

**PSYCHOLOGICAL NEEDS SATISFACTION: EVALUATING THE
MODERATING EFFECTS OF SOURCE AND DOMAIN OF NEED
SATISFACTION ON JOB ATTITUDES**

by

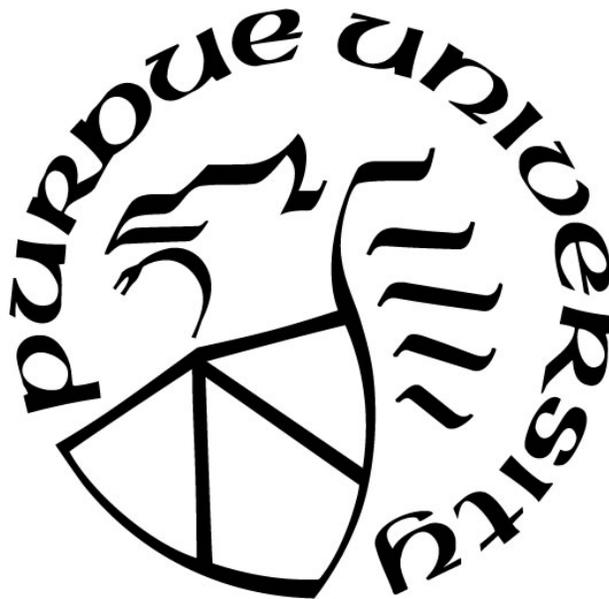
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For Melissa, my partner in all things. I love you every now.

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ABSTRACT

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Title: Psychological Needs Satisfaction: Evaluating the Moderating Effects of Source and Domain of Need Satisfaction on Job Attitudes

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This research examines the relationships between the satisfaction of psychological needs (belongingness and distinctiveness) on affective and cognitive attitudes (job satisfaction and commitment) with an emphasis on identifying key differential and moderating effects. This study hypothesizes the direct effects of need satisfaction and moderating effects of the source (individual & group) and domain (work & non-work) of need satisfaction. Hypotheses were tested with a cross-sectional survey of alumni from a regional college in the mid-Atlantic United States. Results indicated that satisfying the needs for belongingness and distinctiveness whether through source (individual vs. group) or by domain (work vs. non-work) have a positive impact on job attitudes. However, the results for the moderating and differential effects along with post-hoc analyses provides additional insights. Overall, this study found that the satisfaction of psychological needs have important direct effects on affective and cognitive job attitudes. Results indicated that the source of need satisfaction (individual and group) and the domain in which a need is satisfied do moderate the relationship between psychological need satisfaction and specific cognitive and affective job attitudes. In many circumstances, the moderating effect was not as expected. Additionally, the context of virtuality had a significant impact on only a few relationships. Post-hoc analyses showed that the relationship among the variables in this study are more complex than hypothesized and should be evaluated more fully.

CHAPTER ONE: INTRODUCTION

Job attitudes (e.g. commitment, satisfaction) have been the subject of organizational behavior for decades and have been linked to a variety of behavioral outcomes (Eagly & Chakin, 1993; Judge, Weiss, Kammeyer-Mueller, & Hulin, 2017; Petty & Briñol, 2014; Salancik & Pfeffer, 1977). In a recent review of job attitudes, Judge and colleagues note that there have been distinct epochs of job attitudes research (Judge, Weiss, Kammeyer-Mueller, & Hulin, 2017). One of these epochs has evaluated job attitudes from a cognitive perspective while another has focused on an affective perspective. Eagly and Chaiken (1993) note that a job “attitude is a psychological tendency that is expressed by evaluating a particular entity with some degree of favor or disfavor”. The distinction between cognitive and affective attitudes is an important consideration as the psychological processes that lead to affective elements of job attitudes is likely to be different from the psychological processes that lead to cognitive elements of job attitudes.

The satisfaction of psychological needs is manifest in individual job attitudes (Salancik & Pfeffer, 1977; Van den Broeck et al. 2016). Put differently, the satisfaction of psychological needs directly influences our evaluation of various attitudes. I argue that the satisfaction of two of these psychological needs—belongingness and distinctiveness—have a unique relationship with the affective and cognitive dimensions of job satisfaction and commitment. Throughout life, individuals seek to satisfy their psychological needs for belongingness and distinctiveness (Brewer, 1991; Deci & Ryan, 2000; Leary & Baumeister 2000; Li & Feng, 2018; Sánchez-Oliva et al., 2017; Snyder & Fromkin 1980; Van den Broeck, Ferris, Chang, & Rosen, 2016). In fact,

the concept that psychological need satisfaction drives attitudes and behaviors serves as the core for a variety of motivation theories (Hagger, Chatziharantis, & Harris, 2006).

Since the 1960s multitudes of scholars have relied on the cognitive approach to understand human behavior (Deci & Ryan, 2000). By focusing on the selection and pursuits of specific goals this approach has provided a myriad of insights. For example, task specificity and goal difficulty are key predictors of effort and performance (Locke & Latham, 1990). However, goal setting and related theories of motivation tend to ignore basic underlying psychological needs that serve as the basis for both cognitive and affective attitudes.

Whether cognitive or affective attitudinal elements of job attitudes are triggered, I argue, is dependent upon the specific need that is satisfied. Theoretically, the satisfaction of the need for distinctiveness (hereafter, distinctiveness satisfaction) primarily triggers a cognitive response, whereas belongingness satisfaction (hereafter, belongingness satisfaction) triggers an affective response. In addition, I posit that this relationship is dependent upon both the source and domain in which specific needs are satisfied. By source, I mean an individual's perception of their similarity/difference from within a specific reference group compared to their perception of their reference group's similarity/difference to other groups. By domain, I mean an individual's relationships at work as opposed to relationships outside of work.

The source of needs satisfaction is an important potential moderator of the needs satisfaction—job attitudes relationship. Our psychological needs can be satisfied as a result of individual characteristics and perceptions of group characteristics. Understanding the potential moderating effects these sources have on the needs satisfaction – job attitudes relationship is important for organizations as it could allow an organization to structure the work of individual

employees such that their psychological needs are fully satisfied and thus their cognitive and affective job attitudes may be improved.

Similarly, psychological needs may be satisfied in the work domain or non-work domain. This potential moderating effect expands our understanding of the work/non-work interface. Additionally, it is important for organizations as it could provide valuable insights into why certain individuals experience higher degrees of satisfaction and commitment. This would potentially allow organizations to create specific interventions aimed at improving affective and cognitive job attitudes of employees.

