demerouti et al., 2001 LePine, Podsakoff, & LePine, 2005). Actual demands may be derived from the quantity of work, or may stem from time deadlines or interpersonal role conflicts (Bakker, Demerouti, & Sanz-vergel, 2014; Demerouti et al., 2001; Schaufeli & Bakker, 2004).

The difference between role expectations and expected job demands is primarily a manner of scope. As mentioned prior, expected job demands represent the amount of job demands an individual expects to encounter over a determined period of time. Though expected job demands fall within the conceptual space of role expectations, role expectations also include myriad other expectations unrelated to the shear amount of job demands. For example, within a role, an individual may be expected to dress or behave in a certain way depending upon the nature of the job and one's level in the organization. Alternatively, within a given role an individual may be expected to work during certain time periods and at a set location. Both of these examples include expectations of the role, but do not represent a quantifiable and expected demand.

According to role theory, when the focal person is unable to fulfill role demands, stress and uncertainty ensue (Katz & Kahn, 1978; Fischer, 2010). Differences between one's objective

(actual) and psychological (expected) environment emerge when received and processed expectations differ from actual experiences. Roles in such cases may at times become ambiguous (Dienesch & Liden, 1986). Referred to as *role ambiguity*, a focal persons' role expectations may be vague, ill defined, uncertain, or unclear (Hardy & Hardy, 1988). To date, role ambiguity is known to stem from the uncertainty employees experience in their role regarding tasks and specific behaviors (e.g. Lankau & Scandura, 2002). These expectations may manifest through external signals such as those described earlier or through internal signals, where the individual sets expectations for themselves. I expand this research by considering specific expectations regarding the volume of work and general effort employees expect to perform in comparison to the actual demand experiences; that is, *how much* they actually do compared to *how much* they expected to do.

As with much of the management literature (Beal, 2015, Ilies et al., 2016), role theory has only recently been introduced to day-level theoretical development and investigation. Preliminary evidence suggests that role expectations, role conflict, and role ambiguity may be impacted on a daily basis (e.g. Maertz & Boyar, 2011; Nohe, Michel, & Sonntag, 2014; Pereira et al., 2014; Tadić, Bakker, & Oerlemans, 2014). Historically, an individual's role has been believed to be fixed, enabling the use and implementation of static job descriptions. However, recent research has demonstrated that components of individual's roles, such as the level of role conflict and role ambiguity experienced, may fluctuate on a daily basis (Tadić, Bakker, & Oerlemans, 2014). Given the emergence of technological advancements and changes in the nature of modern work, the increased rate at which the modern work role evolves and changes is not surprising.

Within the framework of role theory, role discrepancy and role consensus provide some

understanding of the potential effects of demand incongruence on the individual. When actual experiences are inconsistent with demand expectations, such as low-high (underestimated) and high-low (overestimated), role discrepancies exist. Thus, as demand discrepancies accumulate, demand uncertainty develops (Katz & Kahn, 1978; Fischer, 2010). The larger the gap between actual experiences and demand expectations, the greater uncertainty one will have regarding work. Demand incongruence (i.e. Quadrant 2 and 3) may be viewed as a type of role discrepancy, specific to within-person demands. The anxiety, confusion, and indecision stemming from uncertainly regarding demand incongruence likely foster perceptions of role ambiguity (Kahn et al., 1964; Fischer, 2010), where the focal employee does not know what is expected of him or her on the job.

Taken together with the above discussion, demand incongruence likely serves as a source of role ambiguity (Tong, Wang, & Peng, 2014). When demands are underestimated (i.e. low-high), the employee expects little work and is met with high levels of unforeseen demands. This may include, for example, unanticipated interpersonal conflicts, tasks that are more time consuming than anticipated, new assignments with short timelines, or sudden general changes in workload. Importantly, though these are certainly types of demands, they are also associated with changes in the amount of demands experienced. Similarly, when demands are overestimated (i.e. high-low), the employee expects a high volume of work, but encounters the opposite. During the work day, the individual monitors demand completion and eventually notices, whether explicitly or implicitly, the incongruence between demand expectations and actual demand experiences. Such a discrepancy between expectations and actual experiences signals a miscalculations regarding the work role to the focal employee, thus ambiguity regarding work ensues. Therefore, demand incongruence, whether over-estimated or under-estimated, is likely to produce higher

levels of role ambiguity.

In contrast to role discrepancy, when actual experiences are consistent with demand expectations, such as in high-high and low-low conditions, *demand congruence*, a form of *role consensus,* exists. Uncertainties regarding demands are minimized as the individual experiences actual demands consistent with their expectations. As such, appropriate resources may be prepared. Indeed, demand congruence is likely associated with lower levels of uncertainty, and thus less role ambiguity for the individual. In both high-high and low-low demand congruence conditions, the individual better understands the demands they face, and as such role ambiguity is minimalized. Taken together, this suggests the following hypothesis:

> *Hypothesis 1: The more agreement (that is, the higher congruence) between expected and actual demands, the less role ambiguity the focal employee experiences.*

As shown in Figure 1, incongruent demands may be overestimated (high-low) or underestimated (low-high), both of which may be differentiated from role overload and role underload, respectively. In the case of role overload, an individual experiences stress and difficulty fulfilling role expectations, where they believe there are too many responsibilities or tasks expected of them (Bolino & Turnley, 2005; Rizzo, House, & Lirtzman, 1970). In contrast, role underload refers to insufficiently challenging demands (Hardy & Hardy, 1988). In comparison to incongruent demands, role overload and underload may be a daily experience with certain industries or specific jobs within industries notorious for perpetual occurrences of demand fluctuations. In this context it is essential to note that *expectation* is central to the proposed concepts regarding demand incongruence. It is easy to mistake a busy period (i.e. high demand or overload) or lull in workload (i.e. low demand or underload) as incongruent demands, but if these periods of extremes in workload were expected by employees they would be

considered congruent demands. Incongruent demands only arise when demands are more or less *than expected*; therefore, it is possible to experience daily role overload, or underload, and congruent demands simultaneously.

