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Unexpected Effects: The Dual Effects of Prevalent Work Characteristics on Goal Accomplishment and the Moderating Role of Proactivity

by

Anna Saelinger

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July, 2018

We the undersigned committee hereby approve the attached thesis, "Unexpected Effects: The Dual Effects of Prevalent Work Characteristics on Goal Accomplishment and the Moderating Role of Proactivity" by Anna Kay Saelinger.

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Abstract

Title: Unexpected Effects: The Dual Effects of Prevalent Work Characteristics on Goal Accomplishment and the Moderating Role of Proactivity

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The present study addressed the issue of the inability of current job design models to account for some of the complexities associated with prominent job characteristics (e.g., autonomy, task variety, and interdependence) by examining the effects of these work characteristics on employee goal accomplishment from the perspective of a new conceptual model: the opposing processes model. Specifically, this research proposed intrinsic motivation and interruptions as opposing mechanisms in the work characteristic-work performance relationship, where the positive effect of one (i.e., intrinsic motivation increasing effort and/or desire to reach one's goal) would be counteracted by the negative effect of the other (i.e., interruptions impeding goal accomplishment). Based on this model, it was also hypothesized that an employee's personal characteristics would play a significant role in achieving positive work performance outcomes. In particular, it was proposed that proactive personality would moderate both the relationship

between these work characteristics and the number of interruptions experienced by employees and the effects interruptions can have on employee performance. These hypotheses were tested using a within-person approach. A sample of 169 full time employees completed a measure of proactive personality as well as daily surveys measuring perceptions of work characteristics, motivation, interruptions, and goal attainment. Results were varied. Several job characteristics including job autonomy, task variety, and problem solving were positively related to intrinsic motivation and intrinsic motivation was positively related to goal attainment. Additionally, task variety, interdependence, and skill variety were positively related to external interruptions. External interruptions were not related to goal attainment, but internal interruptions were found to have a significant negative relationship with goal attainment. The majority of job characteristics (job autonomy, skill variety, complexity, and problem solving) were not related to goal attainment. Finally, proactive personality did not moderate the relationship between job characteristics and interruptions or the relationship between interruptions and goal attainment. These findings provide some support for the opposing processes model and may inform job design models and related practical applications, as they reveal more about the potential advantages and disadvantages associated with prominent work characteristics.

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First and foremost, I would like to thank my professor and thesis advisor Pat Converse, whose gentle guidance, expertise, and patience made the completion of this thesis and my personal scholarly growth possible.

I would also like to thank my good friend Curtis Kruger. His continuous and unfailing support was a replenishing source of strength and inspiration.

Dedication

Family should not be defined by DNA. Instead, it should be defined by the love shared between people and the desire to support and protect one another in times of need.

My godmother Carol Webber exemplifies the spirit of family. It was her unwavering love, immense generosity, and staunch support that has allowed me to accomplish everything that I have today. For this, I dedicate my thesis to my godmother, to thank her for all she has done for me. This expression of gratitude falls short in comparison to the enormity of her positive impact in my life, but I strive to make her proud and to live my life with the same generosity, love, and kindness she has shown me.

Chapter 1
Introduction

The nature of work in today's organizations is fundamentally different from that of the past (National Research Council Staff, 1999). This is due to the accelerated growth of information and communication technologies that have globalized work, causing a shift both from a manufacturing economy to a knowledge and service economy (Barley & Kunda, 2001) and to flattened organizational structures (Friedman, 2005). As organizations flatten, divisions of labor blur, altering social systems that increase employees' autonomy and the range of tasks they are expected to perform (National Research Council Staff, 1999; Ogilvie, 2000). Additionally, the accelerated growth in technology and the shift to a knowledge and service-based economy necessitates collaboration and constant innovation to maintain a competitive edge. Consequently, 21st century professionals are expected to work effectively in teams, utilize a variety of skills, be innovative, and work in environments that are high in complexity, autonomy, and task variety, to achieve organizational goals (National Research Council Staff, 1999; Ogilvie, 2000).

An increase in these work characteristics is often considered beneficial by job design theorists because they have been found to enrich jobs and intrinsically motivate employees, which results in positive work outcomes such as increased employee engagement, satisfaction, and work quality (Blais & Brie`re, 1992; Hackman & Oldham, 1975; Langfred, 2013; Vansteenkiste et al., 2004). Although these work characteristics may have some benefits, particularly with respect to motivation, they may also create a work environment that engenders work stressors, such as internal and external interruptions, which have been shown to impede productivity and lower performance (Bailey & Konstan, 2006; Foroughi et al., 2014). This dual effect suggests that work characteristics can influence two factors of the work performance equation, where work performance is a function of the interaction between motivation, environment, and ability (Blumberg & Pringle, 1982). Specifically, these characteristics may simultaneously influence motivation and environment. This suggests that these two factors, motivation and environment, can function as opposing mediators in the work characteristics-work performance relationship, where the positive effects engendered by intrinsic motivation may be counteracted by the negative effects caused by internal and external interruptions. As such, personal characteristics of employees may become increasingly important and play a significant role in achieving positive work performance outcomes. Therefore, hiring practices that select candidates based primarily on job-related knowledge and skills are no longer adequate. To meet the demands of today's

dynamic, competitive workforce, Human Resource managers must improve their selection processes to emphasize the analysis of candidates' strong dispositions (i.e., personality traits that are less constrained by situations) that will contribute to the candidate's ability (the third factor in the work performance equation) to be successful on the job (Locke & Latham, 2004). A strong disposition that has shown great potential in becoming a high leverage asset to organizations is proactive personality (Crant, 2000; Batemen & Crant, 1993; Bakker et al., 2012; Grant & Ashford, 2008). Indeed, proactive personality has been shown to be predictive of several positive organizational behaviors, such as work engagement, innovation, and employee performance (Crant, 2000; Batemen & Crant, 1993; Bakker et al., 2012; Grant & Ashford, 2008; Kickul & Gundry, 2002).

Purpose of the Current Study

The current study examined the job characteristics-work performance relationship from the perspective of a new conceptual model: the opposing processes model (see Figure 1). This study sought to demonstrate that several prevalent work characteristics, specifically autonomy, innovation, task variety, skill variety, job complexity, and interdependence, can contribute to both the environment and the motivation factors of the work performance equation by simultaneously increasing an employee's intrinsic motivation and his/her susceptibility to environmental stressors (i.e., interruptions). As such, these two factors, intrinsic motivation and interruptions, function as opposing mediating

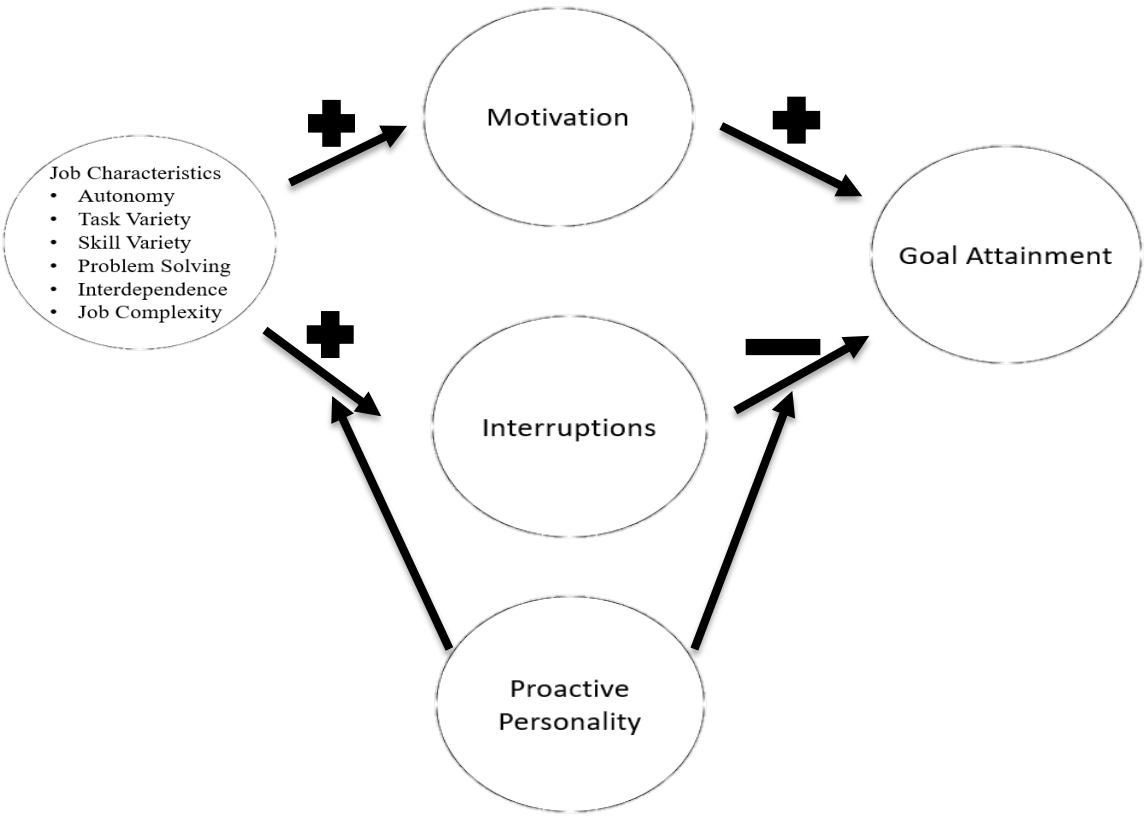
mechanisms in the work characteristic-work performance relationship, where the positive effect of one (i.e., intrinsic motivation) may be counteracted by the negative effect of the other (i.e., interruptions). However, this research also proposes that strong individual differences, in particular proactive personality, can reduce the effects of these work characteristics on interruptions, as well as the effects frequent interruptions can have on employee performance. Proactive people are more inclined to employ, and are more effective at implementing, proactive coping strategies, job crafting, and increasing their structural resources (Bakker et al., 2012). Implementing such strategies should help them avoid distractions and refocus after they have been interrupted. Therefore, the present study also examines the extent to which proactive personality moderates the positive relationship between work characteristics and interruptions, as well as the negative relationship between interruptions and goal attainment.

This study is unique and attempts to contribute to job design, job fit, and job performance research in several ways. First, this study was designed to support newer theories that suggest that the effect of these job characteristics on performance is complex and not always inherently positive (Langfred & Moye, 2004; Langfred, 2007, Spector, 1986; Farh & Scott, 1983; van der Doef & Maes, 1999; Parker, Wall, & Cordery, 2001; Dodd & Ganster, 1996; Chung-Yan, 2010; Jonge & Schauffle, 1998; Griffin, Neal, & Parker, 2007; Champion & McClelland, 1993: Zaniboni, Truxillo, & Fraccaroli, 2013). Second, although a dual process

perspective has been recently considered and explored in the Job Demands-Resource literature (Rosen et al., 2015), to the author's knowledge, the current study was the first of its kind to investigate empirically how job characteristics affect employee performance through the opposing processes model perspective. As such, the current study offered another explanation for inconsistent and commonly modest findings in job design research linking these job characteristics with performance (Zalesny & Ford, 1990; Grant, Fried, & Juillerat, 2011; Spector, 1986; Fried & Ferris, 1987, Farh & Scott, 1983; van der Doef & Maes, 1999; Parker, Wall, & Cordery, 2001; Dodd & Ganster, 1996; Jonge & Schauffle, 1998; Spector & Jex, 1991; ; Shaw & Gupta, 2004; Shalley, Gilson, & Blum, 2009; Rasmussen & Jeppesen, 2006; Courtright et al., 2015; Van Der Vegt, Emans, & Van De Vliert, 2000).

The rest of this paper will unfold as follows. First, factors of the work performance equation will be discussed. Second, the relationship between job characteristics and goal attainment will be examined through the opposing process model. Finally, the current study's methods and analysis will be explained.

Figure 1: Job Characteristic-Goal Attainment Relationship through the Perspective of the Opposing Process Model.



Chapter 2
Overview of the Work Performance Equation

The field of Industrial/Organizational (I/O) psychology revolves around improving organizational effectiveness. As job performance is a key factor in organizational effectiveness, a central focus of I/O psychology is to understand, predict, and enhance employee job performance. Job performance is defined as the "total expected value to the organization of the discrete behavioral episodes that an individual carries out over a standard period of time" (Motowidlo & Kell, 2013, p. 82). Or, more simply, it is considered as the behaviors employees engage in at work that are relevant and contribute to organizational goals (Campbell, 1994). Furthermore, there are two overarching dimensions of job performance: task performance and contextual performance. Task performance, or in-role performance, refers to behaviors that are formally required for a job and directly serve the goals of the organization (Demerouti et al., 2014), whereas contextual performance, or extra-role performance, refers to "the discretionary behaviors on the part of an employee that go beyond what is stated in the formal job description and promote organizational effectiveness without necessarily directly influencing the employee's productivity" (Demerouti et al., 2014, p. 60). The current study focused on factors that influence task/in-role performance. Specifically, this study examined how job characteristics and individual differences impact the completion of daily work goals. This performance measurement was defined as "the degree to

which the work goals that are set at the start of the day, derived from more general tasks, are in fact completed in the course of the day" (Claessens et al., 2009, p. 4). As with most behavioral constructs, debates have developed about whether personal or environmental factors play a stronger role in determining performance outcomes. This in turn has led to the proposal of a variety of theoretical performance models, most of which focus on motivational and ability factors (e.g., Viswesvaran & Ones, 2000; Steers et al., 2004; Motowidlo, 2003; Campbell et al., 1993; Blumberg, & Pringle, 1982). However, as Blumberg and Prince (1982) pointed out, although most theorists recognize that environmental variables could have a significant impact on job performance they have not always incorporated this factor (i.e., environment) into their theoretical models. For instance, these authors pointed out that many scholars adhered to social learning theory and Bandura's concept of reciprocal determinism, which views "persons, environments, and behavior…. as interlocking determinants of each other" (p. 565). Yet most researchers during that time did not incorporate situational factors into their performance models. An exception to this trend was the model of managerial effectiveness proposed by Campbell, Dunnette, Lawler, and Weick (1970), which parallels Blumberg and Prince's (1982) performance theory. In Campbell et al.'s model of managerial effectiveness, manager performance is presented as a function of individual abilities, motivation, and organizational situation or opportunity. James (1973) later labeled this performance model the "general criterion model,"

and it reflects the performance model utilized in the current study. Many studies have provided empirical evidence that each of these factors affect performance outcomes (Siemsen et al., 2008; Blumberg & Prince, 1982; Campbell et al., 1970). Thus, it is generally accepted in I/O psychology that job performance is a function of an individual's ability and motivation, as well as environmental factors where differences in any one of the three factors may facilitate or inhibit performance. Therefore, this study employed this integrative model to examine the effects of prevalent job characteristics, focusing on implications for intrinsic motivation (motivation) and interruptions (environment) as well as the potential moderating role of proactivity (ability).

Motivation

Motivation has been extensively studied throughout history in multiple fields and through the perspective of various theoretical approaches. Definitions of motivation vary relative to the approach taken. However, as Steers, Mowday, and Shapiro (2004) pointed out in their review, all definitions of motivation have three "common denominators", wherein all definitions are "principally concerned with factors or events that energize, channel, and sustain human behavior over time" (p. 379). Furthermore, motivation can be divided into two categories: intrinsic motivation and extrinsic motivation. Intrinsic motivation refers to engaging in behaviors because they are inherently rewarding, while extrinsic motivation refers

to engaging in behaviors because they lead to external, tangible, or psychological rewards, such as money, grades, or praise (Motowidlo et al., 1997). Studies have shown that although extrinsic rewards have short term benefits, in that they can temporarily increase motivation and thus positively impact behavior, these effects are often found to be unsustainable and produce diminishing returns (Lepper, Greene, & Nisbett, 1973; Deci, 1971). Furthermore, providing extrinsic motivation has been consistently shown to undermine intrinsic motivation (Amabile, Goldfarb, & Brackfield, 1990; McGraw, 1978). As intrinsic motivation has been consistently shown to improve short term motivation, long term motivation, and behavioral outcomes (Deci & Ryan, 2000), organizations often prefer to pursue strategic endeavors that promote intrinsic motivation in their employees.

Due to its undeniable influence on behavior, motivation is unanimously considered by scholars as a fundamental determinant of job performance, and it is consistently represented in every job performance model (e.g., Blumberg & Pringle, 1982; Campbell et al., 1993; Kanfer, 1990; Viswesvaran & Ones, 2000; Steers et al., 2004; Motowidlo, 2003). Although motivation is an integral part of predicting behavior, selection efforts tend to focus on the individual's ability to do the job, rather than his/her motivation to perform it. "Motivation is an individual characteristic, but it can arise from both within the worker (e.g., personality) and environmental conditions" (Spector, 2012, p. 247). The typical strategy of most organizations to increase employee motivation, other than incentive systems and

technology, is through the structuring of the work environment so that it is intrinsically motivating (Spector, 2012; Hackman & Oldham, 1980; Grant et al, 2011). How job characteristics can increase motivation will be discussed later in the review.

Environment

Work behaviors cannot be separated from the contexts in which they are performed (Ilgen & Hollenbeck, 1999). As mentioned above, characteristics of the job can positively or negatively influence employee motivation, which impacts the effort an employee chooses to expend. Similarly, the job environment can be structured to facilitate or hinder performance (Spector, 2012). Environmental factors that facilitate performance are often referred to as job resources, which "refer to those physical, psychological, social, or organizational aspects of the job that are either/or: functional in achieving work goals, reduce job demands and the associated physiological and psychological costs, and stimulate personal growth, learning, and development" (Bakker & Demerouti, 2007, p. 312). Thus, job resources can be motivational and are necessary in dealing with environmental factors that have the potential to hinder performance (Bakker & Demerouti, 2007). Such environmental factors are referred to as job demands by the job demands resource model, whereas other literature refers to these environmental factors as situational constraints. According to the job demands resource model, job demands are a broad construct that encompasses all "physical, psychological, social, or

organizational aspects of the job that require sustained physical and/or psychological (cognitive and emotional) effort or skills and are therefore associated with certain physiological and/or psychological costs" (Bakker & Demerouti, 2007, p. 312). Accordingly, job demands are not inherently negative, though high job demands have the potential to turn into job stressors. High job demands without adequate job resources have been linked to burnout, health problems, and turnover intentions (Schaufeli & Bakker, 2004). Situational constraints, on the other hand, refer specifically to work conditions that impede employees' ability to utilize their job-related knowledge, skills, and abilities, which in turn reduces employees' task effort and negatively impacts their performance (Spector, 2012). Examples of situational constraints include: interruptions from other people; bureaucracy/red tape; time pressure; organization pressure for production; poor quality tools, equipment, and/or materials; and inadequate support services (Peters & O'Connor, 1988; Rosen et al., 2010; Jex et al., 2003; Phillips & Freedman, 1984; Bhagat, 1982). Situational constraints have been shown to decrease job satisfaction, organizational commitment, job performance, and goal attainment, as well as increase frustration (Villanova & Roman, 1993; Peters, Chassie, Lindholm, O'Connor, & Kline, 1982). The current study proposed that certain job characteristics, specifically autonomy, complexity, skill and task variety, problem solving, and interdependence, can serve simultaneously as both a job resource (a job characteristic that facilitates an employee's performance through increasing

motivation) and as a situational constraint or job demand by increasing employee's susceptibility to interruptions.