As the nature of work continues to evolve it is also important to consider different contextual factors. One of these important emerging contextual factors is worker virtuality. Virtuality is defined as work that is conducted using virtual communication methods and is conceptualized as a continuum of low to high levels of virtuality (Driskell, Radtke, Salas, 2003; Kirkman & Mathieu, 2005; Martins et al., 2004). Worker virtuality is an important consideration for organizations. According to the Bureau of Labor Statistics, 23% of employed persons did some or all of their work from a location other than their workplace (BLS, 2018). This is even more pronounced for holders of college degrees. On an average day, 38% of employed persons with a bachelor's degree or higher and 46% of advanced degree holders worked from a location other than their workplace. Even more striking is that this statistic excludes travel related to work. As more than one-third of the college educated workforce engages in some type of virtual work on a daily basis it is important to explore the effects virtual work may have on job attitudes.

Some studies have shown a relationship between virtual work, and higher levels of work-life conflict and feelings of isolation from colleagues (Golden et al., 2006; Morganson et al., 2010; Sewell & Taskin, 2015). Still, other scholars have found evidence for a curvilinear

relationship between the degree of virtuality and work outcomes. For example, Golden and Viega (2005) found that a moderate level of remote work results in the highest levels of job satisfaction. The mixed outcomes of these studies suggest that this area is ripe for research that offers new approaches to understanding the decidedly complex relationships between virtual work and job attitudes.

As businesses and organizations increasingly operate in dispersed and physically distant settings virtual communication is a valuable tool to maintain connection and collaboration as employees execute their job functions. I argue, however, that the degree of virtualness in the work domain has the potential to impact belongingness satisfaction and distinctiveness satisfaction and thus influence the cognitive and affective dimensions of job satisfaction and commitment. I consider the potential three-way interaction of need satisfaction by the domain in which the need is satisfied by virtuality on affective and cognitive job attitudes. This is important for organizations as it seeks to clarify ways in which virtuality may lead to increased or decreased levels of employee job satisfaction and/or commitment. Exploring this potential relationship will provide insight into whether or not organizations should consider increasing or decreasing the virtuality of their workforce.

At the simplest level the theoretical model for this dissertation proposes that the satisfaction of psychological needs leads to improved job attitudes and that the relationship between psychological needs and job attitudes is moderated by the source and domain in which the psychological need is satisfied as well as the degree of virtuality of an employee. See Figures 1 and 2 for a graphical depiction of the overall theoretical model.

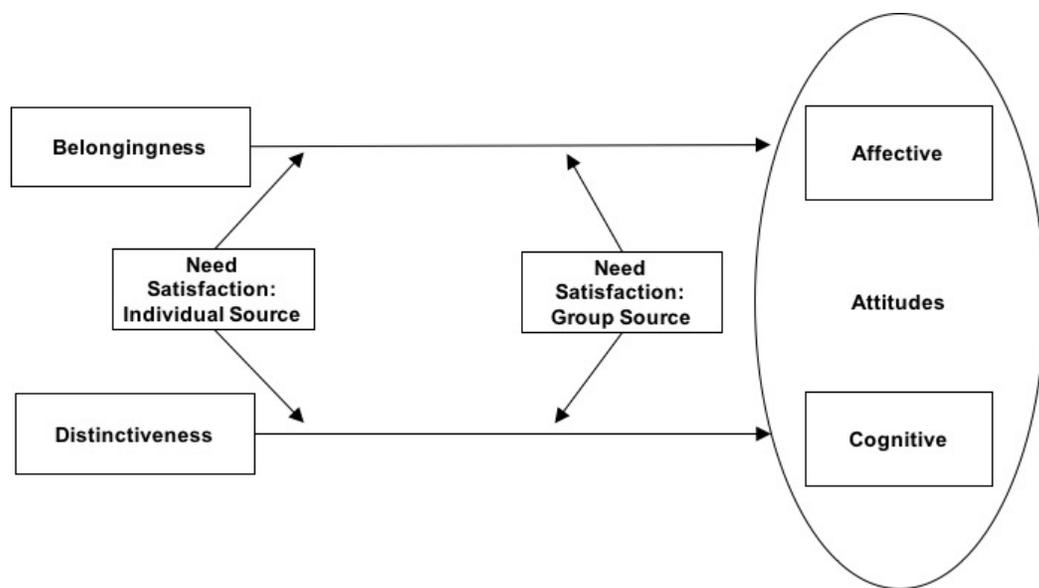


Figure 1. Hypothesized Moderating Effect of the Source of Need Satisfaction

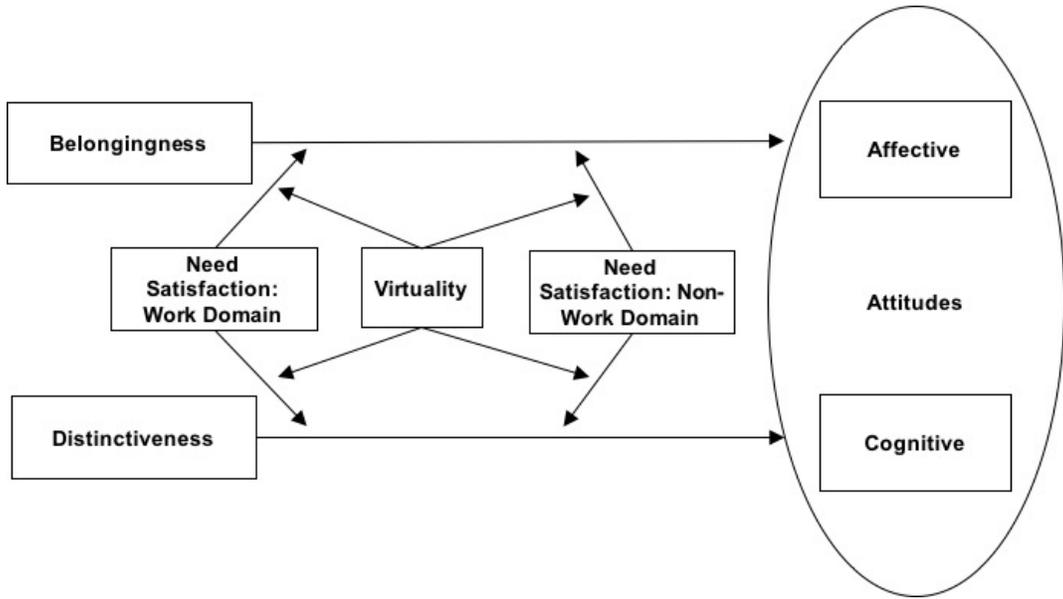


Figure 2. Hypothesized Three-way Effect of the Domain of Need Satisfaction by Virtualness

The broad objective of this dissertation is three-fold. First, I seek to demonstrate how the satisfaction of the psychological needs of distinctiveness and belongingness distinctly predict affective and cognitive attitudes of job satisfaction and commitment. Second, I seek to

understand the differential effects when a psychological need is satisfied by different sources (i.e. self-perceptions vs. perceptions of one's group) within different domains. Third, I will evaluate the potential three-way interaction of need satisfaction by domain (work vs. non-work) by virtuality on affective and cognitive job satisfaction and commitment. As a result this dissertation will address the following overarching research questions: 1) How does the source of psychological needs satisfaction influence affective and cognitive job attitudes? 2) How does the domain in which a psychological need is satisfied moderate the relationship between that need and specific job related attitudes? 3) How does the context of worker virtuality alter the relationship between the domain of satisfaction of psychological needs and job attitudes? These questions are answered through a cross-sectional survey of alumni.