Though both overestimated and underestimated demands are expected to produce greater role ambiguity than incongruent demands (i.e. hypothesis 1), it is possible that these effects may not be equal. In both cases, once the day begins, employees experience inconsistencies with between expected and actually experienced demands. The focus here is not on low or high demands, but on the shift from low expected demands to high actual demands (i.e. underestimated demands) or high expected demands to low actual demands (i.e. overestimated demands) as well as whether this creates additional demands and subsequent ambiguity for the individual. Importantly, whatever the temporal distance between expectations and actual experiences, initial expectations remain set while actual demands shift. For example, initial expectations regarding the amount of work in a given day will not change once the day begins, as subsequent demands will represent actual experiences. The workload literature demonstrates that both low-to-high and high-to-low shifts in workload are associated with additional perceived workload for the employees (Cox-Fuenzalida, Beeler, & Sohl, 2006; Cox-Fuenzalida, Swickert, & Hittner, 2004; Matthews, 1986; Parker et al., 2013). Here, the individual begins with an understanding or expectation that demands will be low or high. Then, actual demands unfold in the inverse (low demands when expectations were high versus high demands when expectations were low). Underestimated demands begin with low demand expectations, the additionally perceived demands associated with demand incongruence will create a perceptual shift farther from the original expectations for underestimated demands than overestimated demands.

In addition to the greater overall demand incongruence from initial expectations for

underestimated than overestimated demands, the psychological experiences of each condition is notably different. As Weick (1991) noted, in circumstances difficult to comprehend, individuals are more likely to engage in some form sensemaking. When demands are overestimated, employees have time to consider their changing circumstances and subsequently adjust their resources as well as their expectations. In contrast, though underestimated demands will also experience uncertainty regarding the work to be completed, the actual high demands associated with underestimated demands do not permit the employee time for sensemaking and adjustments like those afforded with overestimated demands. Further, when demands are overestimated, the individual may experience relief that their work will not be as demanding as expected. Taken together with the aforementioned discussion of additional demands from the shift, this leads me to the following hypothesis in regards to directionality of demand incongruence:

Hypothesis 2: Role ambiguity will be higher when demands are underestimated than when demands are overestimated.

Role theory has proven useful in advancing our understanding of both engagement (Kahn 1990; 1992) and emotional exhaustion (Cordes & Doughterty, 1993). From a general perspective, reducing ambiguity is central to employee motivation with reported negative relationships between the two variables (Campbell, 2016). From a role theory perspective, engagement is the investment of the self into the work role (Crawford et al., 2010; Kahn, 1990). Kahn (1990) specifically conceptualized that individuals possess certain dimensions of themselves that they may or may not express while a work role is enacted. In cases where this energy is expressed from the preferred or ideal self, the individual is believed to be engagement in the work role. Here, the individual is able to express real identity, thoughts, and feelings (Kahn, 1990), making the self and role more aligned and the work load on the individual is

minimized. Thus, role ambiguity may have a negative impact through making investments of the self-in-role difficult. In a given role, demands present themselves and employees, in turn, apply resources to effectively alleviate outstanding demands. As argued by Dierdorff and Rubin (2007), high role ambiguity complicates the focal person's understanding regarding behavioral requirements of role enactment. When uncertainty is present regarding the work role, engagement in such a vague and ill-defined role may be difficult. Thus, the role, and by extension, where the individual with a desire to be engaged in their work role should invest themselves, becomes problematic. The individual then becomes unavailable to fully invest their self in their work, a necessary condition of engagement (Kahn, 1990). Taken in conjunction this leads me to the following hypothesis:

Hypothesis 3a: Role ambiguity will be negatively related to employee engagement.

Stress ensues when demand resolutions have uncertain outcomes (Cordes & Dougherty, 1993). Role ambiguity, specifically, has long been associated with work stress (Kahn et al., 1964; Stordeur et al., 2001). When individuals experience enduring sources of stress, they may become unable to cope with associated stressors, such as role ambiguity, leading to the manifestation of negative symptoms, such as emotional exhaustion. *Emotional exhaustion*, or the "feeling of being emotional overextended and depleted of one's emotional resources" (Maslach, 1993, 20-21), has been more connected to job stressors than other symptomatic responses (Bakker, Killmer, Siegriest, & Schaufeli, 2000; Lee & Ashforth, 1996) and is often viewed as the first step of the burnout process (Cordes & Dougherty, 1993; Halbesleben & Bowler, 2005; Lee & Ashforth, 1996). Therefore, role ambiguity may be central to exhaustion, the traditional stress variable of the burnout experience (Cordes & Daugherty, 1993). To date, role ambiguity has been associated with emotional exhaustion; however considerations of this relationship are not

typically analyzed at the day-level (Stordeur et al., 2001; Thompson, Kirk, & Brown, 2005; Wittmer & Martin, 2010). Taken together, it appears that role ambiguity, as a stressor (Crawford et al., 2010), will be associated with subsequent exhaustion, which is reflected in the following hypothesis:

Hypothesis 3b: Role ambiguity will be positively related to exhaustion.

Role theory provides a parsimonious lens through which to understand the proposed model in its entirety (see *Figure 2*). Demand incongruences, or discrepancies, serve as a source of role ambiguity for the focal employee. These ambiguities make it difficult for the individual to invest their self in work roles, leading to reductions in employee engagement. Further and simultaneously, role ambiguity leads to psychological symptom formation resulting in increases in stress and ultimately emotional exhaustion. Taken together, this leads me to the following hypothesis regarding the overall proposed model:

Hypothesis 4: Role ambiguity partially mediates the relationship between the interplay of expected and actual demands as well as engagement and exhaustion.

Method

Consistent with previous research using response surface analysis, working adults (working at least 30 hours per week) were recruited to participate in the proposed study (e.g. Matta et al., 2015). Participants were recruited using numerous techniques, such as classroom recruitment (n=35), study postings on Facebook (n=31), study postings on LinkedIn (n=13), references from agreed participants (n=6), recruitment E-mails to staff at a large Midwestern University (n=14), as well as convenience sampling or word-of-mouth (n=21). These recruitment techniques are consistent with previous research (Matta et al., 2014) and resulted in a diverse sample of 120 individuals who completed the initial survey. Of these 120 individuals, 94

completed both surveys on at least three days with an average of 10.7 matched surveys completed per individual. This resulted in 78.3% of participants completing the minimum 3 observations and a total of 1,004 observations. In addition to the 3 observations minimum, individuals with no variance across all items were removed from the data, as these respondents likely lacked motivation to effectively complete the study.