Ability

It is well established that ability factors impact job performance (Waldman & Spangler, 1989; Hunter, 1986; Kanfer & Ackerman, 1989). This is an important reason why selection efforts focus on identifying the abilities required for successful performance of a job. Ability factors, what Blumberg and Prince (1982) call capacity factors, are "the physiological and cognitive capabilities that enable an individual to perform a task effectively… and include the effects of the individual's knowledge, skills, intelligence, motor skill, etc" (p. 562). Ability is traditionally included in one form or another in job performance models (e.g., Kanfer & Ackerman, 1989; Richardson, 2014; Reeve, 2004; Viswesvaran & Ones, 2000; Steers et al., 2004; Motowidlo, 2003; Campbell et al., 1993; Blumberg & Pringle, 1982).

Personality traits are not usually categorized as abilities. Broadly speaking, however, these traits have qualities that suggest they could fit within the general "ability" component of the work performance equation. For example, personality traits are "enduring patterns of thought, emotion, and behavior that are stable over time" (Barrick, Parks, & Mount, 2005, p. 745) and these characteristics can predict people's behavior and performance across a variety of situations and occupations (Costa & McCrae, 1989; Funder, 2001; Funder, 2001; Hurtz & Donovan, 2000;

Parker, Bindl, & Strauss, 2010). Furthermore, proactive personality in particular, the focal trait in the current research, can be developed through training and is predictive of positive work outcomes over and above the big five, namely conscientiousness, openness, neuroticism, extraversion, and agreeableness (Crant & Bateman, 2000; Major et al., 2006). In addition, people with proactive personality also view themselves as more capable of handling highly complex and demanding jobs. For example, Chung-Yan and Butler (2011) found that, in moderate to highly complex jobs, people with proactive personality perceived themselves as being more capable of meeting the requirements for the job than more passive employees. Thus, this research conceptualizes proactive personality as a type of ability, broadly defined. Proactive personality as an ability will be further discussed later in the paper.

Chapter 3
Examining the Work Characteristic-Goal Attainment Relationship through the Opposing Process Model

Job Characteristics and Motivation

The current study examined prevalent work characteristics through a motivational lens. Specifically, this study investigated how job autonomy, skill variety, task variety, interdependence, problem solving, and complexity influence worker intrinsic motivation and consequently goal attainment. Evidence supporting each individual job characteristics' motivational influence is discussed below.

Autonomy

Job autonomy is arguably the most frequently investigated work characteristic and consists of "three interrelated aspects centered on freedom in (a) work scheduling, (b) decision making, and (c) work methods used to perform tasks" (Morgeson & Humphrey, 2006, p. 1323).

Researcher fascination with autonomy is understandable. Jobs are becoming more autonomous in nature, and autonomy has been linked, throughout the decades, to positive work outcomes, such as performance, productivity, engagement, and reduction in absenteeism and turnover (Shantz et al., 2013; Chung-Yan, 2010). Moreover, autonomy has been shown to bolster the positive effects of other motivating job characteristics (Dodd & Ganster, 1996). As previously mentioned, advocates of the JCM attribute autonomy's positive relationship to performance to the feeling of responsibility it instills in the

employee, which in turn is thought to intrinsically motivate the worker to perform well. Self-Determination Theory (SDT) holds a similar premise. According to SDT, there are three basic psychological needs universal to all humans: 1) autonomy - the need for volition and ownership of one's behavior; 2) relatedness - the need to feel connected to others; and 3) competence - the need to feel effective in controlling one's environment (Deci & Ryan, 2002).Thus, individuals are motivated by autonomy because it is a psychological necessity that all humans strive to satisfy. Indeed, autonomy not only satisfies employees' need to feel self-directed but also their need to feel competent and in control of their environment. SDT further asserts that these needs can and must be satisfied through the social and environmental aspects of work in order for an employee to function optimally (Deci & Ryan, 2000). Supporting this assumption, several studies have examined the SDT framework in relation to the JDR model of job characteristics and found that job demands hinder need satisfaction, whereas job resources (autonomy is considered a job resource) tend to satisfy psychological needs (Bakker & Demerouti, 2007). Additionally, need satisfaction was linked to increased vigor (i.e., high levels of energy and reliance), a key component in work engagement (Schaufeli et al., 2002). Indeed, autonomy is often considered to be an antecedent to work engagement (Maslach et al., 2001; Kahn, 1992; May et al., 2004; Saks, 2006; Bakker & Demerouti, 2007; Schaufeli & Salanova, 2007; Bakker &

Demerouti, 2008). Thus, researchers generally agree that autonomy's positive relationship to performance outcomes is due to its intrinsic motivational effects.

Hypothesis 1: There is a positive relationship between autonomy and intrinsic motivation.

Skill Variety

Skill variety is the "extent to which a job requires an [employee] to use a variety of different skills to complete [their] work" (Morgeson & Humphrey, 2006, p. 1323). As another core job characteristic of the JCM, skill variety is thought to increase employees' intrinsic motivation because it creates a perception of meaning in their work. Categorized by Morgeson and Humphrey (2006) as a knowledge characteristic, skill variety can challenge employees, leading them to become more interested and involved in their work (Hackman & Oldham, 1976). Meta-analyses have shown high skill variety to be positively related to satisfaction, motivation, and involvement, while low skill variety and/or skill underutilization has been linked to low engagement, job-related depression, and early retirement intentions (Humphrey et. al, 2007; Shantz et al., 2013; Schmitt, Coyle, Rauschenberger, & White, 1979; Carstensen, 1991; Baltes & Baltes, 1990; Truxillo et al., 2012; Hacker, 2003; Parker, 2003; Karasek & Theorell, 1990). In fact, a related construct known as skill utilization, the opportunity to learn and apply a variety of one's skills on the job, has been found to be one of the strongest predictors of job satisfaction, more so than even job autonomy (Humphreys & O'Brien, 1986;

O'Brien, 1980, 1982a, 1982b, 1983). In general, skill variety has been linked to performance and productivity, presumably due to its intrinsic motivational qualities (Noefer et al., 2009; Hackman & Oldham, 1975; Humphrey et. al, 2007; Shantz et al., 2013; Schmitt, Coyle, Rauschenberger, & White, 1979; Carstensen, 1991; Baltes & Baltes, 1990; Truxillo et al., 2012; Hacker, 2003; Parker, 2003; Karasek & Theorell, 1990).

Hypothesis 2: There is a positive relationship between skill variety and intrinsic motivation.

Task Variety

Categorized by Morgeson and Humphrey (2006) as a task characteristic, task variety refers to "the extent to which an individual performs different tasks at his or her job. [Task variety] is different from skill variety, such that skill variety focuses on the skills necessary to perform a job, whereas task variety focuses on the specific tasks performed" (Humphrey & Morgeson, 2007, p. 1335). However, it is understood that there are instances where performing a variety of tasks also means the utilization of a variety of skills. Reflecting the concept of task enlargement, task variety at work is considered to be motivational because it is presumed to make jobs more interesting, enjoyable, and meaningful (Herzberg, 1968; Lawler, 1969). This idea is supported by meta-analytic results (Humphrey et al., 2007), where task variety was associated with job satisfaction (rho= .46) and subjective ratings of performance (rho = .23). Furthermore, task variety has also been negatively

associated with employee boredom and positively associated with cooperation and engagement (Shantz et al., 2013; Hopp & Van Oyen, 2004). According to Hackman and Oldham (1976), task variety should also be intrinsically motivating because it allows an individual an outlet to satisfy his/her basic need for growth and development. Indeed, task variety has been shown to enhance learning. This is because "individuals exposed to a variety of tasks can tackle problems within a single domain more effectively. Exposure to task variety enables individuals to gain knowledge about the broader schema that is relevant to each of the diverse tasks. With the knowledge of the schema, the individual can better delineate knowledge that is relevant to the task at hand from knowledge that is less relevant. This prevents situations where the individual spends time and effort in mastering new knowledge that is not really useful to the current task" (Narayanan, Balasubramanian, & Swaminathan, 2009, p. 1863). As such, task variety has also been linked to productivity (Hopp & Van Oyen, 2004).

Hypothesis 3: There is a positive relationship between task variety and intrinsic motivation.

Job Complexity

Job complexity is a knowledge characteristic that refers to "the extent a job is multifaceted and difficult to perform" (Humphrey et al., 2007, p. 1335). Complex jobs are "characterized by ambiguity, difficulty, and a lack of structure" (Chang-Yan & Butler, 2011, p. 279) and require the employee to use advanced intricate

thought processes (Farr, 1990). The challenging nature of job complexity is thought to engage and motivate employees by making work more interesting and promoting employee learning and development (Grant & Parker, 2009; Joo & Lim, 2009). This job characteristic may be a particularly effective strategy for engaging employees with higher IQs and education. For instance, Ganzach (1998) found an interaction effect for intelligence and job complexity on job satisfaction, such that when job complexity was low intelligence was shown to have a negative relationship with job satisfaction, but as job complexity increased, the relationship between intelligence and job satisfaction became positive. This suggests that job complexity is a more motivational factor for highly intelligent people than for less intelligent people. However, by and large, job complexity is found to be related to a number of positive work outcomes, including employee well-being, job satisfaction, affective commitment, engagement, creativity, and performance (Ilgen & Hollenbeck, 1991; Morgeson & Campion, 2000; Grebner et al., 2003; Oldham & Cummings, 1996; Chung-Yan, 2010).

Hypothesis 4: There is a positive relationship between job complexity and intrinsic motivation.

Problem Solving

Conceptually similar to creativity and innovation, problem solving "reflects the degree to which a job requires unique ideas or solutions and reflects the more active cognitive processing requirements of a job. [As such], problem solving

involves generating unique or innovative ideas or solutions, diagnosing and solving non-routine problems, and preventing or recovering from errors" (Morgeson & Humphrey, 2006, p. 1323). Problem solving is thought to be intrinsically motivating because it affords employees a chance to demonstrate and reinforce their sense of competence on the job (Deci & Ryan, 2000). However, problem solving is typically measured as an outcome variable, and literature examining it as an independent variable is all but nonexistent. In fact, just a decade ago, Morgeson and Humphry (2008) stated that "there is very little research done on this work characteristic [e.g. problem solving]. However, there is reason to suspect that it is both satisfying and demanding for the worker" (p. 56). The rationale the authors are referring to is Morgeson and Humphrey's (2006) meta-analysis findings, which suggest that knowledge characteristics (problem solving is classified as a knowledge characteristic) can have motivational and positive attitudinal outcomes. Although there is a lack of empirical support, it would stand to reason that problem solving would have similar effects as other knowledge characteristics such as job complexity.

Hypothesis 5: There is a positive relationship between problem solving and intrinsic motivation.

Interdependence

Interdependence is a multi-faceted construct that has been conceptualized and operationalized in many different ways (Courtright et al. 2015; Van der Vegt &

Van de Vliert, 2002; Wageman, 1999). There are many different forms of interdependence, all of which have been studied at the organizational, group, and individual level (Van der Vegt & Van de Vliert, 2002). The current study viewed interdependence as a structural feature of the job and specifically examined how task interdependence affects individual intrinsic motivation and goal achievement. Task interdependence refers to the extent to which group members must interact, exchange information and resources, and depend on one another to accomplish their work (Van Der Vegt & Van De Vliert, 2000; Guzzo & Shea, 1992). As a social work characteristic, interdependence is thought to increase intrinsic motivation because it fosters "camaraderie and friendship and can thereby heighten feelings of belonging and attachment to the group" (Van Der Vegt & Van De Vliert, 2000, p. 637). The desire to belong and feel connected to others is a fundamental need that drives people to develop and maintain interpersonal relationships (Deci & Ryan, 2002) Thus, "any social activity [including social work characteristics], regardless of its nature, extent, duration or valence, has a positive quality and conveys feelings of energy, enthusiasm, and general feelings of positive affect" (Humphrey, Nahrgang, & Morgeson, 2007, p. 1336). Exemplified by Morgeson and Humphrey's (2006) findings, social aspects of work are commonly found to have the strongest influences on employee well-being, affect, attitude, and perceptions of meaningful work (Myers, 1999; Gersick, Bartunek, & Dutton, 2000; Wrzesniewski, Dutton, & Debebe, 2003). Interdependence has specifically been

linked to increases in team and organizational commitment, job involvement, creativity, and engagement (Rasmussen & Jeppesen, 2006). Furthermore, because task interdependence results in more contact and communication between workers, tacit job knowledge is often transferred, resulting in higher job performance (Parker, Wall, & Cordery, 2001). This increase in contact also increases an employee's exposure to social cues and feedback, both of which have been found to have a powerful impact on employee job perceptions, attitude, and behavior (Blau & Katerberg, 1982; Griffin, 1987; Wall & Martin, 1987; Zalesny & Ford, 1990). Finally, task interdependence can promote social support, which has been found to mitigate the negative outcomes (i.e., stress and overload) that can arise from job demands (i.e., time pressure and bureaucracy) (Bakker & Demerouti, 2007). Thus, interdependence can be seen as a motivational aspect of work that can be a resource to employees.

Hypothesis 6: There is a positive relationship between interdependence and intrinsic motivation.

In sum, there is significant empirical evidence to support the idea that prevalent job characteristics (i.e., autonomy, complexity, task variety, skill variety, problem solving, and interdependence) are intrinsically motivating and thus lead to positive work outcomes. However, although research supports relatively strong relationships between these job characteristics and psychological-attitudinal outcomes, the relationships found between these job characteristics and behavior

and performance outcomes are much weaker and are often inconsistent (Champion, 2003; Grant, Fried, & Juillerat, 2011; Spector, 1986; Fried & Ferris, 1987, Farh & Scott, 1983; van der Doef & Maes, 1999; Parker, Wall, & Cordery, 2001; Dodd & Ganster, 1996; Jonge & Schauffle, 1998; Spector & Jex, 1991; Shaw & Gupta, 2004; Shalley, Gilson, & Blum, 2009; Rasmussen & Jeppesen, 2006). One reason why increased motivation engendered by these job characteristics does not often result in equivalent performance outcomes may be that these job characteristics also engender situational constraints (i.e., interruptions) that may hamper an employee's performance.

Intrinsic Motivation and Goal Attainment

As previously mentioned, motivation is an integral part of understanding and predicting behavior, for to be motivated means to be *moved* or driven to act (Ryan & Deci, 2000). Individual motivation varies in amount and orientation or why one is moved to action (Ryan & Deci, 2000). As discussed in the motivation section of this paper, the two types (orientations) of motivation are intrinsic and extrinsic motivation. Decades of research has shown that the level and quality of performance can vary depending on whether one is acting upon intrinsic versus extrinsic reasons (Ryan & Deci, 2000). Acting based on intrinsic motivation or engaging in behavior because it is perceived in and of itself as being rewarding, regardless of external rewards or punishments (Deci & Ryan, 2000), has often been shown to engender positive outcomes superior to those produced by extrinsic

motivation (Ryan & Deci, 2000; Deci & Ryan, 1991; Sheldon, Ryan, Rawsthorne, & Ilardi, 1997; Nix, Ryan, Manly, & Deci, 1999; Deci & Ryan, 2000). Intrinsic motivation has been linked to performance, engagement, work stress resilience, job satisfaction, goal attainment, and employee wellbeing (Benard, 2004; Ryan & Deci, 2000; Deci & Ryan, 1991; Sheldon, Ryan, Rawsthorne, & Ilardi, 1997; Nix, Ryan, Manly, & Deci, 1999; Deci & Ryan, 2000).

Hypothesis 7: There is a positive relationship between intrinsic motivation and goal attainment.

Interruptions Defined

"Interruptions are ubiquitous in organizational life, and they occur frequently, in a variety of ways and forms" (Jett & George, 2003, p. 494). In this section, the various classifications of interruptions will be reviewed and defined.

Interruptions are incidents or occurrences that temporarily suspend or impede a person's goal directed action due to the emergence of a demand or secondary task (Eyrolle & Cellier, 2000; Baethge et al., 2015; Jett & George, 2003). There are two overarching categories of interruptions: external and internal. The differences between the two categories are discussed below.

External interruptions. External interruptions are interruptions that are usually unintentional, relatively unavoidable, and occur by way of intrusions, discrepancies, and distractions (Jett & George, 2003).

Intrusions. An intrusion is an "unexpected encounter initiated by another person that interrupts the flow and continuity of an individual's work and brings that work to a temporary halt" (Jett & George, 2003, p. 495). Examples of intrusions include: unexpected personal visits, phone calls, emails, or instant messages. Intrusions have been shown to degrade performance and increase negative emotions (Lin, Kain, & Fritz, 2013; Carton & Aiello, 2009; Jett & George, 2003). Similarly, a recent study conducted by Lin, Kain, and Fritz (2013) found that intrusions significantly predicted employee exhaustion, physical complaints, and anxiety (i.e., components of strain) beyond that of employee workload.