Dissertation Outline

Applying a psychological needs approach to the affective-cognitive view of job attitudes coupled with the role theory approach to the work/non-work interface is valuable for at least three specific reasons. First, this dissertation expands our current theoretical understanding of the relationship between work and non-work domains. As noted earlier, traditional approaches to understanding the work and non-work domains have been limited by evaluating the centrality of individual roles. However, by integrating a psychological needs approach with existing theory, this dissertation will produce new theoretical insights into interactions among life domains. This dissertation contributes to the existing literature in three distinct ways: 1) this study evaluates and demonstrates the differential impact of psychological needs on individual affective and cognitive job attitudes, 2) provides empirical evidence for the potential moderating effects of the source (individual vs. group) and domain (work vs. non-work) of need satisfaction on those affective and cognitive pathways, and 3) explores how the virtuality of work may amplify or diminish the

moderating impact of the domain in which psychological needs are satisfied on affective and cognitive job attitudes. These contributions are important as they provide insight for organizations that seek to build sustainable HR practices that simultaneously maximize employee wellbeing and improve employee job attitudes and thus performance. Additionally, by understanding the roles of different affective and cognitive pathways to job attitudes, organizations can tailor their approaches to individuals when seeking to foster commitment and satisfaction. Furthermore, by recognizing the impact of the referent other on the individual needs of belongingness and distinctiveness, this dissertation integrates previous research on psychological needs.

The remainder of this dissertation will be organized as follows. Chapter two will provide an overview of the key theoretical frameworks applied in this dissertation. This will include definition of key terms and a review of relevant literature. Chapter three establishes specific testable hypotheses. Chapter four will outline the design and analytical method and will provide comprehensive results of the study. Chapter five offers a discussion of the results including limitations and areas for future research

CHAPTER TWO: THEORETICAL FOUNDATIONS & MODEL DEVELOPMENT

In this chapter I provide a review of the literature pertaining to the key theoretical relationships between: psychological needs and affective/cognitive attitudes, and the moderating effects of the source of need satisfaction, the domain of need satisfaction, and virtuality.

Psychological Needs

Throughout this dissertation I follow the definition of psychological needs as proposed by Deci and Ryan: “innate psychological nutriments that are essential for ongoing psychological growth, integrity, and well-being” (2000, p. 229). This is similar to physiological needs such as food and water (Hull, 1943). Understanding the role of psychological needs is attractive in that once psychological needs are identified, they can be targeted to improve various outcomes much the same way that targeting the organic needs of plants can improve thriving (Deci & Ryan 2000; Deci, Olafsen, & Ryan, 2017; Jungert, Van den Broeck, Schruers, Osterman, 2018; Sheldon, Elliot, Kim & Kasser, 2001; Van den Broeck et al., 2016;). Since the early 20th century scholars have proposed various lists of psychological needs (e.g. McDougall, 1908; Freud, 1920; Murray, 1938; Maslow, 1954; Baumeister & Leary, 1995; Deci & Ryan 2000; Sheldon et al. 2001; Vignoles et al. 2006). Some of these needs include purpose (Baumeister, 1991; Dik et al. 2012; Dik et al. 2014); efficacy (Locke & Latham, 1990; Baumeister, 1991; Vignoles et al. 2006); and self-esteem (Leary & Baumeister, 2000; Sedikides & Straub 1997; Tesser, 2000; Vignoles et al. 2006). These lists are often unwieldy, suffer from construct

overlap, and are not always grounded in theory (Baumeister & Leary, 1995). To address this issue, Baumeister and Leary presented a meta-theory of different criteria that should be used in determining basic psychological needs suggesting that a psychological need must “have affective consequences, direct cognitive processing, affect behaviors and, produce adverse effects if not met” (p 498, 1995).

Rather than seeking to develop a new list of psychological needs, I draw on previous theoretical work and focus on two psychological needs, distinctiveness and belongingness, that theoretically relate affective and cognitive job attitudes. I focus on these two psychological needs for three distinct reasons. First, in order to offer a valuable heuristic, a psychological need must be broad enough to encompass a wide variety of subordinate constructs yet narrow enough to elicit goal directed behavior (Baumeister & Leary, 1995). Consequently, enumerating an exhaustive list of psychological needs fundamentally reduces the utility of a theoretical understanding (Deci & Ryan, 2001). As I discuss in the next chapter, distinctiveness and belongingness are related psychological needs and yet have theoretical relationships with distinct pathways to specific job attitudes.

Second, the psychological needs of belongingness and distinctiveness are likely manifest in an individual’s experience of various different roles and not bound to a single role. For example, an individual may have their need for distinctiveness met by their job and their need for belongingness met by their family relationships; whereas a different individual may have their need for belongingness met by their job and their need for distinctiveness met by their family relationships.

Third, and by no means least, there is a large body of existing literature, which I review in the following chapter, that supports the selection of these two psychological needs (Snyder & Fromkin 1980; Deci & Ryan, 2000; Leary & Baumeister 2000; Brewer, 1991). Overall, this literature suggests that these two psychological needs are critical for overall functioning and are likely differentially manifest in affective and cognitive components of job attitudes (Van den Broeck et al, 2017).

As noted earlier, psychological needs are critical for an individual's continued "growth, integrity, and well-being" (p 229, Deci & Ryan, 2000). Historically, the study of psychological needs largely fell out of favor when empirical research failed to confirm a needs hierarchy as famously proposed by Abraham Maslow (Wahbah & Bridwell, 1976; Sheldon & Bettencourt, 2002). More recently, however, scholars have again called on the psychological need constructs as a valuable way to understand human behavior (e.g. Antonides, 2015; Baumeister & Leary, 1995; Brewer, 1991; Ryan & Deci, 2017; Sheldon et al., 2001). This is not surprising as psychological needs are useful predictors of behavior and attitudes (Baard, Deci, & Ryan, 2004; Baumeister & Leary, 1995; Sheldon & Elliott, 1999).

The theoretical research related to the psychological needs of belongingness and distinctiveness can be categorized as either individual needs theories or integrated needs theories. Individual needs theories focus exclusively on one component of psychological need. Integrated needs theories focus on the relationship among multiple psychological needs. In the following sections, I review key individual and integrated psychological needs theory that address belongingness and distinctiveness.

Individual Needs Theories

Individual needs theories focus on the effects and impacts of a single need on various different outcomes. Uniqueness theory (Snyder & Fromkin, 1980) and belongingness theory (Baumeister & Leary, 1995) are two examples of individual needs theories. Both of these theories focus primarily on the utility of one psychological need in explaining various outcomes. Additionally, both theories adopt the perspective that uniqueness and belongingness are opposite poles of a largely unidimensional construct.