Participants came from diverse organizations and industries, permitting generalizability of findings. A sample of reported job titles include; Human Resources Business Partner, Kitchen Manager, Assistant Principal, Probation Officer, Chief Financial Officer, Teacher, Pharmacy Technician, Project Manager, Assistant Tennis Coach, Attorney, Retail Manager, Letter Carrier, Chief Estimator, Senior Academic Advisor, Vice President, and Registered Nurse. Participants were on average 36.94 years old (*SD*=11.80) and worked an average of 42.67 hours per week (*SD*=6.43). Of the final sample 44% were female and 37% had some level of responsibility in managing others. In regards to education, 21% had a high school diploma, 8% had an Associate's Degree, 32% had a Bachelor's Degree, 34% had a Master's Degree, and 6% had a Doctoral Degree (e.g. PhD, MD, or JD). With respect to race, 87% self-reported as White, 7.9% as African American or Black, 3% as Asian, and 2% self-identified under the remaining options. It is therefore fair to assert that the current sample was more educated than the general population and was slightly overrepresented by those who self-identified as White.

Using an experience sampling method (ESM), over the course of three weeks respondents completed two surveys per day. Employees were asked to answer questions at the beginning (i.e. the start of their shift, give or take an hour) and end of each day (i.e. the end of their shift, give or take an hour). The micro-structural analysis afforded by ESM increases ecological validity and reduces memory and method biases by shortening the time between

workplace experiences and participant reporting (Almeida, 2005; Beal, 2015). As demands are known to fluctuate daily (Butler et al., 2005), the violation of independence is justified. Still, the nesting of data within individuals will be controlled for statistically by centering terms around within-person averages.

Prior to the beginning of the first work week, participants completed a general questionnaire that captured gender, work experience, race, education, and leadership position (i.e. manager vs. non-manager). The mailing of links for the diary surveys was scheduled according to each employee's personal work schedule in order to allow for measurements as close as possible to actual experience; thus maximizing ecological validity of survey administration (Künel et al., 2012).

At the completion of the study, some data was missing. Though very rare, occurring in just 11 of 1,004 cases, pairwise deletion was used (e.g. Bamberger, Kluger, & Suchard, 1999; Tett & Meyer, 1993). Pairwise deletion, as opposed to listwise deletion, allows the researcher to maintain higher levels of statistical power. In addition, pairwise deletion does not require fabricating data, thus maintaining scientific integrity.

Measures

Daily Questionnaire Measures

Daily questionnaire measures were collected for every employee once before the workday began (morning) and once again at the end of the workday (evening). The specific times of administration of each survey were unique for each employee. For example, an employee working a shift from 8:00AM to 5:00PM received each survey two hours before their completion time (i.e. 7:00AM and 4:00PM, respectively) and had until 9:00AM and 6:00PM to finish each survey.

Demand Congruence was measured with adapted versions of the perceived workload measure used by Baer and colleagues (2015). This measure was derived from the consolidation of two separate 2-item measures from Rodell and Judge (2009) and Bolino and Turnley (2005). Participants provided day-level demand *expectations* in the morning and *retrospective* day-level demand experiences in the evening. For example, one morning item was "Today, my work *will require* me to work hard" corresponding to the evening item of "Today, my work *required* me to work hard". This item was measured on a 5-point Likert scale with values from 1 (Strongly disagree) to 5 (Strongly agree). Past research has reported coefficient alpha levels of .71 for this scale using retrospective evaluations (Baer et al., 2015). Coefficient α for the expected and actual demand measures in the current study were .89 and .88, respectively.

Evening Only Questionnaires

Day-level Role Ambiguity was measured with the six-item role ambiguity scale derived from Rizzo and colleagues (1970). A sample item includes, "I knew exactly what was expected of me today." Reliability has been reported using coefficient alpha values from two different samples as .78 and .81 (Rizzo et al., 1970). Coefficient α for the role ambiguity measure in the current study was .84.

Daily work engagement was assessed with a 9-item shortened version of the job engagement measure created by Rich et al. (2010) and modified by Crane, Crawford, Buckman, & LePine, Under Review). Crane et al.'s shortened version measures emotional, cognitive, and physical engagement with three items each. The process of shortening the original measure, conducted by Crane and colleagues (Under Review) was similar to that of the long-version, where two authors selected the best three items to retain based on grounding items in Kahn's (1990) original descriptions, selecting minimally redundant items, and minimizing wording

artifacts. The two authors picked the same items for physical and cognitive engagement. For emotional engagement, new items were written in response to criticisms that the long-version of emotional engagement consisted of items reflecting positive affect evaluations of one's job. Thus, the shortened measure was theoretically driven. Further, the shortened scale has shown good fit as a three-factor model (x^2[24]=83.92, CFI=.98, SRMR=.02,RMSEA=.08) with high reliabilities of each subscale; including physical engagement (α =.99), cognitive engagement (α =.91), and emotional engagement (α =.71). Response options were on a frequency scale ranging from 1 (never) to 5 (all of the time). Sample items include the prefix "while at work…" followed by "I work with high intensity" (i.e. physical engagement), "I put my feelings into my work" (i.e. emotional engagement), and "My mind is focused on the work that I do" (i.e. cognitive engagement). This short version measure demonstrated appropriate subfactor loadings as well as a reliability alpha of .95 for the overall engagement measure (Crane et al., Under Review). Thus, the three subfactors as well as the global engagement measure were investigated. All items and scales were adjusted to the day level. For example, the item "I work with high intensity" was adjusted to "today, I worked with high intensity" (i.e. evening measurement). Coefficient α for the engagement measure in the current study was .95.

Emotional Exhaustion was measured using the emotional exhaustion subscale (9-items) of the Maslach Burnout Inventory. The measure was adapted for daily exhaustion as recommended by Sonnentag (2005). A sample item includes, "I feel emotionally drained from my work". Alpha has been reported as .90 (Loera, Converso, & Viotti, 2014). Coefficient α for the exhaustion measure in the current study was .92.

Analysis

Polynomial regression with response surface analysis was the primary method used to analyze the impact of demand congruence on engagement and exhaustion. This method is superior to difference scores, as difference scores have known issues; such as limited information and decreased measure reliability (Edwards, 2001; Edwards & Parry, 1993; Shanock, Baran, Gentry, Pattison, & Heggestad, 2010). For example, differences scores would treat 5-3 and 3-1 as equal. In contrast, polynomial regression allows researchers to account for such nuances in the data. Additionally, this approach allows for a three-dimensional relationship (i.e. expected demands, actual demands, role ambiguity) to be analyzed as opposed to inappropriately using two-dimensions (Matta et al., 2014) that only consider the difference between predictor terms, negating consideration of the magnitude of each variable independently.