Discrepancies. Whereas intrusions are caused by other people, discrepancies are caused by a person's own perceptions and expectations. Specifically, discrepancies are "perceived significant inconsistencies between [an individual's] expectation and what is happening in the external environment" (Jett & George, 2003, p. 502) and place focus on the stimuli instead of the task. The example the authors provide is of a "manager [that] experience[s] a discrepancy when he reads a quarterly sales report that indicates a previously best-selling product has had a rapid decline in sales; this discrepancy engages the manager's attention as he searches for potential explanations for the sales shortfall" (p. 2003). According to Jett and George,

discrepancies can evoke negative emotion and cause an individual to be on high alert. Negative emotions have been shown to increase susceptibility to other forms of interruptions (Smallwood et al., 2009), while being in a constant state of high alert can lead to stress and burnout (Konig et al., 2005; Baethge, Rigotti, & Roe, 2015; Baethge et al., 2015; Bolger, DeLongis, Kessler, & Schilling, 1989; Hockey, 1997; Mark et al., 2008; Bailey & Konstan, 2006; Cohen, 1980; Kirmeyer, 1988).

Distractions. Unlike interruptions and discrepancies, distractions are "psychological reactions triggered by external stimuli or secondary activities that interrupt focused concentration on a primary task" (Jett & George, 2003, p. 500). Distractions break individuals' concentration and pull their focus away from their primary task to a secondary, usually unrelated task, thus resulting in negative performance consequences, especially for those whose work is complex, demanding, and requires learning (Jett & George, 2003). Examples of distractions include: background noises, disturbing smells, and blinking lights.

Internal interruptions. Unlike external interruptions, internal interruptions (aka self-interruptions) "originate from a person's own thoughts (e.g., plans, inventions, worries), emotional states (e.g., happiness, anxiety), or physical needs (e.g., eating, drinking, urinating, changing clothes) [and] occur intentionally or unintentionally and can be controllable or uncontrollable" (Baethge, Rigotti, & Roe, 2015, p. 309). Internal interruptions include breaks, procrastination, and mind wandering.

Breaks and procrastination. "Breaks are planned or spontaneous recesses from work on a task that interrupt the task's flow and continuity. It entails anticipated or self-initiated time away from performing work to accommodate personal needs and daily rhythms. Breaks reflect the recognition that organizational members cannot sustain work efforts indefinitely throughout the work day" (Jett & George, 2003, p. 497-498). Therefore, breaks often have positive consequences for employees because they allow them to rest and replenish their cognitive or psychical resources. However, breaks can become maladaptive if they are used excessively, resulting in continual delays to the start or completion of a task (Jett & George, 2003). This phenomenon is referred to as procrastination. Unlike external interruptions where an individual is reacting to a stimuli, procrastination is a conscious choice to disengage from a task, regardless of the perceived negative outcomes, in favor of another activity, often leading to decreased performance due to heightened stress caused by the self-imposed time restriction (Steel, 2007). Procrastination also causes the individual to lose significant time and cognitive energy re-familiarizing themselves with the postponed task (Jett & George, 2003).

Mind wandering. Individuals can also self-interrupt when they intentionally or unintentionally engage in mind wandering (Seli et al., 2016). Mind wandering "occurs when their attention shifts away from a current task or the present situation to [unrelated] inner thoughts and feelings" (Oettingen & Schworer, 2013, p.1). Thus, the phenomenon is also commonly referred to as task-unrelated-thoughts or

TUTs. Mind wandering incurs time loss, impedes learning (Mooneyham & Schooler, 2013), and has been shown to increase task errors by 25% (McVay & Kane, 2009; Schooler et al., 2004).

Both internal and external interruptions are equally prevalent in the modern work era, and they are both generally found to consume valuable time and deplete cognitive and self-regulatory resources (Gonzalez & Mark, 2004; Konig et al., 2005; Baethge, Rigotti, & Roe, 2015; Baethge et al., 2015; Bolger, DeLongis, Kessler & Schilling, 1989; Hockey, 1997; Mark et al., 2008; Bailey & Konstan, 2006; Cohen, 1980; Kirmeyer, 1988; Lin, Kain, & Fritz, 2013; Baethge, Rigotti, & Roe (2015) Jacobshagen, Amstad, Semmer, & Kuster, 2005; O'Connail & Frohlich, 1995; Hobfoll, 1989; Carton & Aiello, 2009; Jett & George, 2003).

Job Characteristics and Interruptions

There are a number of job design approaches. "Each approach is geared toward a different set of outcomes [and] has its own costs and benefits [to the employee and the organization.]" (Campion & Thayer, 2001, p. 67). In most practical situations, implementing any one job design will require trade-offs (Campion & Thayer, 2001). For example, although job simplification approaches (i.e., mechanistic and perceptual-motor approaches) decrease the likelihood of errors and maximize efficiency, they often do so at the expense of employee motivation, satisfaction, and well-being (Parker, 2014; Fraser, 1947; Walker & Guest, 1952; Parker, Wall, & Cordery, 2001; Walker & Guest, 1952). Conversely,

motivational approaches improve employee motivation and satisfaction but are more cognitively demanding and cost the employee significant cognitive and self-regulatory resources (Appelbaum, Marchionni, & Fernandez, 2008). Depletion of these resources can lead to cognitive overload and stress (Hobfoll, 1989; Kirsh, 2000; Baethge, Rigotti, & Roe, 2015; Lin, Kain, & Fritz, 2013), which in turn increases the chances of errors and employee burnout (Baethge, Rigotti, & Roe, 2015).

One reason why motivational approaches are more cognitively demanding is because they promote task-switching and increase attentional and concentration demands. These demands increase an employee's susceptibility to interruptions and necessitate multitasking behavior. In fact, a number of economic theorists believe that the transition from a Tayloristic (aka mechanistic) to a Holistic (aka flattened organizational structures with motivational job characteristics) job economy prompted a surge in multitasking behavior (Appelbaum, Marchionni, & Fernandez, 2008). Research shows that multitasking behavior has risen steadily amongst knowledge workers since the 1990's (Boucekkine & Crifo-Tillet, 2003; Appelbaum, Marchionni, & Fernandez, 2008). Specifically, sources indicate that the pervasiveness of multitasking behavior in today's job market is a direct consequence of four main features of a Holistic job economy: 1) prevalent acquisition and utilization of information and communication technologies; 2) networks of interconnected teams intertwined within organizational structures; 3)

employees need to take on a larger variety of tasks; and 4) a constant demand for quick innovation (Appelbaum, Marchionni, & Fernandez, 2008; Boucekkine & Crifo-Tillet, 2003; Powell, 2001; Lindbeck & Snower, 2000; Lindbeck & Snower, 2000). However, these features also increase an employee's susceptibility to interruptions, as internal and external interruptions have been identified as the two core drivers of multitasking behavior (Gonzalez & Mark, 2004; Mark et al., 2005; Miyata & Norman, 1986). For instance, Freedman (1997) claimed that interruptions cost companies in the United States 2.1 hours of employee productivity per day. A more recent study conducted by Basex, Spira, and Feintuch (2005) reported that, in the United States, interruptions consume 28% of a knowledge workers day, which amounts to approximately 28 million hours per year. Such a significant loss of time costs United States' companies roughly $588 billion per year (Spira & Feintuch, 2005). Other studies have suggested that office workers switch tasks or experience interruptions every 3-12 minutes (Gonzalez, 2005; Gonzalez & Mark, 2004). Furthermore, a study conducted by Dabbish, Mark, and Gonzalez (2011) observed 5,089 task switches and found that 3,059, or roughly 60%, were a result of natural task completion, while the rest of the observed task switches were due to external (1,141 or 22%) and internal (889 or 18%) interruptions.

Indeed, it seems that both multitasking and interruptions are unavoidable aspects of professional work in the modern era (Freedman, 1997). The reason why interruptions are so pervasive in the modern work era is often attributed to the

increased use of information and communication technologies (Krediet, Zijlstra & Roe, 1994; Wallis, 2006). As such, many studies have found technology to be one of the main causes of interruptions at work (Appelbaum, Marchionni, & Fernandez, 2008). Although the current study did not dispute technology as a significant source of work interruptions, there is little research examining other possible factors.

Job Autonomy

In the past, job autonomy was thought to have a linear relationship with performance (Parker & Ohly, 2008; Wagner & Heatherton, 2015). However, most research on autonomy studied the individual components that make up job autonomy, such as task autonomy, decision latitude, job flexibility, autonomy manager support, and perceived autonomy manager support. However, all these constructs are limited versions of full job autonomy. Therefore, it can be argued that research examining any of these constructs are actually measuring the effects of structured or moderate levels of autonomy on performance.

For instance, when individuals have high task autonomy, "considerable discretion and control in deciding how to carry out job tasks" (Langfred & Moye, 2004, p. 934), or high autonomy manger support, "managers that acknowledge subordinates' perspectives, encourage their initiative, offer choice rather than pressuring subordinates to behave in specific ways, and provide feedback in an autonomy-supportive rather than controlling way" (Gagne & Deci, 2005, p. 345), they are given decision latitude in various aspects of their job, but this autonomy is

limited. The autonomy of the employee is monitored and regulated by a supervisor and is subject to supervisor discretion. This is an important distinction because newer studies have suggested that giving people autonomy in tasks but monitoring for overall progress results in better performance than giving the employees full autonomy without any supervision (Langfred, 2004; Ariely & Wertenbroch, 2002; Larson & Callahan, 1990).

In fact, research reporting an association between high levels of autonomy and negative performance outcomes is becoming more common (Farh & Scott, 1983; Langfred & Moye 2004). For example, high autonomy has been shown to impede the learning of complex tasks (Wielenga-Meijera et al., 2012) and to be negatively related to quantity of performance (Farh & Scott, 1983). A common theory is that too much autonomy is mentally taxing and depletes cognitive resources (Langfred & Moye 2004). For instance, Langfred and Moye (2004) theorized that task autonomy leads to lower performance because it is more cognitively distracting. According to their assertion, increased autonomy brings with it the ability to make one's own decisions, which changes a job from the single task of performance to the dual tasks of performance and evaluation and decision making. People with task autonomy spend cognitive resources on switching between decision making and evaluation, distracting cognitive resources away from the performance of the task and leading to lower task performance (Langfred & Moye, 2004). This may be particularly true in teams, where

monitoring employees has been thought to prevent possible procrastination and process losses as well as increase cooperation and overall performance (Sabel, 1993; Orton & Weick, 1990). Lending empirical support for this premise, Langfred (2004) found that high levels of individual autonomy negatively affected team performance.

Furthermore, job flexibility, "a composite of perceived flexibility in the location of work and in the timing of work" (Keeney, 2012, p. 16) and task autonomy have been shown to lead to cognitive distraction and increased interruptions (Keeney, 2012). Job flexibility specifically was shown to increase both non-work to work distractions and work to non-work distractions. This effect has been shown across multiple studies, where individuals with non-rigid schedules tend to procrastinate more and perform worse on tasks (Baumann & Kuhl, 2005; Bisin & Hyndman, 2014). Indeed, internal interruptions seem to be more prevalent in jobs with higher autonomy. For instance, Hammer and Ferrari (2002) found that white collar workers reported higher rates of procrastination compared to blue collar workers. Ferrari, Doroszko, and Joseph (2005) found that avoidant procrastination tendencies motivated by evaluation apprehension and performance fears were prevalent in men and women employed in corporate settings. Specifically, the authors found that avoidant procrastination tendencies tended to be higher among self-employed (i.e., lawyers, physicians) than white-collar workers and higher among sales personnel than middle-managers. Similarly, Garrett and

Danziger (2008) found that higher-status employees, measured by occupation status, job autonomy, income, and education, engaged in significantly more cyber slacking (i.e., non-work related use of the internet). It may be that employees in more autonomous jobs self-interrupt more frequently than employees in less autonomous jobs because they simply have more opportunity to do so. Mind wandering and procrastination have been shown to be innate human tendencies (Smallwood & Schooler, 2006; Ainslie, 2008); thus, the more autonomy or opportunity an individual has to self-interrupt the more self-control he or she needs to exhibit to stay productive (Behling, 1998). However, some evidence suggest that self-control is like a muscle, insofar as it fatigues each time it is exercised (Muraven & Baumeister, 2000). Thus, self-interruption to some extent seems inevitable. However, less autonomous jobs are more structured and supervised, which limits an employee's opportunity to self-interrupt (e.g., through procrastination, mind wandering, or cyber slacking).

Hypothesis 8: There is a positive relationship between autonomy and internal interruptions.

Task Variety

As previously mentioned, task variety or job enlargement is proposed to increase employee motivation and job satisfaction. However, longitudinal evidence suggests these positive outcomes are temporary and can change over time. Campion and McClelland (1991, 1993) conducted two studies researching the

effects of job enlargement. In their first study, Campion and McClelland (1991) found supportive evidence for the beneficial effects of task variety, specifically that task variety was linked to higher satisfaction, lower boredom, greater probability of detecting errors, and improved customer service. However, two years later, Champion and McClelland (1993) conducted a follow up study which found that over time the enlarging of jobs (increasing task variety) progressively accrued mostly long term costs, including employees being less satisfied and efficient, experiencing greater cognitive overload, making more errors, and providing poorer customer service. Today, these findings are not surprising, as task variety has been commonly associated with increases in multitasking behavior (Czerwinski, Horvitz, & Wilhite, 2004; Appelbaum, Marchionni, & Fernandez, 2008). Increases in multitasking behavior have in turn been found to increase errors, forgetfulness, and perceptions of cognitive load, which in turn can also lead to decreases in concentration, critical thinking skills, and productivity (Clapp, 2011; Junco & Cotten, 2012; Appelbaum & Marchionni & Fernandez, 2008; Baethge, Rigotti, & Roe, 2015). The need to multitask is chiefly driven by external and internal interruptions. Research indicates a positive relationship between the number of tasks per day, interruptions, and the amount of multitasking that occurs (Reder & Schwab, 1990; Mark, Gonzalez, & Harris, 2005; Bluedorn et al., 1992; DiMaggio, 2001). Mark, Gonzalez, and Harris (2005) found that the majority of multitasking

in high task variety jobs resulted from external interruptions. Thus, the current study hypothesized that high task variety produces high external interruptions.

Hypothesis 9: There is a positive relationship between task variety and external interruptions.

Interdependence

Connectivity and efficient dissemination of information becomes ever more important as organizational structures continue to increase their reliance on interdependent networks to accomplish business goals. In order to meet these new structural demands, new technological advancements have been rapidly produced and introduced into the workplace. Although communication technologies can circumvent certain organizational obstacles by facilitating connectivity and information sharing, the pervasive use of these technologies also increases the avenues in which employees can intrude upon each other (e.g., instant messaging, phone calls, emails, text messaging). Communication technologies have been shown to be a main source of interruptions experienced by employees (Krediet, Zijlstra & Roe, 1994), and increased interruptions can result in coordination problems and set back team production schedules (Perlow, 1999). Furthermore, research suggests interruptions commonly elicit negative emotional responses such as anger, frustration, irritation, and anxiety (Bailey & Konstan, 2006; Krediet, 1999; Mark et al., 2008; Zijlstra et al., 1999; Grebner et al., 2003; Wülser, 2006). Negative emotions can lead an individual to become emotionally exhausted and

lose interest in attaining his/her goals (Klinger, 1975; Baethe & Rotti, 2013; Grebner et al., 2003; Wülser, 2006), and increase the propensity to self-interrupt (Smallwood, 2009; Spada, Hiou, & Nikcevic, 2006). Once negative emotions are elicited, workers must engage in emotional regulation. If the interruption takes the form of an intrusion, the worker must make the added effort to surface act (i.e., the act of faking an emotion to meet social or work rules) (Grandey, 2003). This increases emotional labor and depletes self-regulatory resources, increasing an individual's vulnerability to stress and further interruptions (Baethge, Rigotti, & Roe, 2015; Grandey, 2003). Therefore, it is reasonable to expect a positive relationship between interdependence and intrusion frequency, despite there being very little literature examining the relationship between interdependence and interruptions.

Hypothesis 10: There is a positive relationship between interdependence and external interruptions, specifically intrusions.

Knowledge Characteristics

There is a notable lack of literature linking problem solving, skill variety, and job complexity to interruption susceptibility. However, there is reason to believe that occupations with these job characteristics produce more frequent interruptions. For instance, occupations with these knowledge characteristics generate complex work assignments. Research has shown that when work is complex, interruptions become more disruptive to performance (Speier et al., 2003;

Hodgetts & Jones, 2006; Gillie & Broadbent, 1989). According to Baethge, Rigotti, and Roe's (2015) theory, as interruptions become more disruptive, the consequences of those interruptions are more likely to influence and amplify each other, resulting in an interruption feedback loop and increasing the amount of interruptions an employee experiences (Gnisci et al., 2011). For example, an obvious consequence of any interruption is the loss of time. This loss of time can create a sense of urgency, or time pressure, to complete the primary task and/or any unexpected interrupting tasks in less time than expected. This pressure may lead to stress, anxiety, negative emotions, perceptions of increased workload, and use of risky strategies, all of which can increase the likelihood of errors (Frese & Zapf, 1994). Once an error occurs, it must be dealt with, which consumes further time and cognitive resources. If the primary task is not completed, workload and negative emotions increase, potentially leading to rumination and further distraction away from work to continue the cycle of interruption. Furthermore, the authors suggest that interruption feedback loops increase as work tasks increase in complexity, whereby interruptions become more disruptive to performance when work is more complex and increases the likelihood of errors, negative feelings, time pressure, and risky behavior, which generates more interruptions. For instance, Speier et al. (2003) found that interruptions facilitated performance on simple tasks but hurt performance on more complicated tasks. Additionally, increased complexity in the interrupting task has been shown to slow resumption

times (Hodgetts & Jones, 2006) and reduce task accuracy (Gillie & Broadbent, 1989).

Action Regulation Theory (ART) (Frese & Zapf, 1994; Hacker, 2003; Hacker & Sachse, 2014) provides insight as to why this phenomenon occurs. ART is a psychological theory that explains how people carry out goal-directed action at the cognitive level, where all actions are driven by goals. In order for an individual to achieve a goal, "actions must unfold across five cyclical phases: goal development and selection, orientation or mapping the environment, plan development and selection (planning), monitoring of execution, and feedback processing" (Winfried, 2003, p. 6). This cyclical process of action can be regulated on different mental levels, ranging from unconscious and automatized control of actions (e.g., an experienced typist typing the word "the") to conscious intellectual processes or actions that require more complex analyses (e.g., writing a book review) (Baethge, Rigotti, & Roe, 2015). Higher levels of action regulation (complex analyses) require more cognitive effort and thus use up more cognitive resources than lower levels of action regulation (automatized behavior). The process to execute a primary task and an interrupting task are the same. The only distinction between the two processes is that the interrupting task suspends the primary goal directive action as it is in the process of being executed. This creates a dual-task situation (multitasking), which divides an individual's attention between

the two tasks and increases cognitive load. Difficulty switching between two tasks (juggling) becomes apparent when the process is explained.