Uniqueness theory proposes that individuals make cognitive comparisons to some *referent other* as a way to determine their individual distinctiveness. Snyder and Fromkin argue that the *referent other* may be an individual person or a social group (1980). According to their theory, once an individual forms a cognitive comparison of their similarities on a series of observable self-attributes (e.g. personality traits, physical characteristics, beliefs), the cognitive level of distinctiveness becomes salient as a part of the individual's self-concept (1980). In other words, an individual's perception of their differentiation from the *referent other* is critical in the individual's cognitive evaluation of the desirability of a particular social setting.

This is important for two reasons. First, Snyder and Fromkin recognize that distinctiveness perceptions are akin to individual traits and thus differ among individuals. This suggests that the need for distinctiveness would be differentially satisfied for two individuals in the same setting. Second, uniqueness theory notes that the need for distinctiveness is primarily manifest as a cognitive attitudinal response to an individual's perception of similarity. This cognitive response to distinctiveness is thus manifest in attitudinal and behavioral outcomes.

Snyder and Fromkin note that the need for distinctiveness has an inverse-u shaped impact on the acceptability ratings of the *referent other* such that very slight and very high levels of distinctiveness result in low levels of acceptability and moderate levels of distinctiveness result in high levels of acceptability of the *referent other* (1980, p. 33). This suggests that there is an optimal level of distinctiveness, which is consistent with other psychological needs theories (e.g. Brewer, 1991). Furthermore, Snyder and Fromkin note that a cognitive level of distinctiveness may actually result in attitudinal and behavioral changes (1980). Specifically, when an individual perceives a high degree of similarity, they will actively make an attitudinal change toward dissimilarity; whereas, when an individual perceives a high degree of dissimilarity, they will actively make an attitudinal change toward similarity (p. 37, 1980). This suggests that the need for distinctiveness drives both attitudes and behaviors through cognitive mechanisms.

Baumeister and Leary (1995) present an alternative individual need theory, suggesting that the psychological need for belongingness drives behavior through an affective process. As noted earlier, the need for belongingness is defined as “the need to maintain or enhance feelings of closeness to, or acceptance by, other people” (Vignoles et al. 2006, p. 479). Baumeister and Leary conceptualize that, similar to the need for distinctiveness, the need for belongingness as a fundamental drive for all humankind across all cultures differs individually “in strength and intensity” (1995, p. 499). Belongingness theory specifically notes that “positive affect should follow from forming and solidifying social bonds” (1995, p. 499). They argue that these social bonds are formed and the need for belongingness satisfied through frequent, positively valenced

interactions in a temporally stable framework (p. 497, 1995). These social bonds are primarily manifest through affective mechanisms.

When the need for belongingness is satisfied, it is linked to increases in positive affective responses; and when belongingness is not satisfied, it is linked to negative affective responses (Baumeister & Leary, 1995, p. 505). The result of social bonds generally results in positive affective responses. Baumeister and Leary note that a new job, wedding, and pledging a social club are all examples of situations in which new social connections are created, strengthened, or solidified and result in positive affective responses such as joy and satisfaction (1995). Presumably, in each of these situations an individual's need for belongingness is both salient and satisfied. This need highlights the relationship between the need for belongingness and the primarily affective outcomes that result. Furthermore, there is empirical evidence that suggests that belongingness and behavior are connected. For example, Hoyle and Crawford found that belongingness satisfaction is highly correlated with active involvement and participation (1997). While this research is purely correlational, it does suggest that there is at least some relationship among belongingness, affect, and behavior.

Taken at face value, it may appear that the needs for distinctiveness and belongingness as presented by these two theories are mutually exclusive. This, however, is not the case. Distinctiveness theory provides a framework for understanding the cognitive processes that occur as a result of individuals' perceptions of similarity. Snyder and Fromkin, never refute an individual's need to develop temporally stable and positively valenced interactions, which, as Baumeister and Leary note, are critical to satisfying the need for belongingness. In fact, uniqueness theory argues that when the

need for distinctiveness is satisfied, relational acceptability ratings of other are improved such that satiation of the need for distinctiveness may actually enable social relationships that foster belongingness satisfaction. Similarly, belongingness theory does not directly refute the existence of the psychological need for distinctiveness. Rather, Baumeister and Leary argue that meaningful social connections satisfy the need for belongingness and are manifest in primarily affective attitudes. It is important to understand that these two psychological needs are distinct but related. Uniqueness theory presents the need for distinctiveness as a primarily cognitive process, whereas Baumeister and Leary present the need for belongingness as a primarily affective process. The distinct but related nature of these two psychological needs are addressed by Optimal Distinctiveness Theory (ODT) (Brewer, 1991).

Optimal Distinctiveness Theory

ODT builds on the concepts proposed by uniqueness and belongingness theories. ODT integrates the psychological needs of belongingness and distinctiveness and argues that individuals have a level of optimal distinctiveness that is the result of balancing their needs for individuality and collectivism (Brewer, 1991). Previous research had found that individuals whose similarity cognitions were extremely high and extremely low reported lower mood states (Fromkin, 1971). This suggests that both the need to belong and remain distinct are independent forces that are simultaneously at play. ODT builds on this research and proposes that when the satisfaction of the needs for belongingness or distinctiveness are extreme, it creates a psychologically distressing situation for individuals and negatively affects their overall well-being (Brewer, 1991).

Scholars such as Hofstede (1983) contrast individualism-collectivism as the opposite poles of a unidimensional scale, which stands in contrast to the psychological needs theories presented here. While distinctiveness is occasionally portrayed as a Western cultural value and belongingness is portrayed as an Eastern cultural value (Snyder & Fromkin, 1980) others argue that need for distinctiveness is inherent in all cultures (Codol, 1981), but may be more easily satisfied and potentially more difficult to measure in non-western cultures. ODT transcends this debate by maintaining that cultures, and indeed individuals, may have different levels of optimal distinctiveness (Brewer, 1991; Leonardelli, Pickett, & Brewer, 2010). The result is that the psychological needs for belongingness and distinctiveness activate affective and cognitive processes that act in concert with one another to influence behavior.

ODT recognizes that the social bonds that foster the need for belongingness and distinctiveness may occur as a result of group membership. In other words, the need for belongingness may be satisfied through a number of different social mechanisms. For example, Baumeister and Leary note “one might imagine a young fellow without any family or intimate relationship who [has their need for belongingness] satisfied by being heavily involved in an ideologically radical political movement.” (1995, p. 500). Alternatively, an individual may have their need for belongingness satisfied by their family or other intimate non-work relationships and therefore derive little to no belongingness from their relationships at work. There are two key aspects of this particular nuance: satiation and substitution. Satiation refers to the “diminished motivation that ensues when [a need] is already well satisfied, and substitution refers to the replaceability of one social bond with another” (Baumeister & Leary, 1995, p. 515).