The data meets all of the assumptions of this method outlined by Edwards (2002), including variables of the same conceptual domain (i.e. demands), measures on the same numeric scale, as well as all of the assumptions of general regression. The basic equation I used to test the effects of demand congruence was as follows in Equation 1:

Equation 1: $$M = b_0 + b_1E + b_2A + b_3E^2 + b_4EA + b_5\square^2 + e$$

In Equation 1, "M" represents the dependent variable, "E" is expected demands, and "A" represents actual demands. As a result, dependent variables are regressed on E, A, the interaction between E and A, and the squared terms of each predictor variable (E^2 and A^2; Shancock et al., 2010). Prior to calculating the three second-order polynomial terms, "E" and "A" were mean centered to reduce nonessential multicollinearity (Aiken & West, 1991; Cronbach, 1987). Polynomial regression served as both a source of results and as input for the accompanying response surface analysis.

Response surface analysis provides a method for graphing polynomial regression results in a three-dimensional space. In particular, the slope and curvature of two lines are used for multiple analyses. One line, the "line of perfect agreement", represents the space where E and A are equal; that is, where expected and actual demands are congruent. The other line, the "line of incongruence", represents the space where E and A diverge. By investigating the slope and curvature of results compared to these two lines, I was able to interpret a multitude of relationships well beyond the explanatory power of difference scores.

As recommended by Shanock and colleagues (2010), prior to testing any hypotheses it was important to assess whether the relationship between the two demand variables indeed varied. If little discrepancy existed between the two predictors than the proposed analyzes serve little practical value as most individuals would not experience the phenomena of interest. To test this, I looked at standard score differences between the two predictor variables. Any participant with a standard score on one predictor variable that was half a standard deviation above or below the standardized score on the other predictor variable was considered to have a discrepant value (Fleenar et al., 1996; Shanock et al., 2010). As may be seen in *Figure 3*, 46.6% of the sample had values of the predictor variables that were different from each other in one direction or the other. Based on this information, it is clear that the proposed analyses include ample practical value as the data varied in the nature of the relationship of the two predictor variables.

Results

Table 1 depicts means, standard deviations, and correlations between variables of interest. Hypothesis testing methods and procedures mirror those set by previous polynomial regression with response surface analysis research (e.g. Matta et al., 2014). The results of the polynomial regression analysis may be found in Table 2. Hypothesis 1 was tested with two

separate analyses. First, to test the proposed relationship I investigated the equation b_3-b_4+b_5, such that the outcome should have been positive and significant (Cohen & Cohen, 1983; Cole et al., 2013; Edwards & Parry, 1993; Matta et al., 2014). The curvature along the incongruence line (E = -A) was negative (i.e. inverse U-shaped) and not significant (p=.601). This indicates that role ambiguity did not significantly increase as expected and actual demands differed in either direction (i.e. over- or underestimated demands). Second, to further investigate *Hypothesis 1*, I examined the peak of the response surface, or ridge. Specifically, a valley should form along the congruence line (E=A), such that role ambiguity is minimized at the point of congruence at every point along the congruence line. As may be seen in Figure 4, visual inspection of the response surface shows no valley along the congruence line; thus not supporting *Hypothesis 1*. Quantitative testing included calculating 95% bias-corrected confidence intervals for the slope (p_{11}) and intercept (p_{10}) using 10,000 bootstrapped samples (Edwards, 2002; Edwards & Parry, 1993; Matta et al., 2014). These tests revealed that the first principle axis had a slope (p_{11}) that was significantly different from 1.0, as the 95% bias-corrected bootstrap CI did not include 1.0 (-1070.862, -0.449). Further, the intercept (p_{10}) was significantly different from 0, as the 95% bias corrected bootstrap CI included 0 (-443.430, .094). Taken in combination with the curvature of the incongruence line, *Hypothesis 1* was not supported.

Much like Hypothesis 1, to test the asymmetrical incongruence effect in Hypothesis 2, two analyses were calculated. First, I investigate whether role ambiguity was higher when demands were underestimated than overestimated by calculating the lateral shift quantity (Atwater, Ostroff, Yammarino, & Fleenor, 1998; Cole et al., 2013; Matta et al., 2014). A lateral shift quantity identifies the direction as well as the magnitude of a lateral shift along the incongruence line; therefore, identifying whether underestimated or overestimated demands have

a stronger effect on role ambiguity. As predicted, the lateral shift quantity was negative, but not significant (-.21, *ns*). The equation used to calculate the lateral shift quantity is found below in Equation 2:

$$\textit{Equation 2:} \quad ([b_2 - b_1] \div [2 \times (b_3 - b_4 + b_5)])$$

Second, the slope (b_1-b_2) along the incongruence line (E=-A) was not significantly negative (t=0.307, p=ns). This indicates that role ambiguity did not decrease as one moved along the incongruence line from low expected and high actual demands (i.e. underestimated demands) to higher expected and lower actual demands (i.e. overestimated demands). Taken together, *Hypothesis 2* was not supported.

To test the relationship of role ambiguity with employee engagement (i.e. Hypothesis 3a) and emotional exhaustion (Hypothesis 3b), I regressed the dependent variable (i.e. engagement or exhaustion) on role ambiguity. The relationship between role ambiguity and engagement was significantly negative (r = -.354, p < .05), while the relationship between role ambiguity and exhaustion was significantly positive (r = .222, p < .05). As such, both *Hypothesis 3a* and *3b* were supported.

Finally, to test the indirect effect of demand congruence on engagement and burnout via role ambiguity, the block variable approach was used (Edwards & Cable, 2009). These two models were analyzed separately as two theoretical explanations were used to derive each model. To calculate the demand congruence to role ambiguity path (i.e. the α path), a block variable was created by summing the product of multiplying each of the five estimated polynomial regression coefficients with the raw data to calculate a weighted linear composite (Cole et al., 2013). The calculated block variable replaces the five quadratic terms and the standardized coefficient on the block variable serves as the path coefficient (Edwards & Cable, 2009). After

creating the block variable, I regressed the mediator (i.e. role ambiguity) on the block variable, which represented the path estimate from demand congruence to role ambiguity. Next, I regressed each dependent variable, engagement or exhaustion, on the mediating variable, role ambiguity, after controlling for the five polynomial terms (i.e. the β path). I then used the coefficients obtained from the aforementioned analyses to calculate an estimate of the indirect effects (i.e., α x β) for both outcome variables (Cole et al., 2013). Mediation was tested by bootstrapping 10,000 samples of the indirect effect using maximum likelihood (ML) estimation in MPlus 6.12 (Cole et al., 2013; Muthén & Muthén, 2010).