When an interruption occurs, individuals go through a series of steps. First, they must stop the primary task, attend to the interruption, define and understand the interrupting task objective, and prioritize and schedule the primary (original) and interruptive task. Then, they task-switch, prepare and execute the interrupting task, then task-switch again to resume the primary task and prepare for the execution of the primary task, all the while holding information about the primary task in working memory so that they are able to resume and complete the primary task to the standards expected.

The more complex the two action regulation processes, the more complex shifting from one task (process) to the other task (process) will be. This is because the amount of information that must be stored and retrieved from working memory increases with the complexity of the primary task, increasing not only the time and mental effort it takes to resume the task but also the possibility of memory decay and errors (Baethge, Rigotti, & Roe, 2015). Additionally, carrying out the interruptive task may also take considerable time. The more complex the interrupting task, the more time, attention, and cognitive resources are taken away from the primary task and consumed on the interruptive task, increasing workload and time pressure (Baethge, Rigotti, & Roe, 2015). Therefore, greater complexity in either the primary task or interrupting task poses high cognitive demands and

consumes significant amounts of time and cognitive resources, which can degrade memory and performance (Baethge, Rigotti, & Roe, 2015). For example, Cades et al. (2008) demonstrated that more complex interruption tasks lead to longer resumption lags compared to simple interruption tasks. Interruptions have also shown to inhibit good decision making, particularly when performing difficult tasks (Speier, Valacich, & Vessey, 1999). Thus, interruptions are considered regulation hindrances because they can be overtaxing, lead to cognitive fatigue, and degrade performance (Baethge, Rigotti, & Roe, 2015). As such, occupations with these knowledge characteristics generate complex work assignments. When work is complex, interruptions become more disruptive to performance, increasing both the possibility of interruption loops and the amount of interruptions an employee experiences.

Hypothesis 11: There is a positive relationship between knowledge characteristics (i.e., complexity, skill variety, and problem solving) and interruption frequency.

Interruptions and Goal Attainment

As mentioned previously, the work environment can produce demands or constraints that impede performance and reduce employee well-being. Interruptions fit appropriately within this classification. Again, interruptions are incidents or occurrences that temporarily suspend or impede a person's goal directed action due to the emergence of a demand or secondary task (Eyrolle & Cellier, 2000; Baethge et al., 2015; Jett & George, 2003). Thus, by their very nature, interruptions impede

goal attainment. Although under certain circumstances interruptions may have some positive effects (Jett & George, 2003; Chun Chu & Choi, 2005; Smallwood, 2012; Zijlstra et al., 1999), research on the topic overwhelmingly indicates that interruptions negatively affect employee performance and well-being (French, Caplan, & Harrison, 1982; Kirmeyer, 1988; Baron, 1986). Interruptions cause dual-task situations (multitasking), and dual-task situations have been documented to divide an individual's attention and degrade performance (Bowers et al., 2000; Pashler, 1994; Rubinstein et al., 2001; Temprado et al., 2001). Furthermore, interruptions have been found to increase errors in both the interruptive and primary tasks (Bailey & Konstan, 2006; Westbrook, Woods, Rob, Dunsmuir, & Day, 2010).

All forms of interruptions are generally found to consume valuable time and deplete cognitive and self-regulatory resources (Gonzalez & Mark, 2004; Jett & George, 2003; Unsworth, McMillan, Brewer, & Spillers, 2012; Zijlstra et al., 1999). The loss of time and resources increases the perception of workload and time pressure, evokes negative emotions such as frustration and irritation, and reduces performance quality through increases in risky behavior, errors, and forgetfulness (Bailey & Konstan, 2006; Einstein et al., 2003; Grebner et al., 2003; Balas, Scott, & Rogers, 2004; Ho, Nikolic, Waters, & Sarter, 2004; Funke, Matthews, Warm, & Emo, 2007; Trafton, Altmann, Brock, & Mintz, 2003; Jacobshagen, Amstad, Semmer,& Kuster, 2005; O'Connail & Frohlich, 1995;

Hobfoll, 1989; Cohen, 1980). As such, interruptions can place high demands on an employee's cognitive and self-regulatory functions, constraining their performance. *Hypothesis 12: There is a negative relationship between interruptions and goal attainment.*

Proactivity as an Ability

In the modern era, organizational structures have become boundary-less, and ambiguity and continuous change have become the norm (Crant, 1995; Frese & Fay, 2001; Organ, 1988). In this globalized world of work, it is vital for employees to adopt an action orientation, as well as to effectively engage in proactive behavior to gain a competitive advantage for both themselves and the organizations they work for. This is because proactive individuals have been shown to work well in today's dynamic work environments (Crant, 2000; Frese, Kring, Soose, & Zempel, 1996; Parker, 2000; Crant, 1995; Bateman & Crant, 1993; Fuller & Marler, 2009). Furthermore, these individuals have been shown to facilitate innovation and positive outcomes by identifying opportunities for improvement, initiating change, and employing problem-focused strategies to ensure positive results, not just for themselves but also for their team and their organization (Kirkman & Rosen, 1999; Koop, De Reu, & Frese, 2000; Tesluk & Mathieu, 1999; Druskat & Kayes, 2000; Frese & Fay, 2001; Frese et al., 2000; Crant & Bateman, 2000; Crant, 1995; Seibert et al., 1999; Thompson, 2005; Spitzmuller et al., 2015). Thus, proactivity has become a high leverage concept that is greatly valued and sought after in

organizations today. However, as proactivity has become increasingly relevant for work success, research on the concept has developed across different domains, resulting in a number of proactive constructs, definitions, and theoretical frameworks (Tornau & Frese, 2013; Crant, 2000). As such, proactivity has been conceptualized in a number of different ways, including as: a "stable disposition, a pattern of behaviors,…a way of behaving at work" (Bindl & Parker, 2010, p. 2); a behavioral and/or goal driven process (Grant & Ashford, 2008); and "the willingness and ability to take actions to change a situation to [one's] advantage" (Kirby, Kirby, & Lewis, 2002, p. 1538).

Recently, researchers have attempted to unite proactive research under one, well-developed theoretical framework by identifying the fundamental elements that underlie all proactive concepts (Grant & Ashford, 2008; Tornau & Frese, 2012). Due to these efforts, a consensus has begun to emerge that proactive behavior is not a single act but rather a self-initiated, future-focused, and goal-directed process (or way of behaving) that consists of three core interconnected acts or phases: anticipating, planning, and striving to have impact (Grant & Ashford, 2008; Belwalkar, 2016). Furthermore, it is understood that any task, whether it is within or outside of one's job role, can be carried out in a more or less proactive way. Thus, "the key criterion for identifying proactive behavior is not whether it is in-role or extra-role, but whether the employee anticipates, plans for, and attempts to

create a future outcome that has an impact on the self or environment" (Grant & Ashford, 2008, p. 9).

As such, a person is said to have a proactive personality if he or she has a relatively stable tendency to engage in this behavioral process (Tomau & Frese, 2012; Belwalkar, 2016; Crant, 2000). Conceptualized as a relatively stable multidimensional trait, proactive personality is often considered a subtly different construct from, and antecedent to, proactive behavior. For instance, Marler (2008) stated that proactive personality was a "necessary, but insufficient, condition for proactive behavior" (p. 23). However, research suggests that, from a practical standpoint, proactive personality and proactive behavior go hand-in-hand. Indeed, proactive personality predicts nearly all proactive behavior in most situations (Tornau & Frese, 2012; Chu, Zhang, & Huang, 2014; Li, Liang, & Crant (2010; Parker et al., 2006; Nguyen, 2013).

Furthermore, research suggests that a person's level of proactivity can increase through time (experience) and through training, leading to increased performance (Frese & Fray, 2001; Searle, 2008; Kirby, Kirby, & Lewis, 2002). Thus, some researchers view proactivity as an all-encompassing concept that includes both changeable behaviors and a person's disposition (Frese & Fray, 2001; Searle, 2008; Kirby, Kirby, & Lewis, 2002). For example, Kirby, Kirby, and Lewis (2002) define proactivity as "both the willingness and ability to take action to change a situation to one's advantage" (p. 1538). These researchers were able to

increase students' proactivity by training proactive thinking skills. Furthermore, proactivity was positively related to student objective (average exam score) and perceived (peer evaluations) performance. Due to evidence that both proactive behaviors and proactive thinking can be improved through training, the current study defined proactivity as both the proclivity and ability to engage in the behavioral process of recognizing opportunities for change, setting change-oriented goals, planning, and persevering until desired change is brought about.

Proactivity as a Moderator

Today, organizations provide employees with more opportunities "for personal growth, skill development, and connectedness to others but they also confront a lack of security, ambiguity, competing demands, and unrelenting work pressures" (Morhraman & Cohen, 1995, p. 377). People who are proactive have a higher tolerance for stress created by job demands and tend to perform better in these environments than more passive individuals (Parker & Sprigg, 1999). The reason for this is because proactive people are future oriented, meaning they identify and seize opportunities that bring about positive change (Bindl, Uta, & Parker, 2010; Bateman & Crant, 1993), make efforts to accumulate resources that facilitate goal attainment (Greenglass, 2002), and anticipate, strategize, and act in advance to prevent or minimize potential obstacles (Aspinwall & Taylor, 1997; Kirby, Kirby, & Lewis, 2002; Kickul & Grundry, 2002; Sohl & Moyer, 2009). Conversely, passive individuals typically do not take such actions and are more

likely to reactively adapt to or endure obstacles or their current circumstances (Bateman & Crant, 1993). For instance, Parker and Sprigg (1999) tested R. Karasek's (1979) demands-control model of stress and found that the proposed interaction between job demands and control (autonomy) only applied to "more proactive employees who are likely to take advantage of high job control to manage more effectively the demands they face" (Parker & Sprigg, 1999, p. 934), with no interaction found between job demands and control for employees categorized as passive. These findings suggest that, while job control can reduce strain caused by job demands for proactive employees, the job demands for more passive employees are strongly associated with strain, regardless of the degree of control they were given. As interruptions and multitasking can place extra demands on the employee and tend to be a significant source of work stress (Zijlstra et al., 1999; Robinson & Smallman, 2006; Kirchberg et al., 2015), proactive employees should be more likely to anticipate future interruptions, accumulate appropriate resources, and develop a plan of action to circumvent or mitigate the interruption and its effects. Additionally, proactive individuals also often engage in job crafting, shaping their environment or situations to better fit their needs and abilities and facilitating goal achievement (Bergeron et al., 2014; Gruman & Saks, 2011; Kim et al., 2009; Buss, 1987; Grant & Ashford, 2008). Thus, proactive people may also be better at and more inclined to structure their work environment to prevent interruptions.

Hypothesis 13: Proactive personality moderates the relationship between job characteristics and interruptions, where higher proactive personality weakens this positive relationship.

Furthermore, research has indicated that proactive people also reflect and seek feedback about the success, failure, or consequences of their proactive behavior more so than passive people (Grant & Ashford, 2008; Aspinwall & Taylor, 1997; Sohl & Moyer, 2009; Belwalkar, 2016), facilitating judgments of whether they should sustain or modify their strategy and/or their goals (Gollwitzer, 1990). In addition, proactive people are more likely to pursue their goals until they are fully achieved, despite any difficulties that may occur (Frese et al., 1996; Bateman & Crant, 1999). As such, proactive employees will be more likely to persevere despite interruptions to complete their goals, thus making them more likely to be successful at accomplishing their goals despite interruptions.

Hypothesis 14: Proactive personality moderates the relationship between interruptions and goal attainment, where higher proactive personality weakens this negative relationship.

Inconsistent Mediation

"Inconsistent mediation models are models where at least one mediated effect has a different sign than other mediated or direct effects in a model" (MacKinnon, Fairchild, & Fritz, 2007, p. 8). When an inconsistent mediation model includes multiple mediating variables that operate jointly at the same stage in a

causal model (i.e., an opposing effects model), the effects of the mediating mechanisms have different signs: one that has a positive influence on the dependent variable and one that has a negative influence on the dependent variable. These countervailing mediators, if approximately equal in magnitude, will produce an overall effect that is not detectably different from zero (Rucker et al., 2011). This overall null effect goes against the longstanding conventional standards of the causal steps approach popularized by Baron and Kenny (1986) and Judd and Kenny (1981), which state that in order to establish the presence of a mediation effect a direct effect between an independent and dependent variable must first be present. In recent years, the causal steps approach has been refuted and replaced by superior statistical methods for testing mediation that are more statistically powerful, logically coherent, and make fewer assumptions. These newer methods have validated mediation processes in the absence of a direct effect and view the analysis of mediational mechanisms, despite the absence of a direct effect, as a relevant and meaningful pursuit to extend and enhance research and applied understanding (Hayes, 2009; MacKinnon, Krull, & Lockwood, 2000; Paulhus et al., 2004; Sheets & Braver, 2016; Ledermann, Macho, & Kenny, 2001; Little et al., 2007; Rucker et al., 2011; Murayama & Elliot, 2012; Collins, Graham, & Flaherty, 1998; Kenny, Kashy, & Bolger, 1998; MacKinnon, Krull, & Lockwood, 2000; Shrout & Bolger, 2002; Judd & Kenny, 2010; MacKinnon, 2008; Preacher & Hayes, 2008; Zhao, Lynch, & Chen, 2010).

Aligned with this perspective, this study asserted that inconsistent mediation may hold in the job characteristics-work performance relationship, where job characteristics engender two distinct but jointly operating mediational mechanisms: one that facilitates performance (i.e., intrinsic motivation) and one that impedes performance (i.e., interruptions).

To the author's knowledge, the possibility that opposing mechanisms are operative in the job characteristics-job performance relationship has been seldom considered in job design and prior to this study had not been empirically tested. There appears to be only one account suggesting such a relationship, provided by Rosen, Chang, Djurdjevic and Eatough (2015). In their review of the JDR model, these researchers suggested that the newly-developed dual-process perspective of job stressors extended from the JDR gives rise to "the possible presence of countervailing causal pathways of stressors on performance" (p. 9). In this perspective, job characteristics can create two types of stressors: hindrance stressors and challenge stressors. Hindrance stressors are aspects of, or caused by, a person's job that are perceived by the individual as a threat and impede performance. Challenge stressors are aspects of, or caused by, a person's job that are perceived by the individual as obstacles to overcome that could lead to personal gains. Challenge stressors are thought to enhance motivation and job performance. Thus, the authors suggest the possibility "that some stressors may act as both hindrance and challenge stressors at the same time, in which case the stressor

would have multiple, yet opposing, effects on performance" (p. 9). The example they provide is as follows:

> "High workload may serve as a challenge for employees and motivate them to put in more effort to meet work demands. On the other hand, high workload may also elicit negative emotional reactions and physical fatigue associated with overworking. As such, employees' cognitive and emotional resources may be depleted by the stressor, which results in impaired performance. In this case, empirical studies may show a null bivariate relationship between workload and performance, but in reality this null relationship may be masking the complex mechanisms that link these two variables. Thus, the possible presence of countervailing causal pathways of stressors on performance further complicates the general question of how stressors relate to performance" (p. 9).

The current study shared Rosen and colleagues' perspective that opposing mediational mechanisms may be at work in the job characteristic-work performance relationship. Like Rosen and colleagues, the current study also posited that aspects of work, in this case job characteristics, can both instill motivation, thus producing positive work outcomes (i.e., goal attainment), as well as deplete cognitive resources (by way of increasing susceptibility to interruptions), thereby producing negative work outcomes (i.e., lack of goal attainment).

As this study was navigating new territory, it was difficult to hypothesize the specific magnitudes for the effects of the focal mediators: intrinsic motivation and interruptions. Thus, several possibilities existed for how these effects would combine to produce the overall job characteristics-task accomplishment relationship. One possibility was that these effects are approximately equal in magnitude, resulting in an overall job characteristics-task accomplishment relationship that is near zero. However, there are also reasons to think that other patterns may hold. For instance, MacKinnon, Fairchild, and Fritz (2007) have stated that a "scenario in which the direct and indirect effects entirely cancel each other out may be rare in practice" (p. 3). This thinking could also be applied to scenarios that include two indirect effects. Furthermore, there is ample research, with relatively consistent findings, indicating that these job characteristics are intrinsically motivating and have beneficial effects for performance outcomes (Parker & Ohly, 2008; Parker, Wall, & Cordery, 2001; Oldham & Hackman, 2010; Humphrey & Morgeson, 2007). Taken together, this suggests that the indirect effect of intrinsic motivation engendered by these job characteristics may have a moderately stronger positive effect on performance outcomes than the negative indirect effect created by the increase in interruptions created by those same job characteristics. Indeed, this would provide one explanation for the modest relationship often found in past job design research examining these relationships (Spector, 1986; Fried & Ferris, 1987, Farh & Scott, 1983; van der Doef & Maes,

1999; Parker, Wall, & Cordery, 2001; Dodd & Ganster, 1996; Jonge & Schauffle, 1998; Spector & Jex, 1991; Shaw & Gupta, 2004; Shalley, Gilson, & Blum, 2009; Rasmussen & Jeppesen, 2006).

However, this general notion that the opposing indirect effects are not identical suggests other possibilities for the overall relationship between job characteristics and work performance. For instance, it is also possible that these varying effects produce a curvilinear relationship between job characteristics and performance. This type of relationship between work characteristics and employee outcomes has been previously proposed. For instance, the Yerkes–Dodson Law (Yerkes & Dodson, 1908) postulates an inverted U-shaped relationship between an individual's level of physiological arousal and his/her level of performance. Because stressors are closely associated with physiological arousal level (Ganster & Schaubroeck, 1991), it has been argued that the relationship between stressors and performance might be best represented by an inverted U-shape, such that when employees experience an optimal level of stress they are likely to perform the best. However, experiencing too little or too much stress is purportedly associated with lower performance (Gardner, 1986; Gardner & Gummings, 1988; Scott, 1966). Unfortunately, there is very little empirical work substantiating Yerkes and Dodson's assertions in the occupational stress literature (Ferris et al., 2006).