The concept of satiation suggests that the satisfaction of a psychological need is binary in the sense that it is either satisfied or unsatisfied. As noted earlier, the satisfaction of a psychological need is an individual difference such that severity or degree of distinctiveness/belongingness required to satiate an individual's need is likely to differ among individuals. However, once an individual perceives that the needs for belongingness and distinctiveness are satisfied, they are unlikely to continue seeking additional social settings for the purpose of satisfying a psychological need. Thus, when both needs are minimally satisfied (i.e. the needs are satiated), affective and cognitive attitudinal outcomes are likely to be greatest. In other words, the psychological needs of distinctiveness and belongingness are conceptualized as eudaimonic, as opposed to hedonic (Deci & Ryan, 1995). This approach characterizes well-being in terms of a fully functioning human being (Deci & Ryan, 1995; Rogers 1963). The key point is that the psychological needs of distinctiveness and belongingness are critical for a fully functioning human being and operate in distinctly different manners (Vignoles et al. 2006).

The concept of substitution notes that individual psychological needs may be differentially satisfied by participation with different social groups. An individual may find that one social setting (i.e. non-work) allows belongingness satisfaction, whereas a different social setting (i.e. work) satisfies the need for distinctiveness. This is critical in that it highlights the importance of understanding the effects of different social settings on the satisfaction of psychological needs and the resulting affective and cognitive outcomes. In fact, Brewer's original conception of ODT, notes that it is likely that needs will be satisfied by participation in different group settings.

Affective/Cognitive Attitudes

Despite the strong supposition that the psychological needs for belongingness and distinctiveness are universal to the human condition (Brewer, 1991; Baumeister 2000; Baumeister & Leary 1995; Snyder & Fromkin, 1980; Hornsey & Jetten, 2004; Vignoles et al. 2000, Dick et al., 2012; Van den Broeck et al., 2017; Jungert et al., 2018) there is very limited research that explores the empirical relationships of these needs with job attitudes. While there is a preponderance of evidence linking job attitudes such as satisfaction and commitment to various aspects of job performance (e.g., Christian, Garza, & Slaughter, 2011; Cooper-Hakim & Viswesvaran, 2005; Riketta, 2002; Judge, Thorenson, Bono, & Patton, 2001; Organ, Podsakoff, MacKenzie, 2005; Erdogan & Enders, 2007; Bowling, Khozan, Myers, & Burrus, 2013), scholars have suggested that the relationship between job attitudes and performance may be more complex than previously considered and have argued for distinguishing between the affective and cognitive dimensions of job attitudes (Schleicher, Watt, Greguras, 2004; Judge et al., 2017). This dissertation proposes that the satisfaction of psychological needs of belongingness and distinctiveness plays an important role in differentiating between affective and cognitive job attitudes.

For more than 50 years scholars have differentiated between affective and cognitive components of a variety of different attitudes (e.g. Triandis, 1971; Eagly & Chaiken, 1993; Rosenberg, 1960; Bem, 1970; Schleicher et al. 2004; Fisher, 2000; Weiss, 2002; Judge, Weiss, Kammeyer-Mueller, & Hulin, 2017). The affective aspect of an attitude “refers to the individual’s general level of positive or negative feeling... [whereas] the cognitive component consists of the individual’s beliefs or thoughts”

(Schleicher et al. 2004, p.166). Studies have also demonstrated the discriminant validity between affective and cognitive components of various attitudes (Trafimow & Sheeran, 1998; Crites, Fabrigar, & Petty, 1994; Schleicher et al., 2004). Furthermore, research has differentially linked the affective and cognitive components of attitudes to measurable behaviors (Millar & Tesser, 1986, 1989; Trafimow & Sheeran, 1998; Schleicher et al. 2004). Yet, as Weiss notes, scholars continue to inappropriately consider individual work attitudes as unidimensional constructs despite “the theoretical usefulness of distinguishing among” the affective and cognitive components of attitudes (Weiss, 2002, p 8).

In this dissertation I specifically explore the cognitive and affective components of organizational commitment and job satisfaction. While there are likely additional job attitudes that are affected by the satisfaction of belongingness and distinctiveness, these two attitudes are some of the most widely studied job attitudes and have been strongly linked to various aspects of job performance (e.g Schleicher et al. 2004; Bosco, Aguinis, Singh, & Field, 2015; Judge et al. 2017).

There is strong theoretical support for the relationship between the needs of belongingness and distinctiveness with affective and cognitive attitudes. The need for belongingness is primarily manifest through an affective psychological process. As a result, an individual’s perceived similarity and inclusion with other group members in a given life role (e.g. work, non-work) foster an affective sense of connection to group members (Hornsey & Jetten, 2004; Brewer & Roccas, 2001 p. 223). Conversely, the need for distinctiveness is primarily manifest through a cognitive evaluation of an individual’s perceived uniqueness, autonomy, and differentiation from others within a specific role

(Hornsey & Jetten, 2004; Brewer & Roccas, 2001 p. 223). These affective and cognitive manifestations should be evident in measures of job attitudes. Scholars tend to agree that an affective sense of belongingness and a cognitive sense of distinctiveness are necessary conditions for, and driving forces toward, various types of performance (Brewer, 1991; Deci & Ryan, 2000).

Scholars have suggested that various psychological needs are related to specific attitudinal outcomes such as satisfaction, commitment, and engagement (Van den Broeck, Vansteenkiste, Witte, Lens, 2008; Vansteenkiste, Miemiec, Soenens, 2010). Yet, much of the work exploring the relationship between psychological needs and work outcomes does not distinguish between the affective and cognitive aspects of each outcome. For example, Sheldon and colleagues (2001) identified various psychological needs that predict satisfaction but do not explore the affective and cognitive aspects of satisfaction. This is surprising given that Baumeister and Leary note that a psychological need prompts both affective and cognitive responses in addition to behavior (1995).

Additionally, there is a long tradition of distinguishing between affective and cognitive aspects of various attitudes (e.g. Bem, 1970; Eagly & Chaiken, 1993, 1995; Rosenberg, 1960; Triandis, 1971; Schleicher et al., 2004). These two pathways are balanced in the sense that they tap into different aspects of the same construct (e.g. affective satisfaction vs. cognitive satisfaction). The affective aspect of a specific attitude relates to an individual's overall feeling or emotion toward the specific target. The cognitive aspect of an attitude relates to the individual's conscious beliefs or thoughts regarding the target (Schleicher et al., 2004). The affective and cognitive aspects of

attitudes are respectively aligned with the psychological needs of belongingness and distinctiveness.