Table 3 depicts the results of the tests of indirect effect of demand congruence (incongruence) on engagement and exhaustion. As may be seen in Table 3, the bootstrapped unstandardized indirect effect was 2.31 for engagement, which was not statistically significant (-15.9, 20.7). In contrast, the bootstrapped unstandardized indirect effect was 16.19 for exhaustion, which was statistically significant (0.23, 31.95). Thus, taken together, Hypothesis 4 was partially supported.

Data-Driven Supplemental Analyses

After the completion of the preceding hypothesis tests, I subsequently examined whether engagement and exhaustion were direct outcomes of demand incongruence. Though engagement failed to provide any results of interest, exhaustion demonstrated substantial promise. Table 1 depicts means, standard deviations, and correlations between variables of interest. The results of the polynomial regression analysis may be found in Table 4. Hypothesis 1 was tested with two separate analyses. First, to test the proposed relationship I investigated the equation b_3-b_4+b_5, such that the outcome should have been positive and significant (Cohen & Cohen, 1983; Cole et al., 2013; Edwards & Parry, 1993; Matta et al., 2014). The curvature along the incongruence line

(E = -A) was positive (U-shaped) and significant ($t(1,003) = 4.15$, $p < .05$). This indicates that exhaustion significantly increases as expected and actual demands differed in either direction (i.e. over- or underestimated demands). Second, for further investigation, the peak of the response surface, or ridge, was investigated. Specifically, a valley formed along the congruence line (E=A), such that exhaustion was minimized at the point of congruence at every point along the congruence line. As may be seen in Figure 5, visual inspection of the response surface shows a clear valley along the congruence line, thus suggesting the presence an effect. Similar to the proposed Hypothesis 1, to quantitatively test this effect 95% bias-corrected confidence intervals were calculated for the slope (p_{11}) and intercept (p_{10}) using 10,000 bootstrapped samples (Cole et al., 2013; Edwards, 2002; Edwards & Parry, 1993; Matta et al., 2014). These tests revealed that the first principle axis had a slope (p_{11}) that was significantly different from 1.0, as the 95% bias-corrected bootstrap CI did not include 1.0 (-1.36, -0.31). Further, the intercept (p10) was significantly different from 0, as the 95% bias corrected bootstrap CI included 0 (-23.40, 14.16). Taken in combination with the curvature of the incongruence line, this suggests an incongruence effect whereas when expected and actual demands differ, emotional exhaustion ensues.

To test the asymmetrical incongruence effect, two analyses were calculated. First, I investigated whether exhaustion was higher when demands were underestimated than overestimated by calculating the lateral shift quantity similar to with *Hypothesis 2* in the main results section (Atwater, Ostroff, Yammarino, & Fleenor, 1998; Cole et al., 2013; Matta et al., 2014). A lateral shift quantity identifies the direction as well as the magnitude of a lateral shift along the incongruence line; therefore, identifying whether underestimated or overestimated demands have a stronger effect on role ambiguity. The lateral shift quantity was slightly positive (.30) suggesting a greater impact of underestimated than overestimated demands.

Second, the slope (b_1-b_2) along the incongruence line (E=-A) was significantly negative (t=-3.691, $p < .05$). This indicates that exhaustion may decrease as one moves along the incongruence line from low expected and high actual demands (i.e. underestimated demands) to higher expected and lower actual demands (i.e. overestimated demands).

Finally, to test the indirect effect of demand congruence on performance via exhaustion, the block variable approach was used (Edwards & Cable, 2009). The same methods used in the main results section were again used. Table 5 depicts the results of the tests of indirect effect of demand congruence (incongruence) on performance.

Discussion

For over half a century (Biddle, 1979; Katz & Kahn, 1978; Thomas & Biddle, 1966), role theory has proven a useful framework for the understanding of phenomena in the natural world (Dierdorff et al., 2012; Graen, 1976; Morrison, 1994). Role theory argues that roles are shaped via expectations from the system in which individuals are embedded (Katz & Kahn, 1978). Further, through the use of numerous role-related concepts (e.g. role expectations, role discrepancy, role consensus) role theory provides a language through which workplace, and more generally social factors may be discussed and investigated (Fischer, 2010). In this study, role theory was concerned with individuals' understanding regarding what their workload should be (Biddle & Thomas, 1966). Though role discrepancy between individuals, such as subordinate and supervisor, has been studied frequently in the management literature (Graen, 1976), role discrepancy as a within-subjects design has been largely omitted from the development of role theory in the workplace. To this end, I drew from role theory and utilized polynomial regression with response surface analysis to investigate outcomes of role ambiguity and subsequent well-being that may emerge in response to incongruences between expected and actual demands.

Traditionally, roles were treated as static phenomena, remaining relatively consistent over time. However, more recent research has introduced the concepts that roles may be impacted on a daily basis (e.g. Maertz & Boyar, 2011; Nohe, Michel, & Sonntag, 2014; Tadić, Bakker, & Oerlemans, 2014). Here, I took a more comprehensive approach to this shift in thinking, by incorporated a response to calls for more research on changes in workload in conjunction with the notion of day-level role theory phenomena (Parker, Jimmieson, & Amiot, 2013). In general, the proposed hypotheses were not supported. However, post-hoc data-driven analyses did support the general idea of an effect of incongruent demands on psychological well-being.

In addition to findings in regards to incongruent demands, the relationship between day-level role ambiguity with engagement and exhaustion was also investigated and found. Though these two general relationships are well-known (Stordeur et al., 2001; Thompson, Kirk, & Brown, 2005; Wittmer & Martin, 2010), investigation of these relationships at the day-level are scarce. As exhaustion and engagement are known to negatively (Halbesleben & Bowler, 2007; Leiter & Maslach, 1988) and positively impact employees (Cole, Walter, Bedeian, & O'Boyle, 2012; Harter, Schmidt, & Hayes, 2002; Rich et al., 2010), respectively, management of both is critical for successful employee experiences. Results of the current manuscript suggest that day-level role ambiguity may negatively impact employee well-being through reduced engagement and heightened exhaustion levels. It is likely that in states of high role ambiguity, employees experience ambiguity of where to direct their energy (i.e. engagement) within their role. Similarly, stress derived from role ambiguity likely produced individual day-level exhaustion. For both relationships, future research should investigate what processes, such as job crafting, may be enacted to combat the negative effects of day-level role ambiguity on individual well-being. Actively adjusting role expectations regarding one's work may help mitigate the potential

for negative outcomes (i.e. reduced engagement, heightened burnout). In some respects, for an employee, actively managing role expectations may be particularly difficult. Specifically, asking a time or difficulty level required by an assigned task may inadvertently signal to the supervisor that the subordinate is lazy or trying to minimize their workload. Thus, researchers should also investigate the impact of such strategies on other individuals and groups as well as the focal individual.