Like Yerkes and Dodson, Warr (1987) proposed a similar quadratic relationship between job characteristics and employee mental health and well-being

that has garnered some empirical support. His theory, known as the Vitamin Theory of Job Design (VTJD), suggests that job characteristics' effect on mental health and employee well-being follows the same pattern vitamins have on physical health. Vitamins are shown to be important for physical health up to, but not beyond, a certain level. Insufficient vitamin intake can lead to poor health, but after absorption of certain levels, further intake yields no additional benefits and in some cases is actually harmful. The relationship between job characteristics and employee mental health and well-being can be thought of in the same way. Research exploring the VTJD has had moderate success empirically supporting this model. A few studies have even found a quadratic inverted U-shaped relationship between job characteristics and job satisfaction (Janssen, 2001).

Job satisfaction is often thought to imply work motivation. Thus, it is possible that similar effects could be seen for the job characteristics-performance relationship, even when demonstrated through the opposing process model. That is, if a curvilinear (inverted U) relationship exists between job characteristics and motivation, the negative relationship between job characteristics and performance (goal attainment) due to the opposing mediational role of interruptions might pull that overall curvilinear relationship downward instead of completely negating the curvilinear relationship.

Given these different possibilities, an exploratory approach was taken to investigate how these two distinct mediators come together to produce the overall

job characteristics-work performance relationship. Examining this relationship within an inconsistent mediation framework will facilitate our understanding of the complexities of the job characteristics-work performance relationship and offer another explanation for the mixed and/or weak results in this research area (Spector, 1986; Fried & Ferris, 1987, Farh & Scott, 1983; van der Doef & Maes, 1999; Parker, Wall, & Cordery, 2001; Dodd & Ganster, 1996; Jonge & Schauffle, 1998; Spector & Jex, 1991; Shaw & Gupta, 2004; Shalley, Gilson, & Blum, 2009; Rasmussen & Jeppesen, 2006). This discussion leads to the following research question.

Research Question: What is the relationship between work characteristics and goal attainment?

Chapter 4

Method

Participants

Two methods were employed to recruit participants: TurkPrime Data Acquisition Platform for the Social Sciences (TurkPrime) and snowball sampling (asking acquaintances to participate and recruit other participants for the study) through personal contacts. TurkPrime is a research platform that integrates with MTurk, a research platform for recruiting participants, to specifically support studies in the social and behavioral sciences (Litman, Robinson, & Abberbock, 2016). Despite the relatively low prices MTurk participants work for, MTurk has been found to be a valid and reliable source of data (Buhrmester et al., 2011; Chandler, Mueller, & Paolacci, 2014). Working in conjunction with MTurk, TurkPrime provides researchers with greater control over who participates in the study, more flexible communication and payment mechanisms, tools for longitudinal and panel studies, and tools to increase sample representativeness (Litman, Robinson, & Abberbock, 2016). These tools were utilized to maintain data quality. For instance, the author set worker-specific requirements so that only MTurk workers who have approval ratings of more than 95%, who have completed at least 1,000 HITs, and who work at least 30 hours a week were allowed to participate in the survey. Also, attention check items were randomly placed within surveys to ensure accurate responses, as attention checks have been shown to

improve the quality of data (Cheung et al., 2017). TurkPrime participants received 25 cents for every completed survey. All participants who passed the attention checks, including those recruited through the snowball method were entered in a raffle to win either a $50 or $100 gift card.

The total sample prior to data cleaning was 392 participants. It was decided that participants would be removed from the study for any one of three reasons: 1) they filled out the demographic survey but none of the daily surveys; 2) they incorrectly responded to three attention check items; and/or 3) two or more major inconsistencies were detected in their responses. The final sample that remained for hypothesis testing after cleaning consisted of 169 participants from a wide variety of occupations (see Table 38), of which 36.69% were male and 60.36% were female. The average age of participants was 35.60 years (*SD* = 9.83), with 28 year olds making up the largest percent (11%). The ethnic make-up of the sample was as follows: Caucasian-82.25%, Hispanic-4.73%, African American-4.14%, Asian-4.14%, Indian-0.6%, other/chose not to respond-4.14%. Lastly, the majority of the sample (68.7%) had a bachelor's degree or higher.

Procedure

The current study involved a 10 day daily diary design to measure daily perceptions of work characteristics, motivation, interruption frequency, and goal attainment. Participants were asked to establish their goals at the beginning of each day, as well as keep track of the type and frequency of interruptions they

experienced throughout the day via an interruption chart. This chart served as an aid to help participants keep track of and categorize their daily interruptions. An example chart is listed in the Appendix. At the end of each business day, participants were asked to use their chart to log their daily interruptions. This survey also included work characteristics, motivation, and goal attainment measures. Prior to the daily diary study, participants filled out a general survey that assessed proactive personality and demographic characteristics.

Measures

Work Characteristics

Work characteristic measures for job autonomy, task variety, skill variety, problem solving, job complexity, and interdependence were taken from The Work Design Questionnaire (WDQ) (Morgeson & Humphrey, 2006). Developed from an extensive literature review, the WDQ consists of seventy-nine items that capture four main domains of work characteristics: task characteristics, knowledge characteristics, social characteristics, and contextual characteristics. These domains are subdivided into 21 subscales of individual work characteristics (i.e., job autonomy, task variety, job complexity, etc.). Morgeson and Humphrey (2006) reported that confirmatory factor analyses supported the factor structure of the WDQ. Subscales demonstrated excellent internal consistency reliability. The WDQ related meaningfully with independent job-based databases, indicating necessary construct validity. Additionally, this measure was able to identify expected

differences in various occupations, supporting convergent and discriminant validity.

Job Autonomy Subscale

The job autonomy subscale was broken down into autonomy's three facets: work scheduling autonomy, decision-making autonomy, and work methods autonomy. Each autonomy dimension demonstrates good internal consistency (.85 or above). Example items include: "The job gives me a chance to use my personal initiative or judgment in carrying out the work"; "The job allows me to make my own decisions about how to schedule my work"; and "The job gives me considerable opportunity for independence and freedom in how I do the work". All items are rated on a 5-point "strongly disagree" to "strongly agree" Likert scale.

Interdependence Subscale

There are two facets of interdependence: initiated interdependence and received interdependence. Initiated interdependence refers to "the extent to which work flows from one job to other jobs," and received interdependence refers to "the extent to which a job is affected by work from other jobs" (Morgeson & Humphrey, 2006, p. 1324). Both the initiated interdependence and the received interdependence measures consist of three items and demonstrate good internal consistency (.80 or above) and interrater agreement (.68 or above). Example items include: "The job requires me to accomplish my job before others complete their

job" and "My job cannot be done unless others do their work." All items are rated on a 5-point "strongly disagree" to "strongly agree" Likert scale.

Task Variety Subscale

The task variety subscale consisted of four items all rated on a 5-point "strongly disagree" to "strongly agree" Likert scale. The scale demonstrates good internal consistency (.95), interrater reliability (.34), and interrater agreement (.91). An example item is: "The job involves a great deal of task variety."

Job Complexity Subscale

The job complexity subscale consisted of four items all rated on a 5-point "strongly disagree" to "strongly agree" Likert scale. The scale demonstrates good internal consistency (.87), interrater reliability (.31), and interrater agreement (.81). An example item is: "The job requires that I only do one task or activity at a time" (reverse scored).

Problem Solving

The problem solving subscale consisted of four items all rated on a 5-point "strongly disagree" to "strongly agree" Likert scale. The scale demonstrates good internal consistency (.84), interrater reliability (.38), and interrater agreement (.83). An example item is: "The job involves solving problems that have no obvious correct answer."

Skill Variety

The skill variety subscale consisted of four items all rated on a 5-point "strongly disagree" to "strongly agree" Likert scale. The scale demonstrates good internal consistency (.86), interrater reliability (.27), and interrater agreement (.90). An example item is: "The job requires a variety of skills."

Intrinsic Motivation and Work Enjoyment

An intrinsic motivation and work enjoyment scale from the Work-Related Flow inventory (WOLF) (Bakker, 2008) was adapted and used both to measure employee intrinsic motivation and the supplementary measure, work engagement. The WOLF scale was created to measure flow at work. Flow is a heightened short-term experience of complete absorption, work enjoyment, and intrinsic motivation. The WOLF 13 item questionnaire measures these three dimensions, with 4 items measuring absorption, 4 items measuring work enjoyment, and 5 items measuring intrinsic work motivation. Items are measured on a on a seven point scale (1 = never, 7 = always). A factor analysis found a 3-factor structure, consistent with the 3 dimensions measured by the scale. The reliability of the three flow dimensions was good, with a Cronbach's alpha of .90 for work enjoyment, .80 for absorption, and .75 for intrinsic work motivation. Test-retest correlations were .74 for absorption, .77 for work enjoyment, and .71 for work motivation. Items from the intrinsic work subscale were adapted. For instance, an example of the original item is "I get motivated from the work itself, and not from the reward for it," which will

be adapted to “Today, I was motivated by the work itself, and not from the reward for it.”

Interruptions

Participants were asked to track the daily interruptions they experience and to log those interruptions at the end of every day. Interruption logs that define the categories of interruptions, as well as list common interruption examples for each category, was offered to participants to help them keep track of the interruptions they experience. These logs may be filled out electronically or via hard copy. Participants could also leave the survey open in their browser and update the interruption section of the survey every time they experienced and interruption. The survey asked how many and for how long participants self-interrupted (i.e. experienced and internal interruption). The survey kept track of how long participants procrastinated, mind wandered, and took breaks. These constructs were examined both separately and as a composite when conducting hypotheses testing. External interruptions were examined in the same way. Specific external interruptions were also listed in the survey, where the participants could indicate how many times they experienced individual types of external interruptions. Individual interruptions, as well as a composite score of the sum of external interruptions a participant experienced during the day, were also examined when hypothesis testing. Participants were asked to keep track of interruptions by placing a tally mark in the corresponding interruption box. Participants could update their

interruption logs whenever they had the opportunity to do so. Participants that had more structured jobs were encouraged to fill out these logs during work breaks. Interruption logs have been used previously with success (Czerwinski, Horvitz, & Wilhite, 2004; McMillan, Brewer, & Spillers, 2012; Werner et al., 2012).

Goal Attainment

This study focused on daily goal attainment, involving the amount of goals completed at the end of the day out of those set at the beginning of the day. This method is a modified version of Claessens et al. (2009) method for measuring daily goal completion in complex jobs.

Start of the working day: To measure goal attainment, participants were asked to write down their planned tasks for the day and categorize them as primary, tasks that are considered as important and may incur significant costs if not completed that day, or secondary, tasks that the individual would like to accomplish that day but can be done tomorrow or later without resulting in significant consequences.

End of the working day: Participants were asked to indicate the percentage of primary and secondary tasks they have completed, along with the number of unplanned work-related tasks they had to perform that day. The question was written as follows: "Please indicate the percentage of primary tasks you have completed today (primary tasks completed divided by the total number of primary tasks listed in the beginning of the day)". The participants were asked to follow the

same procedure for secondary tasks. Finally, participants were asked to simply indicate the number of unexpected tasks they completed that day.

Proactive Personality

Proactive personality was measured by Belwalkar's (2016) 14-item tripartite measure of proactive personality. This scale was chosen over the original and more commonly used Proactive Personality Scale created by Bateman and Crant (1993) because it better represents the multidimensionality of proactivity personality. Originally, Bateman and Crant (1993) proposed the proactive personality construct as a single factor. However, many researchers today agree that proactive personality might be better construed as a multidimensional trait rather than a unitary construct (Fuller & Marler, 2009; Hough, 2003; Barrick & Mount, 2012). As such, Belwalkar (2016) set out to create a new model and measure of proactive personality that would "demonstrate greater fidelity to how proactivity is actually experienced and expressed in the world" (p.57). Her work indicated that proactive personality was a tripartite procedural construct including actions of "perceiving opportunities for change, implementing change (which could be either externally or Internally Motivated), and then persevering until the change is successfully implemented" (Belwalkar, 2016, p. 117). Belwalkar's (2016) tripartite Proactive Personality Scale (tPPS) demonstrated high internal consistency; overall (.94), perception (.84), implementation (*r*.93), and perseverance (.93). Additionally, the tPPS demonstrated satisfactory construct

validity, in that it correlated significantly and positively with Bateman and Crant's (1993) original proactive personality scale ($r = .81$, $p < 0.01$), the personal initiative scale ($r = .84$, $p < 0.01$), and conscientiousness ($r = .51$, $p < 0.01$). The new scale also explained significant additional variance of 5.4% in task performance above that of social desirability, Bateman and Crant's proactive personality, personal initiative, and conscientiousness. The items are rated on a 5-point scale (1 = *strongly disagree* to 5 = *strongly agree*). Example items include: "I am on the lookout for opportunities to change things for the better"; "I act on my own ideas to bring about positive changes"; and "I am persistent even when I encounter resistance to implementing change."

Chapter 5

Results

First, descriptive statistics and frequencies were examined to confirm there were no issues with the variables (see Table 1 and 1a). Next, all daily variables were examined to determine the amount of within person variance. All estimates of proportion of variance within person were .28 or above (see table 2). Finally, hierarchical linear modeling (HLM) was used to examine the hypotheses because the daily measures were nested within persons (Ohly, Sonnentag, Niessen, & Zapf, 2010). For the HLM analyses, person-mean centering for the level-1 predictors and robust standard errors were used (see Table 3 for a summary of results related to the hypotheses). To test Hypotheses 1-6, the within-person relationship between each job characteristic and motivation was examined, with the job characteristic as the level-1 predictor and motivation as the level-1 outcome. To test Hypothesis 1, the within-person relationship between job autonomy and intrinsic motivation was examined, with complete job autonomy (compilation of all three facets of job autonomy averaged together) as the level-1 predictor and intrinsic motivation as the level-1 outcome. Support was found for Hypothesis 1 (see Table 4), as complete job autonomy was positively related to intrinsic motivation ($b = 0.37$, $SE = 0.05$, $t = 7.76$, $p < .01$). Each sub-dimension of job autonomy was also positively related to motivation: scheduling autonomy ($b = 0.24$, $SE = 0.04$, $t = 5.86$, $p < .01$), decision

making autonomy (b = 0.33, SE = 0.04, t = 7.37, p < .01), and methods autonomy (b = 0.35, SE = 0.04, t = 8.21, p < .01). Supplemental analyses were also conducted examining job autonomy's relationship to job enjoyment. Complete job autonomy also had a significant positive relationship with job enjoyment (b = 0.51, SE = 0.07, t = 7.64, p < .01). Each sub-dimension of job autonomy also had a significant positive relationship with job enjoyment: scheduling autonomy (b = 0.35, SE = 0.06, t = 6.10, p < .01), decision making autonomy, (b = 0.46, SE = 0.06, t = 7.29, p < .01), and methods autonomy (b = 0.46, SE = 0.06, t = 7.71, p < .01) (see Table 5).

To test Hypothesis 2, the within-person relationship between skill variety and intrinsic motivation was examined, with skill variety as the level-1 predictor and intrinsic motivation as the level-1 outcome. Support was not found for Hypothesis 2 (see Table 6). For Hypothesis 2, there was a non- significant relationship between skill variety and intrinsic motivation (b = 0.07, SE = 0.06, t = 1.17, p = .24). Supplemental analyses were also conducted examining skill variety's relationship to job enjoyment. Skill variety also had a non-significant relationship with job enjoyment (b = 0.05, SE = 0.07, t = 0.63, p = .53) (see Table 7).

To test Hypothesis 3, the within-person relationship between task variety and intrinsic motivation was examined, with task variety as the level-1 predictor and intrinsic motivation as the level-1 outcome. Support was found for Hypothesis 3 (see Table 8). For Hypothesis 3, task variety was positively related to intrinsic

motivation (b = 0.09, SE = 0.04, t = 2.22, p < .05). Supplemental analyses were also conducted examining task variety's relationship to job enjoyment. Task variety was not significantly related to job enjoyment (b = 0.09, SE = 0.05, t = 1.68, p = .09) (see Table 9).

To test Hypothesis 4, the within-person relationship between job complexity and intrinsic motivation was examined, with job complexity as the level-1 predictor and intrinsic motivation as the level-1 outcome. Support was not found for Hypothesis 4 (see Table 10). For Hypothesis 4, job complexity was found to be negatively related to intrinsic motivation (b = -0.18, SE = 0.04, t = -4.07, p < .01) Supplemental analyses were also conducted examining job complexity's relationship to job enjoyment. Job complexity also had a negative relationship with job enjoyment (b = -0.24, SE = 0.06, t = -4.06, p < .01) (see Table 11).

To test Hypothesis 5, the within-person relationship between problem solving and intrinsic motivation was examined, with problem solving as the level-1 predictor and motivation as the level-1 outcome. Support was found for Hypothesis 5 (see Table 12). For Hypothesis 5, problem solving was positively related to intrinsic motivation (b = 0.10, SE = 0.04, t = 2.42, p < .05). Supplemental analyses were conducted examining problem solving's relationship to job enjoyment. Problem solving was found to have a non-significant with job enjoyment (b = 0.07, SE = 0.06, t = 1.20, p = .23) (see Table 13).

To test Hypothesis 6, the within-person relationship between interdependence and intrinsic motivation was examined, with interdependence as the level-1 predictor and intrinsic motivation as the level-1 outcome. Support was not found for Hypothesis 6 (see Table 14). For Hypothesis 6, there was a non-significant relationship between interdependence and intrinsic motivation (b = -0.04, SE = 0.05, t = -0.76 p = .45). Supplemental analyses were conducted examining interdependence's relationship to job enjoyment. Non-significant results were found for the relationship between interdependence and job enjoyment (b = -0.07, SE = 0.07, t = -1.06, p = .29) (see Table 15).

To test Hypothesis 7, the within-person relationship between intrinsic motivation and goal attainment was examined, with motivation as the level-1 predictor and goal attainment as the level-1 outcome. Support was found for Hypothesis 7 (see Table 16). For Hypothesis 7, intrinsic motivation was positively related to goal attainment (b = 7.83, SE = 3.01, t = 2.60, p < .01). Supplemental analyses were also conducted examining the relationship between job enjoyment and goal attainment. Job enjoyment was also positively related to goal attainment (b = 6.95, SE = 2.31, t = 3.01, p < .01) (see Table 17).