Distinctiveness and Cognition

When the psychological need for distinctiveness is satisfied, it activates a primarily cognitive process. The psychological need for distinctiveness drives the establishment of a sense of differentiation from others (Vignoles et al. 2005; Brewer, 1991; Breakwell, 2015). This is manifest through a primarily cognitive evaluation of the degree of similarity to the *referent other* (Snyder & Fromkin, 1980). When determining the degree of distinctiveness, an individual will engage in a cognitive evaluation to determine their perception of their degree of distinctiveness (Breakwell, 2015; Brewer, 1991; Snyder & Fromkin, 1980). Additionally, previous research has demonstrated that when an individual perceives too much similarity to others in their various life roles, s/he responds through a cognitive process of emphasizing aspects of themselves that demonstrate their uniqueness (Branscome, Ellemers, Spears, & Doosje, 1999). In fact, Snyder and Fromkin found that individuals will cognitively change the referent other and/or their behavior to satisfy an optimal level of distinctiveness.

If an individual's need for distinctiveness is satisfied through this cognitively evaluative process of differentiation from the referent other, there are likely to be attitudinal manifestations (Brewer, 1991). As noted earlier, these attitudinal outcomes have both affective and cognitive aspects (Schliecher et al., 2004). Because the need for distinctiveness relies on cognitive evaluations of differentiation, the satisfaction of this need should be manifest in primarily cognitive aspects of attitudes.

Belongingness and Affect

When the psychological need for belongingness is satisfied it activates an affective process leading to specific attitudinal outcomes. As noted earlier, belongingness is defined as “the need to maintain or enhance feelings of closeness to, or acceptance by, other people” (Vignoles et al. 2005). Baumeister and Leary note that the need for belongingness is satisfied through positively valenced social interactions (Baumeister & Leary, 1995). These social interactions are thought to foster a sense of emotional closeness that results in greater evaluations of positive affect. In fact, both belongingness theory and ODT note that the need for belongingness results in greater levels of positive affect (Baumeister, 1991; Baumeister & Leary, 1995; Brewer, 1999; Vignoles et al. 2006).

Previous research has demonstrated that when individuals perceive too much dissimilarity from others in their various life roles they respond through by emphasizing aspects of themselves that demonstrate their similarity (Branscome, Ellemers, Spears, & Doosje, 1999). This has the psychological effect of improving an individual’s sense of emotional closeness and affect toward others in their various life roles and results in improved attitudes. Because the need for belongingness relies on affective evaluations of emotional closeness, the manifestations of the need for belongingness should be manifest in primarily affective aspects of attitudes.

Source and Domain of Need Satisfaction

The relationship between the psychological needs of belongingness and distinctiveness and the affective/cognitive components of attitudes are likely to be moderated in at least two different ways: the *source* and *domain* in which the need is

satisfied. The *source* refers to whether the need is satisfied as a result of individual difference or group membership. The *domain* refers to the role in which an individual need is satisfied.

An individual may have their need for distinctiveness satisfied as a member of a distinct group; whereas another individual may have their need for distinctiveness satisfied because s/he is a distinct individual irrespective of group membership. In this example, an individual's distinctiveness stems from different sources. In an organizational setting, an individual may have their need for distinctiveness satisfied as a result of their individual characteristics because s/he perceives clear differences from their coworkers and as a result of their group membership because s/he perceives that their group (e.g. organization, division, team, etc.) is clearly different from other groups.

For the purpose of this dissertation, I define *domain* as either work or non-work roles. To use Baumeister and Leary's example, "one might imagine a young fellow without any family or intimate relationship who [has their psychological needs] satisfied by being heavily involved in an ideologically radical political movement" (1995, p. 500). Scholars have called this concept *substitution* where one psychological need is satisfied through participation in a distinct *domain* (Baumeister & Leary, 1994). The result is that psychological needs may be satisfied at either/both the *source* and/or *domain*. For a graphical depiction of this concept see Figure 3.

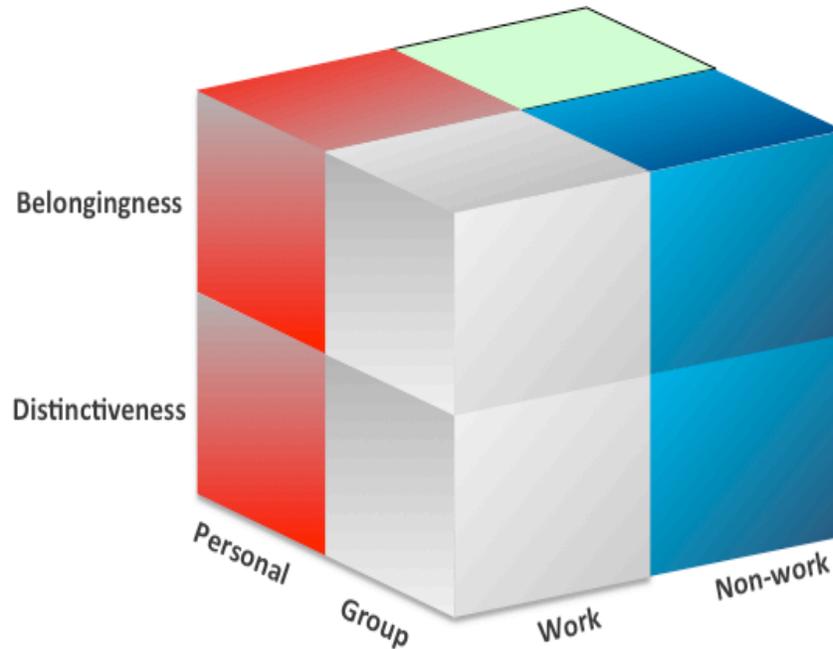


Figure 3. Moderating Factors of Psychological Need Satisfaction

Because there are two distinct moderating factors of the relationship between psychological needs and attitudinal outcomes, it is possible that there is a three-way interaction between psychological needs, source of satisfaction, and domain of satisfaction. While I would ideally like to test this possibility, the present research is focused on understanding the individual moderating effects of the source and domain in which a need is satisfied. I recognize this is a shortcoming of the present research. However, previous studies have not addressed either of these moderating effects. As a result, I am proposing to first validate both of these potential moderating effects and hope to explore potential three-way interactions in future research. In the rest of this section, I first review the theoretical support for the moderating effects of the source of need satisfaction followed by theoretical support for the moderating effects of domain.

Source of Need Satisfaction

Satisfaction of the specific needs of belongingness and distinctiveness raise the questions: To whom/what do I belong? From whom/what am I distinct? As noted earlier, the satiation of the need for belongingness and distinctiveness occur as a result of an individual's subjective evaluation (Brewer, 1991; Baumeister & Leary, 1995). These psychological needs can be satisfied by two different sources, individual differences or group membership (Brewer & Roccas, 2001).