Though not all hypotheses were supported, this dissertation provides initial evidence regarding the presence of demand incongruence effects within employees and urges for new avenues for role theory research. Because the outcomes of incongruent demands have not been documented in the management literature, the present finding that such incongruences may indeed exist shows promise for multiple avenues of future research. First, and most directly, the impact of such incongruences on the individual remain largely unexplored, leaving room for substantial exploration of associated outcomes, including exhaustion, boredom, burnout, or job crafting. In addition to examining outcomes of incongruence, future research should examine the impact of incongruence of events and psychological states, remains largely unexplored. For example, researchers should investigate the impact of incongruent resources on the individual in the workplace. It is likely that individuals enter work with an understanding of the amount of psychological support they will receive from peers and their manager, as well as the amount of support they will receive from their home role.

Findings from the proposed study demonstrated that individuals experience daily role discrepancies in role demands. Bringing light to demand incongruence, this supports the notion that demand expectations and actual experiences may vary independently, and interact in distinct ways to influence employees. Interesting as this may be, of greater interest would be the

psychological implications of such effects. Though the proposed results of such effects on role ambiguity were not supported, demand incongruence was shown to directly impact emotional exhaustion. It was hypothesized that whether over- or underestimated, incongruent demands would inform the employee that their role expectations were incorrect and as a result signal a sense of ambiguity regarding work roles (i.e. role ambiguity). The lack of such a finding may be explained through multiple reasons. First, it is possible that people may be used to the fact that their workplace is not predictable. Many of those that experienced incongruent demands were used to it and those that experienced congruent demands were used to the consistency. Demand incongruence may merely make individuals question their role if demands are out of the ordinary. Incongruent demands may not be enough of an extreme to induce the psychological changes of interest. To address such a possibility, future research should ask participants if their work demands are typically predictable. Second, day-level variance may not be long enough of a timeframe of inconsistency to impact the overall psychological state of the individual. Meaning, incongruent demands for one day may be viewed as a chance happening, a single data point compared to the potentially thousands of data points (i.e. days) the employee has worked in their role to solidify their sense of role ambiguity. Future research should look at the impact of demand incongruence over multiple days, a week, or weeks to investigate if such consistencies of incongruence signal to the individual a fundamental shift in the nature of their role. Third, demand incongruence should be investigated at the group level. Indeed, groups may create expectations for the level of demands for given projects or tasks. Future research should investigate if such a group-level phenomenon exists as well as the potential consequences of such a process. Finally, job demand expectations represent a mere portion of greater role expectations. It is therefore possible that role ambiguity represented to broad of a psychological

scope to mediate the effects of demand incongruence. Future research should design studies with independent variables and mediators more aligned regarding psychological scope. For example, one line of research should investigate demand incongruence mediated by demand ambiguity, while another line of research should investigate role incongruence mediated by role ambiguity.

I also expected that underestimating demands would have more detrimental effects through role ambiguity than overestimating demands. Primarily, such an effect was expected as shifts in demands, whether from higher to lower or the inverse, produce perceptions of additional job demands. However, such effects were not found. Similar to the null results of *Hypothesis 1*, the null results of *Hypothesis 2* suggest that either incongruent demands at the day level does not provide enough data to signal a shift in the individual's role or that incongruent demands lack the salience to impact the individuals understanding of their role.

Another contribution was the finding that demand expectations and actual experiences do in fact differ. Role theory would argue that demand incongruence would interfere with individuals' previously constructed role perceptions through an increase in role ambiguity (Kahn at al., 1964). As such, employees experiencing demand incongruence would in turn experience role stress (Rizzo et al., 1970). This indirect relationship is what was hypothesized in the current study. Similarly, but notably different, COR and ego depletion theory would both argue that the additional resource investment required during demand incongruence would lead individuals to reduce resource investment and ultimately experience lower levels of psychological well-being; such as reduced employee engagement and heightened exhaustion. The present findings support this latter notion that demand incongruence exhibits a more direct relationship with ultimate psychological exhaustion.

Limitations and Additional Future Research

Although the proposed study has numerous strengths and potential implications, there are some limitations that warrant noting. The first limitation is in regards to the use of perceptions of actual demands. Though perceptions are known to have substantial impacts on psychological outcomes, it would be of interest to include objective measures of differences between demand expectations and objective demand experiences. For example, a call center employee may estimate making 100 phone calls in the pending work day, but actually makes more (i.e. underestimated demands) or less (overestimated demands).

A second limitation of this study is concerned with the design of the methods. The current study analyzed day-level effects of demand incongruence. It is likely; however, that when demand incongruence is present, individuals will recalculate future demand expectations. For example, underestimating demands on day 1, may lead to an increase in initial demand expectations on day 2. Future research should investigate to what degree individuals adjust their expectations based on day-level variables. Further, consistently experiencing incongruent demands over multiple days, whether consistently the same incorrect directions or the absolute value of aggregated estimation errors, would likely have compound effects on the individual. As such, future research should also investigate longer timescale implications (e.g. week, month) of consistent or accumulated day-level incongruence.

A third limitation was in the sample of the current study. As mentioned in the methods section, around 80% of the sample had received a college degree, which is high compared to the general population. This additional education, along with the overrepresentation of White/Caucasians, may have served as an additional support mechanism, either directly or indirectly through coping skills learned, heightened self-efficacy or self-confidence, or a greater

familiarity with demand fluctuations. Future research should target a more representative sample to ensure greater generalizability.

In addition to sample limitations, there were also limitations in regards to the constructs considered in the current study. For example, while role ambiguity was investigated as the potential mediating mechanism between incongruent demands and psychological well-being, it is plausible that stress would have served as another potential mediator. Specifically, participants who felt adverse reactions, such as stress, to incongruent demands may have been more likely to experience increased exhaustion and reduced engagement in their work. In addition, employee tenure could have impacted the results. In particular, it is possible that employees who are new to a given role may be less accurate in their predictions of demands on a day-to-day basis as they have not yet 'learned what to expect.' In contrast, employees with longer tenure would tend to be more accurate in their demand estimations. For these employees, the impact of incongruent demands could be more severe, as employees with more experience would be more confident in their demand estimations. For these experienced employees, building psychological mechanisms over time to combat incongruent demands would be critical for combating the adverse affects of incongruence. Though tenure was controlled for in the current study, the actual impact of tenure on the employee experience would be of interest.