To test Hypotheses 8-11, the within-person relationship between each job characteristic and interruptions was examined, with the job characteristic as the level-1 predictor and interruptions as the level-1 outcome. To test Hypothesis 8, the within-person relationship between complete job autonomy and internal

interruptions was examined, with complete job autonomy as the level-1 predictor and interruptions as the level-1 outcome. Support was not found for Hypothesis 8 (see Table 18). For Hypothesis 8, complete autonomy did not have a significant relationship to internal interruptions (b = -1.28, SE = 2.27, t = - 0.56, p = .57). Supplemental analyses were also conducted examining job autonomy's relationship to external interruptions as well as its relationship to interruptions one experiences from personal life. Complete job autonomy did not have a significant relationship to external interruptions (b = -0.34, SE = 0.51, t = - 0.67, p = .51) (see Table 19). Complete job autonomy did have a significant positive relationship with interruptions from one's personal life (b = 0.31, SE = 0.14, t = 2.22, p < .05) (see Table 20). Each sub-dimension of job autonomy was also examined. Scheduling autonomy did have a significant positive relationship to interruptions from one's personal life (b = 0.20, SE = 0.08, t = 2.55, p < .01) but not to external interruptions (b = 0.03, SE = 0.40, t = 0.07, p = .95) (see Table 21 and 22). Decision making autonomy did not have a significant relationship to interruptions from one's personal life (b = 0.14, SE = 0.08, t = 1.67, p = .10) or to external interruptions (b = 0.05, SE = 0.38, t = 0.14, p = .89). Methods autonomy had a significant relationship to interruptions from one's personal life (b = 0.42, SE = 0.21, t = 2.00, p < .05) but not to external interruptions (b = -1.34, SE = 1.05, t = -1.28, p = .20). Finally, the relationship between the related concept of working from home and interruptions was also examined. Working from home did have a significant positive

relationship with internal interruptions (b = 13.66, SE = 4.89, t = 2.79 p < .01) and external interruptions (b = 3.78, SE = 1.45, t = 2.61, p < .01). However, working from home did not have a significant relationship to interruptions from one's personal life (b = -0.13, SE = 0.35, t = -0.38, p = .70).

To test Hypothesis 9, the within-person relationship between task variety and external interruptions was examined, with task variety as the level-1 predictor and external interruptions as the level-1 outcome. Support was found for Hypothesis 9 (see Table 23). For Hypothesis 9, task variety did have a significant positive relationship to external interruptions (b = 3.33, SE = 1.08, t = 3.07, p < .01). Supplemental analyses were also conducted examining task variety's relationship to internal interruptions and to unexpected goals given (how many unexpected tasks were given to the participant that day). Task variety did not have a significant relationship to internal interruptions (b = -1.57, SE = 2.05, t = -0.77, p = .45) (see Table 24). Task variety did have a significant positive relationship to unexpected goals given (b = 0.33, SE = 0.07, t = 4.90, p < .01) (see Table 25).

To test Hypothesis 10, the within-person relationship between total interdependence (average of both initiated and received interdependence) and intrusions was examined, with total interdependence as the level-1 predictor and intrusions as the level-1 outcome. Support was found for Hypothesis 10 (see Table 26). For Hypothesis 10, total interdependence did have a significant relationship to intrusions (b = 0.49, SE = 0.20, t = 2.50, p < .01). Supplemental analyses were

also conducted examining total interdependence's relationship with external interruptions and unexpected goals given. Additionally, each sub-dimension (received and initiated interdependence) was examined in terms of intrusions, external interruptions, and unexpected goals given (see Table 27 and 28). Total interdependence was not related to external interruptions (b = 1.36, SE = 0.92, t = 1.48, p = .14) but did have a significant relationship to unexpected goals given (b = 0.20, SE = 0.20, t = 2.10, p < .05). Received interdependence had a significant relationship with external interruptions (b = 1.62, SE = 0.74, t = 2.19, p < .05), intrusions (b = 0.44, SE = 0.19, t = 2.33, p < .05), and unexpected goals given (b = 0.18, SE = 0.07, t = 2.57, p < .01). However, initiated interdependence did not have a significant relationship with external interruptions (b = 0.84, SE = 0.85, t = 0.99, p = .32), intrusions (b = 0.30, SE = 0.22, t = 1.39, p = .17), or unexpected goals given (b = 0.12, SE = 0.07, t = 1.76, p = .08).

To test Hypothesis 11, the within-person relationship between each knowledge characteristic (complexity, skill variety, and problem solving) and interruption frequency was separately examined, with each knowledge characteristic as the level-1 predictor and interruptions as the level-1 outcome. Partial support was not found for Hypothesis 11 (see Table 29, 30, and 31). For Hypothesis 11, job complexity had a significant negative relationship with internal interruptions (b = -3.50, SE = 1.77, t = -1.98, p < .05) but a non-significant relationship to external interruptions (b = 1.34, SE = 0.81, t = 1.65, p = .10). Skill

variety did have a significant positive relationship to external interruptions (b = 2.03, SE = 0.93, t = 2.18, $p < .05$) but not to internal interruptions (b = 0.17, SE = 2.28, t = 0.08, p = .94). Problem solving did not have a significant positive relationship with external interruptions (b = 2.41, SE = 2.10, t = 1.15, p = .25) or internal interruptions (b = -2.84, SE = 1.89, t = -1.50, p = .14).

To test Hypothesis 12, the within-person relationship between interruptions and goal attainment was examined, with interruptions as the level-1 predictor and goal attainment as the level-1 outcome. Partial support was found for Hypothesis 12 (see Table 32). For Hypothesis 12, internal interruptions had a significant negative relationship to goal attainment (b = -0.20, SE = 0.07, t = -2.79, $p < .01$). External interruptions did not have a significant relationship to goal attainment (b = 0.24, SE = 0.13, t = 1.88, p = .06). However, supplemental analyses were also conducted examining the relationship between external interruptions and working after hours External interruptions did have a significant positive relationship with working after hours (b = 0.00, SE = 0.00, t = 2.95, $p < .01$) (see Table 33).

To examine Research Question 1, the within-person relationship between each job characteristic and goal attainment was examined, with the job characteristic as the level-1 predictor and goal attainment as the level-1 outcome (see Table 34). Complete job autonomy did not have a significant relationship with goal attainment (b = 0.09, SE = 3.65, t = 0.03, p = .98). Job complexity did not have a significant relationship with goal attainment (b = 2.67, SE = 2.89, t = 0.93, p =

.36). Skill variety did not have a significant relationship with goal attainment (b = 5.59, SE = 3.04, t = 1.84, p = .07). Total interdependence had a significant positive relationship with goal attainment (b = 7.53, SE = 2.92, t = 2.58, p < .01). Task variety had a significant positive relationship with goal attainment (b = 7.20, SE = 2.83, t = 2.55, p < .01). Problem solving did not have a significant relationship with goal attainment (b = 1.95, SE = 2.74, t = 0.71, p = .48).

To test Hypothesis 13, the effect of proactive personality on the within-person relationship between job characteristics and interruptions was examined, with job characteristics as the level-1 predictor, interruptions as the level-1 outcome, and proactive personality as the level-2 predictor of the level-1 intercepts and slopes. Support was not found for Hypothesis 13 (see Table 35). For Hypothesis 13, proactive personality did not moderate the relationship between complete job autonomy and internal interruptions (b = 0.81, SE = 3.86, t = 0.21, p = .83) or external interruptions (b = -0.57, SE = 0.74, t = -0.77, p = .45) (see Table 35 and 36). Proactive personality did not moderate the relationship between job complexity and external interruptions (b = -0.43, SE = 1.28, t = -0.34, p = .74) or internal interruptions (b = 4.44, SE = 2.75, t = 1.62, p = .11). Proactive personality did not moderate the relationship between problem solving and internal interruptions (b = 3.22, SE = 2.57, t = 1.25, p = .21) or external interruptions (b = -2.85, SE = 3.39, t = 0.84, p = .40). Proactive personality did not moderate the relationship between skill variety and internal interruptions (b = -1.09, SE = 3.88, t

= -0.28, p = .78) or external interruptions (b = 0.58, SE = 1.47, t = 0.39, p = .70). Proactive personality did not moderate the relationship between task variety and internal interruptions (b = 0.21, SE = 3.27, t = 0.07, p = .95) or external interruptions (b = 0.79, SE = 1.77, t = 0.44, p = .66). Finally, proactive personality did not moderate the relationship between total interdependence and internal interruptions (b = 1.93, SE = 2.73, t = 0.71, p = .48) or external interruptions (b = 0.01, SE = 1.14, t = 0.01, p = 1.00).

Finally, to test Hypothesis 14, the effect of proactive personality on the within-person relationship between interruptions and goal attainment was examined, with interruptions as the level-1 predictor, goal attainment as the level-1 outcome, and proactive personality as the level-2 predictor of the level-1 intercepts and slopes. Support was not found for Hypothesis 14 (see Table 37). For Hypothesis 14, proactive personality did not moderate the relationship between internal interruptions and goal attainment (b = -0.06 SE = 0.05, t = -1.13, p = .26) or external interruptions and goal attainment (b = -0.22, SE = 0.17, t = -1.27, p = .21).

Chapter 6

Discussion

Job design has been extensively studied throughout the years from a variety of different perspectives. Continuing job design research is important because the nature of work and its effects on employees is ever evolving. Thus, it is essential for researchers to develop a valid job design model that not only represents the work domain of its time but is also able to adapt to future changes. However, current models fall short in accounting for some of the complexities associated with many prevalent work characteristics (e.g., autonomy, task variety, skill variety, problem solving, job complexity, and interdependence). Specifically, current job design models do not consider how these work characteristics, or combinations there-of, can simultaneously increase an employee's intrinsic motivation and his/her susceptibility to work stressors (e.g., interruptions), or how these countervailing effects will influence performance (Rucker et al., 2011).

The present study begins to address this issue by examining the effects of these work characteristics on employee goal accomplishment from the perspective of a new conceptual model: the opposing processes model. In particular, intrinsic motivation and interruptions were examined as opposing mechanisms in the work characteristic-work performance relationship, where the positive effect of one (i.e., intrinsic motivation increasing effort and/or desire to reach one's goal) would be counteracted by the negative effect of the other (i.e., interruptions impeding goal

accomplishment). Based on this model, it was also hypothesized that employee personal characteristics, specifically proactive personality, would play a significant role in achieving positive work performance outcomes.

Findings and Implications

Previous research suggests that several major work characteristics (i.e., autonomy, complexity, skill and task variety, problem solving, and interdependence) can intrinsically motivate employees and can lead to increases in their performance (Shantz et al., 2013; Chung-Yan, 2010). Results for Hypothesis 1 show that there was a significant, within-person relationship between job autonomy and intrinsic motivation. Complete autonomy, along with its three sub-dimensions, were all significantly related to intrinsic motivation. These findings are consistent with prior research (Shantz et al., 2013; Chung-Yan, 2010). Thus, the present study adds to the list of prior works supporting the idea that job autonomy can intrinsically motivate employees. Additionally and somewhat uniquely, this study shows that each facet of job autonomy can increase employee intrinsic motivation. Furthermore, this finding contributes to prior research because the significant results indicate that this relationship holds at the within-person level, and that there are within-person fluctuations in both job autonomy and intrinsic motivation. The relationship between these job characteristics and job enjoyment was also examined. Job enjoyment was investigated as a supplementary variable, as in some contexts it can be somewhat difficult to capture intrinsic motivation. This study was

able to demonstrate significant results using both an intrinsic motivation measure as well as a work enjoyment measure.

Results for Hypothesis 2 were not supported in that a significant within-person relationship between skill variety and intrinsic motivation was not found. Results also indicated a non-significant within-person relationship between skill variety and job enjoyment. These findings are inconsistent with prior research that support a positive relationship between skill variety and intrinsic motivation (e.g., Humphrey et. al, 2007; Shantz et al., 2013; Schmitt, Coyle, Rauschenberger, & White, 1979; Carstensen, 1991; Baltes & Baltes, 1990; Truxillo, et al., 2012; Hacker, 2003; Parker, 2003; Karasek & Theorell, 1990). The reason for this unexpected finding is unclear and warrants further investigation in future research (e.g., perhaps focusing on differences associated with within-person vs. between-person perspectives on this relationship).

Results for Hypothesis 3 show that there was a significant within-person relationship between task variety and intrinsic motivation but a non-significant within-person relationship between task variety and work enjoyment. Why task variety is positively related to intrinsic motivation but not job enjoyment is unclear. It is possible that the challenge of tackling many tasks at once is not enjoyable in the moment but ultimately (i.e., looking back on one's tasks for the day) is intrinsically motivating because there is a sense of accomplishment and development. Nevertheless, this study's findings support prior research suggesting

a positive relationship between task variety and intrinsic motivation (Humphrey et al., 2007).

Results for Hypothesis 4 indicate this hypothesis was not supported. In fact, a significant negative (rather than positive) within-person relationship between job complexity and intrinsic motivation was found. Results also indicated a significant negative within-person relationship between job complexity and work enjoyment. These results challenge the idea based on past findings that job complexity is related to a number of positive work outcomes, such as engagement, creativity, and performance, due to improved intrinsic motivation (Ilgen & Hollenbeck, 1991; Morgeson & Campion, 2000; Grebner et al., 2003; Oldham & Cummings, 1996; Chung-Yan, 2010). Furthermore, these findings suggest that job complexity could possibly impede or decrease employee motivation or enjoyment, which could have a further negative impact on desired work outcomes. It may be that job complexity increases the number of stressors (other than interruptions) that individuals experience. These stressors could lead to cognitive fatigue, negative emotions, and burnout. Future research should explore if job complexity is related other job stressors and if these stressors lead to cognitive fatigue, negative emotions, and/or burnout.

Results for Hypothesis 5 show that there was a significant within-person relationship between problems solving and intrinsic motivation. However, like task variety, the within-person relationship between problem solving and job enjoyment

was not significant. It is uncertain why this pattern of results was obtained, especially because there is very little past research concerning problem solving. However, similar to task variety, it may be that problem solving is not necessarily enjoyable in the moment because it may often mean one has come across an unexpected problem, but nonetheless has motivating properties related to competence after one has come up with a workable solution. In any case, this study is unique and adds to the literature because, unlike the majority of past research on the construct, this study examined problem solving as an independent variable. This study provides empirical evidence that problem solving can be intrinsically motivating and will hopefully stimulate future research by raising the question of why problem solving did not show a similar relationship with job enjoyment.

Results for Hypothesis 6 show that there was a non-significant within-person relationship between interdependence and intrinsic motivation and between interdependence and work enjoyment. These findings are in opposition to the large number of prior studies indicating a positive relationship between interdependence and intrinsic motivation (Deci & Ryan, 2002; Myers, 1999; Gersick, Bartunek, & Dutton, 2000; Wrzesniewski, Dutton, & Debebe, 2003; Rasmussen & Jeppesen, 2006; Parker, Wall, & Cordery, 2001). As previously mentioned, interdependence is a multi-faceted construct that has been studied at the organizational, group, and individual level (Van der Vegt & Van de Vliert, 2002). As this study did not find a significant relationship between interdependence and intrinsic motivation, future

research should explore interdependence and its relationship to intrinsic and possibly other related concepts using a within-person approach.

Like many past studies (Ryan & Deci, 2000; Deci & Ryan, 1991; Sheldon, Ryan, Rawsthorne, & Ilardi, 1997; Nix, Ryan, Manly, & Deci, 1999; Deci & Ryan, 2000), results for Hypothesis 7 show that there was a significant within-person relationship between intrinsic motivation and goal attainment and work enjoyment and goal attainment. This study adds to past literature by empirically linking intrinsic motivation to goal attainment. Thus, this study supports past research indicating a positive relationship between intrinsic motivation and attainment of work-related goals and is broadly consistent with the work performance equation framework used in this research.

Results for Hypothesis 8 showed that the within-person relationship between complete job autonomy and internal interruptions was not significant. A supplementary analysis also found that complete job autonomy was likewise not significantly related to external interruptions. However, complete job autonomy, as well as two of its sub-dimensions (scheduling autonomy and methods autonomy), were found to have significant positive within-person relationships with personal life interruptions. Furthermore, an aspect of scheduling autonomy, working from home, was found to have a significant positive relationship with both internal and external interruptions. These results provide partial support to past studies linking job flexibility, a similar construct to scheduling autonomy, to increases in both non-

work to work distractions and work to non-work distractions (Keeney, 2012). Furthermore, job flexibility, "a composite of perceived flexibility in the location of work and in the timing of work" (Keeney, 2012, p. 16) and task autonomy have been shown to lead to cognitive distraction and increased interruptions (Keeney, 2012). These results demonstrate the dynamic nature of job autonomy and begin to further highlight the notion that greater autonomy may have both advantages (motivation) and disadvantages (interruptions).

Hypothesis 9 results showed that there is a significant positive within-person relationship between task variety and external interruptions, as well as between task variety and how many unexpected goals/tasks employees are given. These results support prior research linking task variety (or job enlargement) to increases in multitasking and the assertion that multitasking behavior increases external interruptions (Czerwinski, Horvitz, & Wilhite, 2004; Appelbaum, Marchionni, & Fernandez, 2008).

Results for Hypothesis 10 showed that total interdependence did not have a significant within-person relationship with external interruptions. However, when total interdependence was broken down into its two sub-dimensions (initiated interdependence and received interdependence), it was found that, although initiated interdependence did not have a significant within-person relationship with external interruptions, received interdependence did have a significant positive relationship with external interruptions. Similarly, total interdependence did have a

significant within-person relationship with both intrusions and with unexpected goals given; however, when it was broken down into its two sub-dimensions, it was found again that initiated interdependence did not have a significant relationship with either intrusions or unexpected goals given, whereas received interdependence did have a significant positive relationship with both intrusions and unexpected goals given. These results suggest that an employee becomes particularly susceptible to interruptions when he/she depends on others to get work done, but this issue does not arise as much when others depend on that worker to complete their work. These findings suggest more research needs to be done to identify what specific mechanisms cause received interdependence to be an issue. Once identified, practitioners can develop pragmatic solutions to circumvent or mitigate the interruptions created by received interdependence. This study could initiate this process and adds to the literature by examining multiple facets of interdependence and how each unique facet affects the interruptions employees' experience.