Each of the psychological needs theories presently reviewed note that the belongingness and distinctiveness may be satisfied by different sources (Brewer, 1991; Baumeister & Leary, 1995; Snyder & Fromkin, 1980; Vigonles et al., 2000;2006; Sheldon & Bettencourt, 2002). Because the psychological needs for distinctiveness and belongingness are satisfied only through an individual's perceptive comparison, it is critical to evaluate the effect of source of need satisfaction. In short, needs can be satisfied by individual or group sources (Brewer & Roccas, 2001). What this means is that an individual may make a comparison as to their distinctiveness by 1) evaluating their similarity/difference to other members of a specific group the roles or 2) evaluating the distinctiveness of the specific group in which s/he is a member.

As noted earlier, Snyder and Fromkin theorize adverse effects when individuals perceive high similarity or dissimilarity to others (1980). Their research suggests that when individuals feel too much similarity with their referent group members, individuals seek to differentiate themselves (1980). They also suggest that when an individual feels too distinct from their referent group members the individual will deemphasize their differences and seek to highlight similarities between themselves and the group (1991).

This is an example of an individual making a referent comparison at the individual source.

At the individual source the needs for distinctiveness and belonging are satisfied through an evaluative comparison of similarity/difference where the referent other is a prototypical member of one's social group (Abrams, 1999; Brewer, 1991; Brewer & Roccas, 2001; Doosje, Spears, & Ellemers, 1999; Terry, Hogg, & Duck, 1999). Perceptions of similarity lead to belongingness and perceptions of difference lead to distinctiveness. According to both uniqueness theory and ODT, if the source of psychological need satisfaction stems from individual characteristics, belongingness and distinctiveness are directly opposed to one another (Snyder & Fromkin, 1980; Brewer, 1991; Brewer & Roccas, 2001). In other words, the need for belongingness and the need for distinctiveness are mutually exclusive at the individual source. On face, this seems to contradict the previous review of belongingness and distinctiveness as independent (albeit related) constructs and in fact, at the individual source, it is impossible for an individual to be simultaneously distinct and similar. In short, psychological needs theories note that it is impossible for belongingness and distinctiveness to be simultaneously satisfied at the individual level. However, the relationship is much different when needs are satisfied as a result of group membership.

At the group source, the needs for belongingness and distinctiveness are satisfied through a comparison that occurs at the group source. Distinctiveness at the group source is determined by an individual's perception of the differentiation of their specific group from other groups (Sheldon & Bettencourt, 2002; Hogg, 1999; Brewer & Roccas, 2001). In this situation, the "referent other" is some other social group. For example, an

employee working in one team (e.g. design team) for an engineering firm could have their need for distinctiveness satisfied if the employee perceives that their team is distinct from other teams (e.g. production team). The process by which the individual determines their distinctiveness is still primarily cognitive as it requires a cognitive evaluation of the ways in which the referent other team(s) differ. The need for belongingness at the group source, while still primarily affective, is satisfied through an individual's perception of the overall feelings of relatedness with other members of the group. As an example see Figure 4.

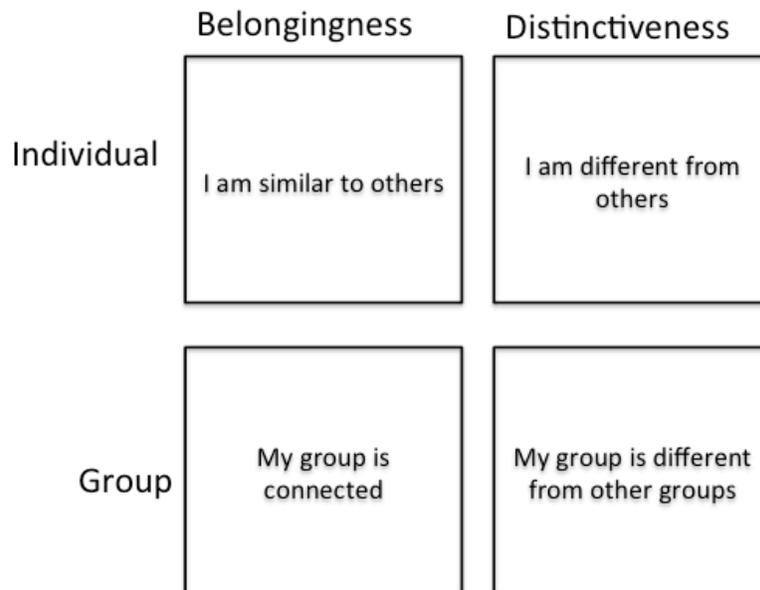


Figure 4. Psychological Needs at the Individual and Group Source

Because belongingness and distinctiveness are unidimensional at the individual source, psychological needs must fundamentally be satisfied at both the individual and group sources. It is possible that a given psychological need is satisfied at both at individual and group sources. Consequently, only one of the individual source cells (i.e.

individual belongingness and individual distinctiveness) may be satisfied at a given time but both group source cells (i.e. group belongingness and group distinctiveness) may be satisfied simultaneously. From a theoretical perspective, the result is that a maximum of three cells may be satisfied at a given time. In the next chapter I offer specific hypotheses as to the way in which these cells moderate the affective and cognitive components of job attitudes.

Domain of Need Satisfaction

As we seek to satisfy our needs for belongingness and distinctiveness we participate in different roles across our lifespan (Murray, 1938; Maslow, 1943; Deci & Ryan, 1980, 2000; Super 1980). An individual's work role may satisfy the need for distinctiveness, whereas the need for belongingness is satisfied through a non-work role (e.g. playing golf with friends, attending religious services, spending time with family) (Hall, Kossek, Briscoe, Pichler, Lee, 2013; Powell, Greenhaus, Allen, Johnson, 2019). This has led scholars to distinguish between work and non-work life roles to understand the effect of one role on the other (Greenhaus & Buetell, 1985; Greenhaus & Powell, 2006; Wilson & Baumann, 2015; Powell et al., 2019). Yet, scholarship exploring the interface between the work and non-work domain has largely dichotomized the two domains rather than integrating (Kossek et al., 2012).

Scholars have typically operated under the assumption that an individual is either work centric or non-work centric (Carr, Boyar, Gregory, 2008; Rokeach, 1973). This represents that traditional view that the centrality of a particular role represents an individual's value judgment as to the relative importance of that role to their self-concept (Carr et al. 2008; Rokeach, 1973; Posner & Munson, 1979). Individuals with higher

levels of work centrality are typically found to have higher levels of job satisfaction and, commitment, (Carr et al. 2008). However, recently other scholars have challenged the dichotomization of work and non-work (see Kossek et al. 2012) suggesting that individuals can be dual centric (e.g. placing high value on both their work and non-work roles).

The notion of dual centrality suggests that both work and non-work roles for some individuals may be equally important for their overall self-concept. This suggests that it is possible that psychological needs may be satisfied in the work **and/or** non-work domain¹. Subsequently, this raises two distinct questions: does the satisfaction of a psychological need in the non-work domain impact attitudes in the work domain? Is the relationship between psychological needs and attitudes stronger when the need is satisfied in both work and non-work domains?