Another limitation with the current study is related to the use of mean centering. Though this technique is standard practice in the congruence literature (e.g. Edwards & Perry, 1993; Matta et al., 2014) in order to reduce non-essential multicollinearity, it does provide some difficulties in interpreting results. For this study, demand incongruence was calculated using mean centered of expected demands and actual demands. This makes an individual's congruence level entirely relative to their typical experience during the data collection period. Thus, an

individual's typical demand expectations and typical actual demands experienced would greatly impact the level of congruence. An extreme example is an individual who expects a '1' level of demands everyday and experiences a '5' level of demands every day. The congruence for this individual would be zero, or completely congruent, everyday, because the mean centering would make all expected and actual demands equal to '0'. Though this may sound incorrect, it should be noted that theoretically this might still be completely appropriate. In the above example of all '1' expected demands and all '5' actual demands, the individual has clearly not compared their demands to a typical day. To take it further, one would question why this individual keeps expecting low demands if they keep actually experiencing high demands. By mean centering, the researcher forces this comparison. We can think about this differently as the individual would be expecting a typical day and experiencing a typical day, making the use of mean centering appropriate depending as this would be captured by a completely congruent day. In cases where this is not appropriate or not within the interests of the researcher, these effects may be alleviated by simply not mean centering. However, failing to mean center would introduce additional multicollinearity to findings. The decision remains on the researcher for what is appropriate for their given study.

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impact the level of congruence. An extreme example is an individual who expects a '1' level of demands everyday and experiences a '5' level of demands every day. The congruence for this individual would be zero, or completely congruent, everyday, because the mean centering would make all expected and actual demands equal to '0'. Though this may sound incorrect, it should be noted that theoretically this might still be completely appropriate. In the above example of all '1' expected demands and all '5' actual demands, the individual has clearly not compared their demands to a typical day. The individual is expressing a chronic mismatch or incongruence between what he or she is expected to do and was, in contrast, given a lot more work each day. To take it further, one would question why this individual keeps expecting low demands if they are consistently experiencing high demands. We can think about this differently as the individual would be expecting a typical day and experiencing a typical day, making the use of mean centering arguably appropriate as this would be captured by a completely congruent day. In cases where this is not appropriate or not within the interests of the researcher, these effects may be alleviated by simply not mean centering. However, failing to mean center would introduce additional multicollinearity to findings. The decision remains on the researcher for what is appropriate for their given study.

Finally, the current study also investigates demand congruence through the use of a single role. Of course, in addition to work roles, employees also perform in family, or non-work roles (Hammer, Kossek, Anger, Bodner, & Zimmerman, 2011). Spillover and conflict effects from demand incongruence between roles would be a potentially fruitful area for management scholars to investigate. Similarly, individuals may move from one role to another (Lensges, Hollensbe, & Masterson, 2016; Smit, Maloney, Maertz, & Montag-Smit, 2016). For example, a professor may teach in the morning (i.e. teacher role) and then work on research in the afternoon

(i.e. researcher role). It is possible that within the teacher role the individual experiences underestimated demands and then in the researcher role the same or a different expectation-actual demands relationship is experienced (i.e. overestimated demands, high-high congruence, low-low congruence). In addition, the professor may find one role (e.g. researcher role) more salient than others (e.g. teacher role). Nevertheless, the effects of different and similar experiences on the individual are of interest. It is possible, for example, that consistent underestimated demands across roles may have an aggregate effect, contributing to a particularly strong increase in role ambiguity. It is also possible; however, that consistent underestimated demands may develop a norm of underestimation for the employee. In this case, effects of demand incongruence on role ambiguity may be less than if demands were underestimated in one role and overestimated in the other.

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Table 1

Difference Check of Predictor Variable Discrepant Values

Agreement Groups	Percentage	Mean Morning Demands	Mean Evening Demands
Morning more than Evening	28.2	3.60	2.71
In Agreement	53.4	3.32	3.33
Evening more than Morning	18.4	2.83	3.65
In Agreement	53.4	3.32	3.33
In Disagreement	46.6	3.30	3.08

Note: n=1,004

Table 2

Means, Standard Deviations, and Intercorrelations

	M	*SD*	1	2	3	4	5
1. Morning Demands	3.31	0.93	*.89*				
2. Evening Demands	3.22	0.97	.76*	*.88*			
3. Role Ambiguity	2.28	0.62	-.21*	-.22*	*.84*		
4. Engagement	3.31	0.92	.49*	.58*	-.35*	*.95*	
5. Exhaustion	2.14	0.83	.19*	.26*	-.22*	.08*	*.92*

Note. $N = 1{,}004$.

* $p < .05$.

Table 3

Polynomial Regression of Role Ambiguity on Demand Congruence on Engagement and Exhaustion

	Role Ambiguity			
Variables	*Model 1*		Model 2	Model 3
Constant	3.70			
Polynomial Terms				
b_1, Expected Demands (E)	-.10*	(.04)		
b_2, Actual Demands (A)	-.07*	(.04)		
b_3, E2	-.04	(.04)		
b_4, E x A	-.02	(.06)		
b_5, A2	-.03	(.03)		
Mediator				
Role Ambiguity				
R^2	.015			
ΔR^2				
Congruence Line (E = A)				
Slope ($b_1 + b_2$)	-.17**	(.03)		
Curvature ($b_3 + b_4 + b_5$)	-.09*	(.04)		
Incongruence Line (E = -A)				
Slope ($b_1 - b_2$)	-.02	(.07)		
Curvature ($b_3 - b_4 + b_5$)	-.05	(.10)		
Lateral Shift Quantity	-.21			

Note. $N = 1{,}004$
* $p < .05$
** $p < .01$

Table 4

Results from Tests of Indirect Effect of Demands Incongruence (Congruence) on Engagement and Exhaustion

	Variables	*Demand Congruence *Block Variable) to Role Ambiguity "α" path*	Role Ambiguity to Engagement and Exhaustion "β" path	Indirect Effect of Demand Congruence to Engagement and Exhaustion "αβ" path
Engagement Model				
	Unstandardized Results	3.84**	0.53**	2.31
	95% bias-corrected bootstrapped CI for indirect			(-15.9,20.7)
	Standardized Results	1.00**	0.35**	0.40
Exhaustion Model				
	Unstandardized Results	3.84**	-.30**	16.19*
	95% bias-corrected bootstrapped CI for indirect			(0.23, 31.95)
	Standardized Results	1.00**	-.22**	3.14

Note: Significance of bootstrapped indirect effect was determined through the bias-corrected 95% CI for the indirect effect using 10,000 bootstrapped samples.