Results for Hypothesis 11 showed that while problem solving was not related to either internal or external interruptions, skill variety had a significant positive relationship to external interruptions but a non-significant relationship to internal interruptions. In addition, job complexity was shown to have a significant negative relationship to internal interruptions but had a non-significant relationship to external interruptions. Job complexity may have a negative relationship to internal interruptions because people who have complex jobs simply do not have

the time/opportunity to self-interrupt. Overall, these results, with the exception of skill variety, do not support the notion that when work is complex, interruptions become more disruptive and prompt further interruptions (Speier et al., 2003; Hodgetts & Jones, 2006; Gillie & Broadbent, 1989; Baethge, Rigotti, & Roe, 2015). As mentioned earlier, there is a notable lack of literature linking problem solving, skill variety, and job complexity to interruption susceptibility. The results of this study signify the need for further investigation.

Results for Hypothesis 12 showed that while internal interruptions had a significant negative relationship to goal attainment, external interruptions did not have a significant relationship to goal attainment. However, supplemental analyses revealed that external interruptions had a significant positive relationship with working after hours. It may have been the case that employees who experienced many external interruptions reported completing their goals because they did so after hours. Future research could examine if this is the case or if there are other factors affecting this relationship.

Results for Research Question 1 show that only interdependence and task variety had significant positive relationships with goal attainment. All other job characteristics exhibited non-significant relationships with goal attainment. Although non-significant results can be difficult to interpret, this pattern of findings is broadly consistent with the current model insofar as this model suggests that the focal job characteristics can have both positive and negative implications which

may result in modest significant to non-significant relationships with outcomes. Note also that interruptions may not be the main or only negative outcome engendered by these job characteristics. Other job stressors could be more influential than interruptions and should be examined in future research. A possible reason why interdependence was found to be positively related to goal attainment despite not having a significant relationship to intrinsic motivation could be because interdependence facilitates goal attainment through other means. For instance, increased interdependence also has the possibility of increasing how much shared responsibility there is for the overall goal/task, the number of people an individual works with, and/or the amount of time an individual must work with others. An increase in one or more of these factors may increase an individual's access to resources by way of feedback and knowledge. Furthermore, an increase in team members should decrease the amount of work each individual team member needs to accomplish. The mechanisms through which interdependence facilitates goal accomplishment is a possible subject for future research. Task variety could increase goal attainment because it increases intrinsic motivation, as the results of this study indicate, or because those with greater task variety are simply are given more tasks throughout the day. It is possible that it was difficult for participants to differentiate their personal goals set at the beginning of the day from those given to them unexpectedly throughout the day. This could have impeded their ability to recognize these tasks as hindering the accomplishment of their original goals.

Future research could clarify if task variety actually facilitates an individual's own goal accomplishment or if this simply reflects being given more work throughout the day.

Results for Hypothesis 13 showed that proactive personality did not moderate the relationship between any of the job characteristics and interruptions. Similarly, results for Hypothesis 14 showed that proactive personality also did not moderate the relationship between interruptions and goal attainment. These results are somewhat inconsistent with past research that indicates that proactive personality is positively related to employee performance (Crant, 2000; Frese, Kring, Soose, & Zempel, 1996; Parker, 2000; Crant, 1995; Bateman & Crant, 1993; Fuller & Marler, 2009). Although proactive personality may be predictive of job performance, it may not be the key variable in mitigating the amount of or the effects of interruptions on employee performance. Other personal characteristics such as self-control, adaptability, or trait mindfulness may be more helpful in avoiding and/or reducing the negative effects of interruptions.

These results have a few theoretical implications. A number of the job characteristics were found to be linked to intrinsic motivation as well as some type of interruption. Motivation was found to have a significant positive relationship to goal attainment and internal interruptions was found to have a significant negative relationship to goal attainment. Thus, the findings of this study provide partial support for future examination of job characteristics and their effects through the

opposing processes model and substantiate the idea that the potential positive effects of job characteristics on employee motivation do not necessarily translate into improved employee performance. However, results did not fully support the model. For instance, some relationships such as those for problem solving only partially supported the model. Problem solving was found to have a significant positive relationship to intrinsic motivation but a non-significant relationship to interruptions and goal attainment. It is possible that some job characteristics can increase intrinsic motivation and work stressors other than interruptions and that these other stressors hinder goal attainment. Future research should examine if these job characteristics follow the general ideas underlying the current model but through other job stressors.

These results may also have practical implications. Overall, the results support the idea that job characteristics can simultaneously have both positive and negative implications. These results further highlight the need for practitioners to exercise caution when implementing or redesigning jobs to increase job characteristics traditionally characterized as motivational due to their potential to also result in job stressors and engender negative outcomes. Furthermore, these results indicate that the sub-dimensions of job autonomy and interdependence may have their own unique effects on employees. For instance, results suggest that while decision autonomy only has positive effects, scheduling autonomy can significantly increase the amount of interruptions employees experience from their

personal life. Thus, practitioners may want to consider increasing decision making autonomy but refrain from giving their employees more scheduling autonomy. Similarly, while initiated interdependence seems to be benign when it comes to employees experiencing interruptions, received interdependence was significantly related to intrusions, external interruptions, and unexpected goals given. Thus, although practitioners may not be able to reduce the amount of received interdependence in their organizations they can be aware of these issues and create trainings and take other precautions to help employees mitigate the interruptions they experience. For instance, mindfulness training (training employees to focus on their experiences in the present moment in a non-judgmental and accepting way; Levey et al., 2012) in the workplace has been shown to reduce employee stress (Goodman & Schorling, 2012; Grossman et al, 2004), decrease task switching (Levey et al., 2012), and improve work performance and engagement (Van Gordon et al, 2014; Leroy et al., 2013). Future research could examine whether mindfulness training moderates the relationship between job characteristics and interruptions as well as the relationship between interruptions and work performance.

Limitations and Future Research

It is important to note that this study does have some limitations. First, given the recruitment strategies, the sample is not representative of the working population. The majority of the participants were women, highly educated, and Caucasian. Future research could take further actions to ensure a more

representative sample by using other recruitment methods. Second, this study measured only daily goal accomplishment. In the present work environment, it is possible that there are occupations that operate or measure performance on the ability to achieve weekly or monthly goals. Future research could explore this model examining goals over a longer period of time or at different points in time (e.g., daily, weekly, and monthly). Third, the survey instructions and items used in this research were somewhat detailed. The study was composed of multiple components and required participants to perform several tasks, such as tracking and defining their interruptions throughout the day for ten days. These factors, especially having to define and keep track of specific interruptions, could have caused participants to give less than accurate responses due to diminished motivation, memory decay, confusion, and/or cognitive drain. To minimize errors due to confusion, the author and a panel of five subject matter experts (SMEs) reviewed all the instructions for clarity. Also, to help mitigate issues resulting from memory decay, participants were given a log which they could fill out electronically or via hard copy to help track their daily goals and interruptions. Finally, to address potential motivation issues, attention check items were placed throughout the demographic and daily surveys. Nonetheless, future research involving simplified measures and procedures might be useful. Fourth, participants were administered the same survey for all ten days, which possibly resulted in a form of practice effect, where participant familiarity with the items influenced their

responses. Fifth, all measures were self-report and thus were susceptible to social desirability and reference bias. Social desirability bias occurs when participants rate themselves higher than they should to portray a more positive image of themselves (Fisher, 1993). Reference bias occurs when survey responses are influenced by differing standards of comparison (Duckworth & Yeager, 2015). For instance, more highly educated participants may have a different mental scale for what constitutes high proactivity than participants who are less educated. Thus, additional research involving different designs may be helpful. For instance, future research may consider using interviewing along with observational methods to further address these issues. For example, interviewing would facilitate structure and allow the researcher to ask for or provide clarification when needed. Including observation into the methodology would reduce the possibility of social desirability bias and facilitate accurate measures of interruptions and goal attainment.

Conclusion

The present study was designed to help explain why motivational job characteristics often have inconsistent relationships with employee performance as well as to introduce and promote a new way to explore the dynamic work environments seen in organizations today. The findings of this study provide partial support for the examination of job characteristics and their effects through the opposing processes model. The findings also highlight how complex the effects of job characteristics can be. For instance, these results indicated not only that

perceptions of these job characteristics can vary from day to day but also that there is a real need to examine the elements of each job characteristic and how these elements affect employees. This study thus adds to our understanding of job design and how it influences employee performance. It is hoped that this work will stimulate future studies within this area of research.

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Appendix A
Measures

Work Scheduling Autonomy
1. The job allows me to make my own decisions about how to schedule my work.
2. The job allows me to decide on the order in which things are done on the job.
3. The job allows me to plan how I do my work.

Decision-Making Autonomy
1. The job gives me a chance to use my personal initiative or judgment in carrying out the work.
2. The job allows me to make a lot of decisions on my own.
3. The job provides me with significant autonomy in making decisions.

Work Methods Autonomy
1. The job allows me to make decisions about what methods I use to complete my work.
2. The job gives me considerable opportunity for independence and freedom in how I do the work.
3. The job allows me to decide on my own how to go about doing my work.

Task Variety
1. The job involves a great deal of task variety.
2. The job involves doing a number of different things.
3. The job requires the performance of a wide range of tasks.
4. The job involves performing a variety of tasks.

Job Complexity
1. The job requires that I only do one task or activity at a time (reverse scored).
2. The tasks on the job are simple and uncomplicated (reverse scored).
3. The job comprises relatively uncomplicated tasks (reverse scored).
4. The job involves performing relatively simple tasks (reverse scored).

Problem Solving
1. The job involves solving problems that have no obvious correct answer.
2. The job requires me to be creative.
3. The job often involves dealing with problems that I have not met before.
4. The job requires unique ideas or solutions to problems.

Skill Variety
1. The job requires a variety of skills.
2. The job requires me to utilize a variety of different skills in order to complete the work.
3. The job requires me to use a number of complex or high-level skills.
4. The job requires the use of a number of skills.

Interdependence

Initiated Interdependence
1. The job requires me to accomplish my job before others complete their job.
2. Other jobs depend directly on my job.
3. Unless my job gets done, other jobs cannot be completed.
Received Interdependence
1. The job activities are greatly affected by the work of other people.
2. The job depends on the work of many different people for its completion.
3. My job cannot be done unless others do their work.

Tripartite Proactive Personality Scale
1. I am on the lookout for opportunities to change things for the better.
2. I am on the lookout for ways to improve things around me.
3. I look for the better ways to do things.
4. I scan my environment for possible improvements.
5. I turn opportunities for improvement into realities.
6. I initiate actions that bring positive changes around me.
7. I turn my ideas for constructive change into realities.
8. I take charge when the situation needs a solution.
9. I take the initiative in solving problems around me.
10. When I encounter a problem, I take the initiative to resolve it.
11. When implementing a planned change, I finish what I planned despite obstacles.
12. I persevere until I succeed in making the changes that I envision.
13. I am persistent despite obstacles when trying to implement a change.
14. When implementing a difficult change, I persist until I succeed.

Intrinsic Motivation
Work--Related Flow Inventory WOLF
Work enjoyment
Today work gave me a good feeling
Today work gave me a lot of enjoyment
Today I felt happy at work
Today I felt cheerful at work

Intrinsic motivation
I would still do this work, even if I received less pay
Today, I enjoyed work
Today, the work I did was for myself
Today, I was motivated from the work itself, and not from the reward for it

Scale: 7 point 1, never 7 always

Appendix B

Tables

Table 1: Descriptive Statistics

Variable	*Mean*	*SD*	*N*
1. Mind Wandering	18.18	20.14	169
2. Procrastination	20.37	20.97	169
3. Intrusions	2.49	5.75	169
4. Personal Life Interruptions	1.35	4.3	169
5. Unexpected Goals/Tasks	1.76	1.68	115
6. Work After Hours	0.19	0.31	169
7. Work From Home	0.09	0.27	104
8. Total Internal Interruptions	38.56	34.89	169
9. Total External Interruptions	16.33	20.09	169
10. Goal Attainment	187.24	61.29	169
11. Intrinsic Motivation	3.8	1.21	169
12. Work Enjoyment	4.63	1.78	169
13. Complete Autonomy	5.13	1.26	169
14. Scheduling Autonomy	5.14	1.32	169
15. Decision Autonomy	5.16	1.28	169
16. Methods Autonomy	5.1	1.31	169
17. Total Interdependence	4.37	1.21	169
18. Initiated Interdependence	4.53	1.32	169
19. Received Interdependence	4.2	1.3	169
20. Task Variety	5.06	1.25	169
21. Skill Variety	4.75	1.3	169
22. Job Complexity	3.87	1.15	169
23. Problem Solving	3.87	1.35	169
24. Proactive Personality	5.54	0.85	169

Note: Day Level Variables were First Averaged Across Days

Table 1a: Inter-correlations

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14
MW														
Procrast	0.45**													
Intrustions	0.02	0.02												
PL Interrupt	0.16*	0.14	0.21**											
U Goals	-0.09	0.01	0.29**	0.37**										
Wrk Aft Hrs	0.06	0.18*	0.02	0.04	0.17									
Wrk frm Home	0	0.13	-0.5	0.05	-0.03	0.15								
T.I. Interrupt	0.84**	0.86**	0.02	0.17*	-0.04	0.14	0.08							
T.E.Interrupt	0.23**	0.25**	0.62**	0.68**	0.33**	0.05	0.04	0.28**						
GA	-0.1	-0.1	0.07	-0.13	0.25**	-0.15*	-0.2*	-0.11	-0.09					
I Motivation	-0.15*	-0.09	-0.12	0.9	0.02	0.06	0.05	-0.14	-0.01	-0.09				
Wrk Enjoy	-0.18*	-0.13	-0.01	0.04	-0.01	-0.08	-0.05	-0.18*	-0.04	-0.05	0.76**			
C Autonomy	-0.13	0.14	0.02	0.04	0.16	0.08	0.08	0.01	0.08	0	0.40**	0.45**		
S Autonomy	-0.14	0.11	0	0.05	0.15	0.06	0.08	-0.01	0.08	-0.02	0.42**	0.45**	0.96**	
D Autonomy	-0.12	0.16*	0.02	0.03	0.15	0.11	0.07	0.03	0.08	0.03	0.39**	0.44**	0.96**	0.88**
M Autonomy	-0.13	0.12	0.06	0.02	0.16	0.08	0.08	0	0.08	0	0.36**	0.42**	0.97**	0.91**
T Interdepend	-0.05	-0.12	-0.03	0.06	0.20*	0.15	-0.23*	-0.1	0.03	0.24**	0.08	0.08	-0.05	-0.05
I Interdepend	-0.1	-0.14	-0.04	0.08	0.15	0.14	-0.21*	-0.14	0.02	0.17*	0.13	0.14	0	0
R Interdepend	0	-0.08	-0.02	0.03	0.22*	0.12	-0.21*	-0.05	0.03	0.26**	0.04	0.02	-0.09	-0.01
Task Varity	-0.12	0.05	-0.05	-0.01	0.27**	017*	-0.08	-0.04	0.01	0.1	0.32**	0.29**	0.44**	0.41**
Skill Variety	-11	0.04	-0.05	0.05	0.23*	0.21**	-0.8	-0.04	0.07	0.11	0.39**	0.31**	0.42**	0.39**
Complexity	-0.11	0.01	-0.04	-0.5	0.12	0.16*	-0.03	-0.06	-0.05	0.04	-0.07	-0.16*	0.01	-0.02
Prob Solv	0	0.04	0.05	0.11	0.23*	0.25**	-0.27	0.03	0.13	0.05	0.41**	0.25**	0.35**	0.33**

Note: Procrast: Procrastination; PL Interrupt: Personal Life Interruptions; U Goals: Unexpected Goals; Wrk Aft Hrs: Work After Hours; Wrk frm Home: Work from Home; T.I. Interrupt: Total Internal Interruptions; T. E. Interrupt: Total External Interruptions; GA: Goal Attainment; I Motivation: Intrinsic Motivation; Wrk Enjoy: Work Enjoyment; C

Autonomy: Complete Autonomy; S Autonomy: Scheduling Autonomy; D Autonomy: Decision Autonomy; M Autonomy: Method Autonomy; T Interdepend: Total Interdependence; I Interdepend: Initiated Interdependence; R Interdepend: Recieved Interdependence; Prob Solv: Problem Solving; *p<.05. **p<.01

15	16	17	18	19	20	21	22
0.91**							
-0.01	-0.08						
0.04	-0.04	0.92**					
-0.05	-0.11	0.92**	0.70**				
0.45**	0.40**	0.45**	0.46**	0.37**			
0.47**	0.37**	0.46**	0.45**	0.40**	0.85**		
0.05	-0.02	0.30**	0.33**	0.22**	0.49**	0.55**	
0.39**	0.29**	0.42**	0.34**	0.42**	0.48**	0.69**	0.38**

Table 2: Estimates of Within Person Variance Variable	***Level 1 Variance Component***	***Proportion of Variance Within Person***
Intrinsic Motivation	0.62	0.33
Mind Wandering	502.78	0.67
Procrastination	734.98	0.73
Intrusions	14.01	0.37
Discrepancies	5.04	0.47
Interruptions from Personal Life	7.25827	0.43
Distractions	4.60007	0.72
Unexpected Goals Given	2.28	0.62
Unexpected Goals Complete	1216.75	0.64
Working After Hours	0.08	0.57
Worked from Home	0.03	0.31
Work was Very Stressful	1.88	0.67
Anxious at Work	1.49	0.53
Break Frequency	3.5	0.62
Total Time Internally Interrupted	1442.33	0.65
External Interruptions	205.91	0.46
Meetings	26.78	0.74
Goals Completed	3245.1	0.56
Enjoyment	1.13	0.53
Scheduling Autonomy	0.8	0.34
Decision Making Autonomy	0.63	0.3
Methods Autonomy	0.65	0.29
Total Autonomy	0.57	0.28
Initiated Interdependence	1.13	0.44
Received Interdependence	1.16	0.46
Total Interdependence	0.88	0.42
Task Variety	1	0.42
Skill Variety	0.69	0.32
Problem Solving	0.81	0.34
Complexity	0.84	0.44

Table 3: Hypothesis Results Summary

Hypothesis	Supported/Not Supported	*b*	*SE*	*t*
1. There is a Positive Relationship between Autonomy and Intrinsic Motivation	Supported	0.37	0.05	7.76***
2. There is a Positive Relationship between Skill Variety and Intrinsic Motivation	Not Supported	0.07	0.06	1.17^{ns}
3. There is a Positive Relationship between Task Variety and Intrinsic Motivation	Supported	0.09	0.04	2.22*
4. There is a Positive Relationship between Job Complexity and Intrinsic Motivation	Not Supported	-0.18	0.04	-4.07**
5. There is a Positive Relationship between Problem Solving and Intrinsic Motivation	Supported	0.1	0.04	2.42*
6. There is a Positive Relationship between Interdependence and Intrinsic Motivation	Not Supported	-0.04	0.05	-0.76^{ns}
7. There is a Positive Relationship between Intrinsic Motivation and Goal Attainment	Supported	7.83	3.01	2.60**
8. There is a Positive Relationship between Autonomy and Internal Interruptions	Not Supported	-1.28	2.27	-0.56^{ns}
9. There is a Positive Relationship between Task Variety and External Interruptions	Supported	3.33	1.08	3.07**
10. There is a Positive Relationship between Interdependence and External Interruptions, Especially Intrusions	Supported	0.49	0.2	2.50**
11. There is a Positive Relationship between Knowledge Characteristics and Interruption Frequency	Partially Supported			
a. Job Complexity				

i. Internal Interruptions		-3.5	1.77	-1.98*
ii. External Interruptions		1.34	0.81	1.65^{ns}
b. Skill Variety				
i. Internal Interruptions		0.17	2.28	0.08^{ns}
ii. External Interruptions		2.03	0.93	2.18*
c. Problem Solving				
i. Internal Interruptions		-2.84	1.89	-1.50^{ns}
ii. External Interruptions		2.41	2.1	1.15^{ns}
12. There is a Negative Relationship between Interruptions and Goal Attainment	Partially Supported			
i. Internal Interruptions		-0.2	0.07	-2.79**
ii. External Interruptions		0.24	0.13	1.88^{ns}
13. Proactive Personality Moderates the Relationship between Job Characteristics and Interruptions	Not Supported			
14. Proactive Personality Moderates the Relationship between Interruptions and Goal Attainment	Not Supported			
15. Research Question: What is the Relationship between Job Characteristics and Goal Attainment	Only Significant Relationships Found = Task Variety	7.20	2.83	2.55**
	and Interdependence	7.53	2.29	2.58**

****p<.001, **p<.01, *p<05, ^{ns}p = not significant*

Table 4. Hypothesis 1: Job Autonomy Predicting Intrinsic Motivation

Model and variable	***b***	***SE***	***t***	***df***
Dependent Variable: Intrinsic Motivation				
Complete	0.37	0.05	7.76***	168
Scheduling	0.24	0.04	5.86***	168
Decision	0.33	0.04	7.37***	168
Method	0.35	0.04	8.21***	168

Note: each predictor was examined in a separate model
*** $p < .001$.

Table 5. Hypothesis 1a Supplemental Analysis: Job Autonomy Predicting Job Enjoyment

Model and variable	***b***	***SE***	***t***	***df***
Dependent Variable: Job Enjoyment				
Complete	0.51	0.07	7.64***	168
Scheduling	0.35	0.06	6.10***	168
Decision	0.46	0.06	7.29***	168
Method	0.46	0.06	7.71***	168

Note: each predictor was examined in a separate model
*** $p < .001$.

Table 6. Hypothesis 2: Skill Variety Predicting Intrinsic Motivation

Model and variable	***b***	***SE***	***t***	***df***
Dependent Variable: Intrinsic Motivation				
Skill Variety	0.07	0.06	1.17ns	168

ns *non-significant*

Table 7. Hypothesis 2a Supplemental Analysis: Skill Variety Predicting Job Enjoyment

Model and variable	***b***	***SE***	***t***	***df***
Dependent Variable: Job Enjoyment				
Skill Variety	0.05	0.07	0.63ns	168

ns *non-significant*

Table 8. Hypothesis 3: Task Variety Predicting Intrinsic Motivation

Model and variable	***b***	***SE***	***t***	***df***
Dependent Variable: Intrinsic Motivation				
Task Variety	0.09	0.04	2.22*	168

* *p<.05*

Table 9. Hypothesis 3a Supplemental Analysis: Task Variety Predicting Job Enjoyment

Model and variable	***b***	***SE***	***t***	***df***
Dependent Variable: Job Enjoyment				
Task Variety	0.09	0.05	1.68ns	168

ns *non-significant*

Table 10. Hypothesis 4: Job Complexity Predicting Intrinsic Motivation

Model and variable	***b***	***SE***	***t***	***df***
Dependent Variable: Intrinsic Motivation				
Job Complexity	-0.18	0.04	-4.07***	168

*** *p<.001*

Table 11. Hypothesis 4a Supplemental Analysis: Job Complexity Predicting Job Enjoyment

Model and variable	***b***	***SE***	***t***	***df***
Dependent Variable: Job Enjoyment				
Job Complexity	-0.24	0.06	-4.06***	168

*** *p<.001*

Table 12. Hypothesis 5: Problem Solving Predicting Intrinsic Motivation

Model and variable	***b***	***SE***	***t***	***df***
Dependent Variable: Intrinsic Motivation				
Problem Solving	0.10	0.04	2.42**	168

** *p<.01*

Table 13. Hypothesis 5a Supplemental Analysis: Problem Solving Predicting Job Enjoyment

Model and variable	***b***	***SE***	***t***	***df***
Dependent Variable: Job Enjoyment				
Problem Solving	0.07	0.06	1.20ns	168

ns *non-significant*

Table 14. Hypothesis 6: Total Interdependence Predicting Intrinsic Motivation

Model and variable	***b***	***SE***	***t***	***df***
Dependent Variable: Intrinsic Motivation				
Total Interdependence	-0.04	0.05	-0.76ns	168

ns *non-significant*

Table 15. Hypothesis 6a Supplemental Analysis: Total Interdependence Predicting Job Enjoyment

Model and variable	***b***	***SE***	***t***	***df***
Dependent Variable: Job Enjoyment				
Total Interdependence	-0.07	0.07	-1.06ns	168

ns *non-significant*

Table 16. Hypothesis 7: Intrinsic Motivation Predicting Goal Accomplishment

Model and variable	***b***	***SE***	***t***	***df***
Dependent Variable: Goal Accomplishment				
Intrinsic Motivation	7.83	3.01	2.60**	168

** *p<.01*

Table 17. Hypothesis 7aSupplemental Analysis: Job Enjoyment Predicting Goal Accomplishment

Model and variable	*b*	*SE*	*t*	*df*
Dependent Variable: Goal Accomplishment				
Job Enjoyment	6.95	2.31	3.01***	168

*** *p<.001*

Table 18. Hypothesis 8: Complete Job Autonomy Predicting Internal Interruptions

Model and variable	*b*	*SE*	*t*	*df*
Dependent Variable: Internal Interruptions				
Complete Job Autonomy	-1.24	2.27	-0.56ns	168

ns *non-significant*

Table 19. Hypothesis 8a Supplemental Analysis: Complete Job Autonomy Predicting External Interruptions

Model and variable	*b*	*SE*	*t*	*df*
Dependent Variable: External Interruptions				
Complete Job Autonomy	-0.34	0.51	-0.67ns	168

ns *non-significant*

Table 20. Hypothesis 8b Supplemental Analysis: Job Autonomy Predicting Interruptions from One's Personal Life

Model and variable	*b*	*SE*	*t*	*df*
Dependent Variable: Intrinsic Motivation				
Complete	0.31	0.14	2.22*	168
Scheduling	0.20	0.08	2.55**	168
Decision	0.14	0.08	1.67ns	168
Method	0.42	0.21	2.00*	168

Note: each predictor was examined in a separate model

** $p < .01$

* *p<.05*

ns *non-significant*

Table 21. Hypothesis 8c Supplemental Analysis: Working from Home Predicting Internal Interruptions

Model and variable	*b*	*SE*	*t*	*df*
Dependent Variable: Internal Interruptions				
Working from Home	13.66	4.89	2.79**	103

** *p<.01*

Table 22. Hypothesis 8d Supplemental Analysis: Working from Home Predicting External Interruptions

Model and variable	*b*	*SE*	*t*	*df*
Dependent Variable: External Interruptions				
Working from Home	3.78	1.45	2.61**	103

** *p<.01*

Table 23. Hypothesis 9: Task Variety Predicting External Interruptions

Model and variable	*b*	*SE*	*t*	*df*
Dependent Variable: External Interruptions				
Task Variety	3.33	1.08	3.07**	168

** *p<.01*

Table 24. Hypothesis 9a Supplemental Analysis: Task Variety Predicting Internal Interruptions

Model and Variable	*b*	*SE*	*t*	*df*
Dependent Variable: Internal Interruptions				
Task Variety	-1.57	2.05	-0.77ns	168

ns *non-significant*

Table 25. Hypothesis 9b Supplemental Analysis: Task Variety Predicting Unexpected Goals Given

Model and variable	*b*	*SE*	*t*	*df*
Dependent Variable: External Interruptions				
Task Variety	0.33	0.07	4.90***	114

*** *p<.001*

Table 26. Hypothesis 10: Interdependence Predicting Intrusions

Model and variable	*b*	*SE*	*t*	*df*
Dependent Variable: Intrusions				
Total	0.49	0.20	2.50**	168
Initiated	0.30	0.22	1.39ns	168
Received	0.44	0.19	2.33*	168

Note: each predictor was examined in a separate model
** *p<.01*
* *p<.05*
ns *non-significant*

Table 27. Hypothesis 10a Supplemental Analysis: Interdependence Predicting External Interruptions

Model and variable	*b*	*SE*	*t*	*df*
Dependent Variable: External Interruptions				
Total	1.36	0.92	1.48ns	168
Initiated	0.84	0.85	0.99ns	168
Received	1.62	0.74	2.19*	168

Note: each predictor was examined in a separate model
* *p<.05*
ns *non-significant*

Table 28. Hypothesis 10b Supplemental Analysis: Interdependence Predicting Unexpected Goals Given

Model and variable	*b*	*SE*	*t*	*df*
Dependent Variable: Unexpected Goals Given				
Total	0.20	0.20	2.10*	114
Initiated	0.12	0.07	1.76ns	114
Received	0.18	0.07	2.57**	114

Note: each predictor was examined in a separate model
** *p<.01*
* *p<.05*
ns *non-significant*

Table 29. Hypothesis 11a: Knowledge Characteristics Predicting External Interruptions

Model and variable	*b*	*SE*	*t*	*df*
Dependent Variable: External Interruptions				
Job Complexity	1.34	0.81	1.65ns	168
Skill Variety	2.03	0.93	2.18*	168
Problem Solving	2.41	2.10	1.15ns	168

Note: each predictor was examined in a separate model
* *p<.05*
ns *non-significant*

Table 30. Hypothesis 11b: Knowledge Characteristics Predicting Internal Interruptions

Model and variable	*b*	*SE*	*t*	*df*
Dependent Variable: Internal Interruptions				
Job Complexity	-3.50	1.77	-1.98*	168
Problem Solving	-2.84	-1.89	-1.50ns	168

Note: each predictor was examined in a separate model
* *p<.05*
ns *non-significant*

Table 31. Hypothesis 11c Supplemental Analysis: Job Complexity Predicting Unexpected Goals Given

Model and variable	*b*	*SE*	*t*	*df*
Dependent Variable: Unexpected Goals Given				
Job Complexity	0.33	0.08	4.41***	114

*** *p<.001*

Table 32. Hypothesis 12: Interruptions Predicting Goal Attainment

Model and variable	*b*	*SE*	*t*	*df*
Dependent Variable: Goal Attainment				
Internal Interruptions	-0.20	0.07	-2.79**	168
External Interruptions	0.24	0.13	1.88ns	168

Note: each predictor was examined in a separate model
** *p<.01*
ns *non-significant*

Table 33. Hypothesis 12a Supplemental Analysis: External Interruptions Predicting Working After Hours

Model and variable	***b***	***SE***	***t***	***df***
Dependent Variable: Working After Hours				
External Interruptions	0.00	0.00	2.95**	168

** *p<.01*

Table 34. Research Question 1: Job Characteristics Predicting Goal Attainment

Model and variable	***b***	***SE***	***t***	***df***
Dependent Variable: Goal Attainment				
Complete Job Autonomy	0.09	3.65	0.03ns	168
Complexity	2.67	2.89	0.93ns	168
Skill Variety	5.59	3.04	1.84ns	168
Total Interdependence	7.53	2.92	2.58**	168
Task Variety	7.20	2.83	2.55**	168
Problem Solving	1.95	2.74	0.71ns	168

Note: each predictor was examined in a separate model
** $p < .01$
ns *non-significant*

Table 35. Hypothesis 13: Interaction between Job Characteristics and Proactive Personality Predicting External Interruptions

Model and Variable	*b*	*SE*	*t*	*df*
Level 1 Predictor: Autonomy, DV: EI				
Level 1 Intercept				
Intercept	15.9	1.34	11.63	167
Proactive Personality	0.5	2.33	0.21	167
Level 1 Slope				
Intercept	-0.24	0.46	-0.52	167
Proactive Personality	-0.57	0.74	-0.77	167
Level 1 Predictor: Interdependence, DV: EI				
level 1 Intercept				
Intercept	15.78	1.4	11.31	167
Proactive Personality	0.26	2.47	0.11	167
Level 1 Slope				
Intercept	1.36	0.91	1.49	167
Proactive Personality	0.01	1.14	0.01	167
Level 1 Predictor: Task Variety, DV: EI				
level 1 Intercept				

Intercept	15.85	1.41	11.24	167
Proactive Personality	0.25	2.51	0.1	167
Level 1 Slope				
Intercept	3.3	1.05	3.15	167
Proactive Personality	0.79	1.77	0.44	167
Level 1 Predictor: Skill Variety, DV: EI				
level 1 Intercept				
Intercept	15.78	1.4	11.29	167
Proactive Personality	0.35	2.47	0.14	167
Level 1 Slope				
Intercept	1.99	0.89	2.24	167
Proactive Personality	0.58	1.47	0.39	167
Level 1 Predictor: Complexity, DV: EI				
level 1 Intercept				
Intercept	15.7	1.37	11.44	167
Proactive Personality	0.47	2.41	0.2	167
Level 1 Slope				
Intercept	1.44	0.74	1.94	167
Proactive Personality	-0.433	1.28	-0.34	167
Level 1 Predictor: Problem Solving, DV: EI				
level 1 Intercept				
Intercept	15.97	1.44	11.06	167
Proactive Personality	-0.2	2.64	-0.08	167
Level 1 Slope				
Intercept	2.43	2.13	1.14	167
Proactive Personality	-2.85	3.39	-0.84	167

Note: Each Predictor was Examined in a Separate Model; EI: External Interruptions

Table 36. Hypothesis 13: Interaction between Job Characteristics and Proactive Personality Predicting Internal Interruptions

Model and Variable	*b*	*SE*	*t*	*df*
Level 1 Predictor: Autonomy, DV: II				
level 1 Intercept				
Intercept	38.56	2.61	14.79	167

Proactive Personality	-7.56	3.59	-2.11	167
Level 1 Slope				
Intercept	-1.27	2.37	-0.54	167
Proactive Personality	0.81	3.86	0.21	167
Level 1 Predictor: Interdependence, DV: II				
level 1 Intercept				
Intercept	38.49	2.5	14.82	167
Proactive Personality	-7.52	3.59	-2.09	167
Level 1 Slope				
Intercept	1.43	1.99	0.72	167
Proactive Personality	1.93	2.73	0.71	167
Level 1 Predictor: Task Variety, DV: II				
level 1 Intercept				
Intercept	38.51	2.61	14.78	167
Proactive Personality	-7.48	3.58	-2.09	167
Level 1 Slope				
Intercept	-1.51	2.07	-0.73	167
Proactive Personality	0.21	3.27	0.07	167
Level 1 Predictor: Skill Variety, DV: II				
level 1 Intercept				
Intercept	38.5	2.6	14.81	167
Proactive Personality	-7.58	3.6	-2.11	167
Level 1 Slope				
Intercept	0.29	2.35	0.13	167
Proactive Personality	-1.09	3.88	-0.28	167
Level 1 Predictor: Complexity, DV: II				
level 1 Intercept				
Intercept	38.38	2.59	14.81	167
Proactive Personality	-7.51	3.57	-2.105	167
Level 1 Slope				
Intercept	-4.02	1.69	-2.38	167
Proactive Personality	4.44	2.75	1.62	167
Level 1 Predictor: Problem Solving, DV: II				
level 1 Intercept				
Intercept	38.52	2.6	14.83	167
Proactive Personality	-7.54	3.57	-2.11	167

Level 1 Slope				
Intercept	-2.97	1.91	-1.56	167
Proactive Personality	3.22	2.57	1.25	167

Note: Each Predictor was Examined in a Separate Model; II: Internal Interruptions

Table 37. Hypothesis 14: Interaction between Interruptions and Proactive Personality Predicting Goal Attainment

Model and Variable	*b*	*SE*	*t*	*df*
Level 1 Predictor: Internal Interruptions, DV: GA				
level 1 Intercept				
Intercept	188.69	4.45	42.37	167
Proactive Personality	15.02	5.75	2.62	167
Level 1 Slope				
Intercept	-0.21	0.08	-2.83	167
Proactive Personality	-0.06	0.055	-1.13	167
Level 1 Predictor: External Interruptions, DV: GA				
level 1 Intercept				
Intercept	188.79	4.45	42.4	167
Proactive Personality	14.89	5.74	2.59	167
Level 1 Slope				
Intercept	0.37	0.17	2.17	167
Proactive Personality	-0.22	0.17	-1.27	167

Note: Each Predictor was Examined in a Separate Model; GA: Goal Attainment

Table 38. Participant Occupations

Occupation Family	Percent
Architecture & Engineering	3.40%
Arts, Design, Entertainment, Sports, & Media	4.50%
Building & Grounds Cleaning & Maintenance	1.10%
Business & Financial Operations	9.60%
Community & Social Service	2.80%
Computer & Mathematical	5.60%
Construction & Extraction	3.40%
Education, Training, & Library	13%
Farming, Fishing, & Forestry	0.60%
Food preparation & Serving Related	1.10%
Healthcare	10.30%
Installation, Maintenance & Repair	1.10%
Legal	1.10%
Life, Physical, & Social Science	4%
Management	4.50%
Office & Administrative Support	11.30%
Personal Care & Service	1.70%
Production	2.30%
Protective Service	1.70%
Sales & Related	6.80%
Transportation & Material Moving	2.80%
Did Not Respond	7.30%