* $p < .05$

** $p < .01$

Table 5

Polynomial Regression of Exhaustion on Demand Congruence

	Exhaustion			
Variables	Model 1		Model 2	Model 3
Constant	2.077	(.03)		
Polynomial Terms				
b_1, Expected Demands (E)	-.05*	(.06)		
b_2, Actual Demands (A)	.27*	(.05)		
b_3, E2	.22	(.06)		
b_4, E x A	-.20	(.07)		
b_5, A2	.11	(.04)		
Mediator				
Exhaustion				
R^2	.048**			
ΔR^2				
Congruence Line (E = A)				
Slope ($b_1 + b_2$)	.22**	(.06)		
Curvature ($b_3 + b_4 + b_5$)	.13*	(.06)		
Incongruence Line (E = -A)				
Slope ($b_1 - b_2$)	-.32**	(.09)		
Curvature ($b_3 - b_4 + b_5$)	.52**	(.13)		
Lateral Shift Quantity	.30			

Note. N = 1,004
* $p < .05$
** $p < .01$

Table 6

Results from Tests of Indirect Effect of Demands Incongruence (Congruence) on Performance

Variables	*Demand Congruence *Block Variable) to Exhaustion "α" path*	Exhaustion to Performance "β" path	Indirect Effect of Demand Congruence to Performance "αβ" path
Unstandardized Results	-1.13**	-0.21**	2.54**
95% bias-corrected bootstrapped CI for indirect			(2.21, 2.85)
Standardized Results	-0.22**	-0.24**	0.55**

Note: Significance of bootstrapped indirect effect was determined through the bias-corrected 95% CI for the indirect effect using 10,000 bootstrapped samples.

* $p < .05$

** $p < .01$

Figure 1: Demand Congruence Model

		Actual Demands	
		Low	High
Expected Demands	Low	**Congruence - Low Demand** (Quadrant 1)	**Underestimated Incongruence** (Quadrant 2)
	High	**Overestimated Incongruence** (Quadrant 3)	**Congruence - High Demand** (Quadrant 4)

Figure 2: Full Proposed Model

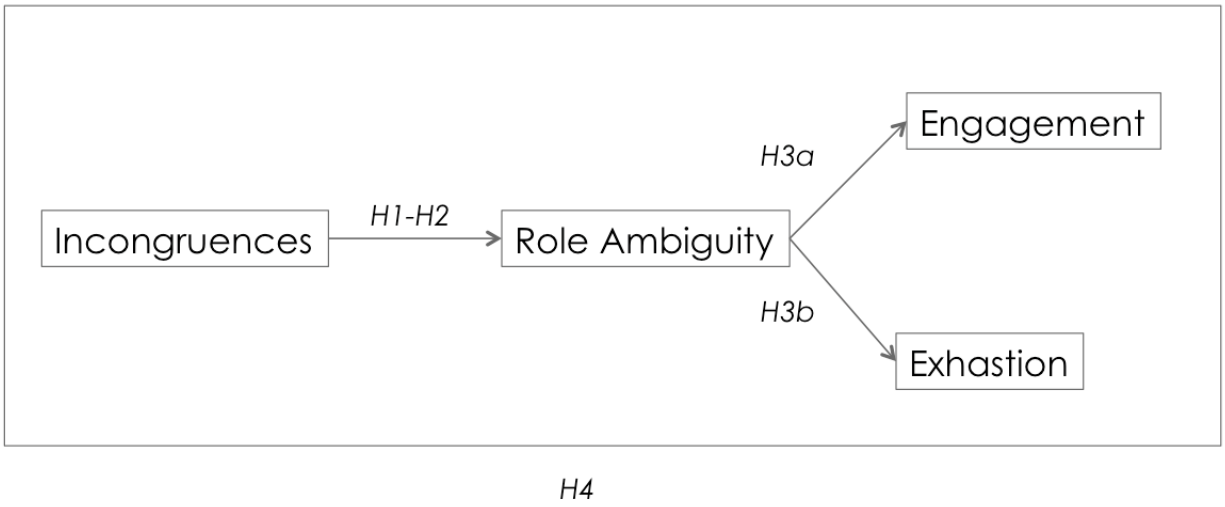

Figure 3: Response Surface Analysis of Role Ambiguity as Predicted by Demand Congruence

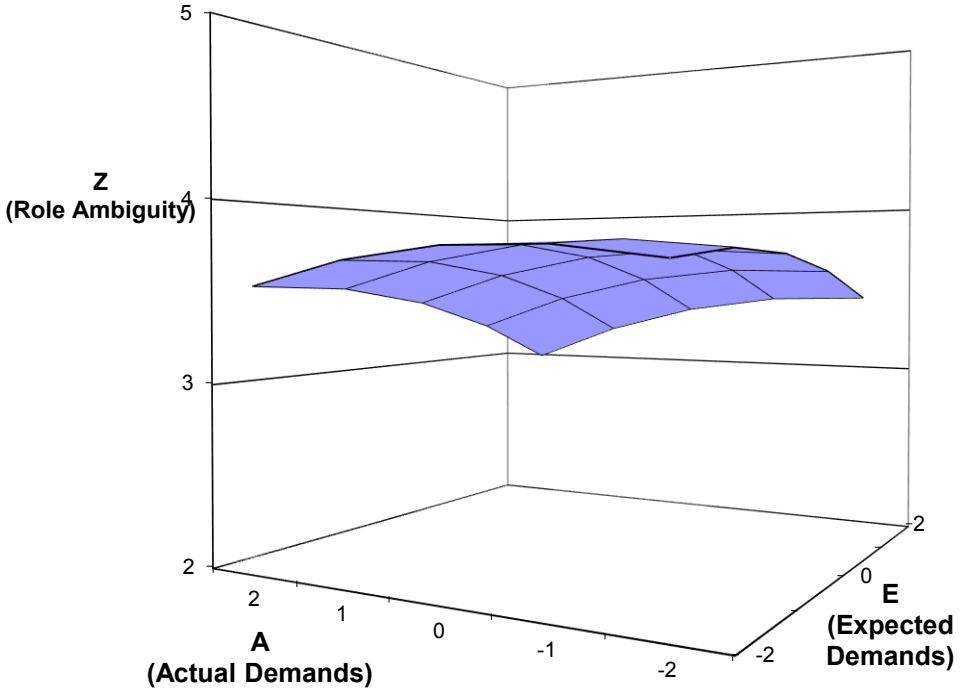

Figure 4: Response Surface Analysis of Exhaustion as Predicted by Demand Congruence