I recognize that there is a strong possibility that psychological needs satisfaction also affects attitudes and behaviors in the non-work domain. While understanding the potential spillover effects of need satisfaction on the non-work domain would be both valuable and interesting, I specifically limit this dissertation to outcomes in the work-domain because individuals are spending increasing amounts of time at work compared to other life domains (BLS, 2017). Consequently, it is important to understand ways in which job attitudes can be improved in such a time-consuming life role.

¹ I use the term “work/non-work” conflict as more inclusive of the concept of work-family conflict. While the majority of published studies relating to role conflict specifically address work-family roles, recent research suggests that there are unique patterns of conflict among different life roles (Wilson & Baumann, 2015). In this dissertation I am taking a broader approach and thus opt to use the term work/non-work conflict.

Because individuals operate within multiple roles at one time, it is possible that each role may differentially satisfy psychological needs. This is in line with the concept of substitution as presented by Baumeister and Leary (1995). They argue that the satisfaction of a need in one role can substitute for the satisfaction of the need in a different role (see Figure 5). Taken together with role theory, this suggests that the psychological needs of distinctiveness and belongingness may be differentially satisfied through different life roles and that the satisfaction of these needs in one role may substitute for the satisfaction of the needs in another role. For example, an individual may have their need for distinctiveness satisfied by their role as at work and their need for belongingness satisfied by a role outside of work. Because the satisfaction of both psychological needs are important for an individual's overall well-being and performance (Deci & Ryan, 2000), it is possible that psychological needs satisfied in one role may lead to improved attitudes in another role. However, the exact nature of the relationship between the satisfaction of psychological needs across roles with attitudinal outcomes is still unclear.

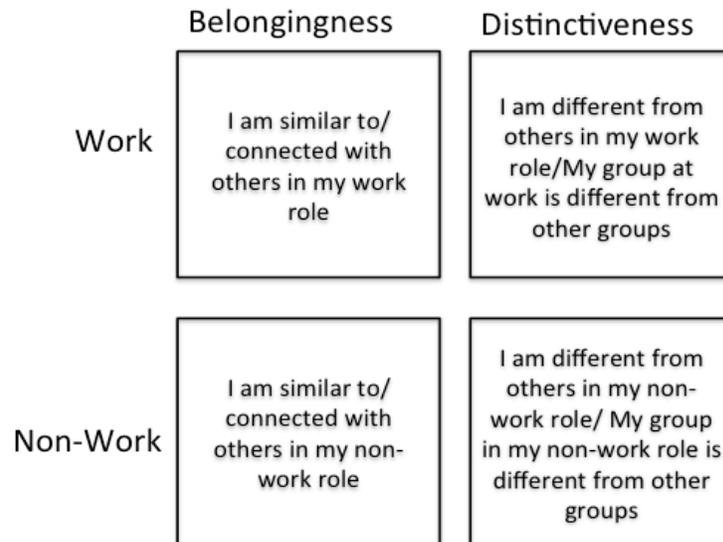


Figure 5. Psychological Needs in the Work and Non-Work Roles

Unlike the source of psychological need satisfaction, it is possible for each of the four cells to be satisfied. The resulting question is: Which combination of cells results in the greatest improvement of affective and cognitive job attitudes? This is a particularly nuanced question as previous research has demonstrated that roles may be both conflicting and enriching (Greenhaus & Buetell, 1985; Greenhaus & Powell, 2006). There are at least four distinct ways in which the pattern of needs satisfaction by domain may moderate the relationship between psychological needs and attitudes: 1) both needs are satisfied by the work role 2) both needs are satisfied by the non-work role 3) one need is satisfied by the work role and the other need is satisfied by the non-work role 4) both needs are satisfied in the work *and* non-work roles. In the following chapter, I develop different hypotheses to address the way in which the pattern of psychological need satisfaction across roles moderates the relationship between needs satisfaction and affective/cognitive attitudes.

Virtual Work

With the advent of new technologies employees are working in increasingly virtual settings (Bartel, Wrzesniewski, Wiesenfeld, 2012; Perry et al., 2016). Virtual work is defined as completing core job responsibilities outside of a traditional office setting (Bartel et al., 2012). Virtual work is typically thought of as a continuum with employees engaging in low to high levels of virtual work (Driskell, Radtke, Salas, 2003; Kirkman & Mathieu, 2005; Martins et al., 2004). As businesses and organizations increasingly operate in dispersed and physically distant settings virtual work is a valuable tool to maintain connection and collaboration as employees execute their job functions. Previous research has demonstrated that increased levels of schedule control is associated with positive employee attitudes (Buetell, 2010; Moen, Kelly, Huang, 2008;). However, on the basis of social impact theory (Latané, 1981) other studies have suggested that increased virtuality is associated with negative outcomes in the work domain (Alnuaimi et al., 2010; Blaskovich, 2008, Perry et al. 2016). Meta-analytic findings suggest that virtualness is associated with lower levels of knowledge sharing, and higher levels of relational conflict at work (de Guinea, Webster, Staples, 2012).

Much of the extant research on virtual work has specifically sought to evaluate the direct effects of virtual work on a variety of work performance outcomes. After a comprehensive review of the literature, de Menezes and Kelliher concluded that there is not enough evidence to support a *business case* for virtual work arrangements directly improving performance (2011). However, the benefit of virtual work arrangements may not be in the direct effects on job performance but in the effect on job attitudes.

Employees that operate in a virtual context are likely to engage with their coworkers through mediated forms of communication (e.g. email, social media, text message) (Hoch & Kozlowski, 2014). The geographic dispersion of employees and asynchronous nature of this type of communication creates a unique work context where the interaction of employees may change dramatically. In a recent article on virtual teams, Dulebohn and Hoch noted that virtuality is an important contextual moderator for the relationship among individual differences, cognitive and affective processes, and job satisfaction and commitment (2017). While they focused primarily on the team level, the same moderating effects are likely at the individual level.

In a meta-analysis of the relationship between virtual work and outcomes including job satisfaction, turnover intent, and role stress, Gajendran and Harrison (2007) found that a higher degree of virtual work was positively associated with job satisfaction and negatively associated with turnover intent. In this case, turnover intent may be used as an inverse proxy for commitment as increased levels of turnover intent suggest decreased levels of commitment. They further found that the relationship quality between coworkers was negatively affected with increased levels of virtuality (Gajendran & Harrison, 2007). This is not surprising given that various relational communication theories suggest that relationships occur as a result of social exchange interactions and that these interactions do not occur with the same frequency in highly virtual settings. However, more proximal variables to consider is belongingness and distinctiveness satisfaction.

While there is a demonstrable decrease in coworker relationship quality when engaging in high levels of virtual work, it is possible that the need for belongingness and

distinctiveness are satisfied in the work domain despite lower levels of coworker relationship quality. Specifically, a high level of relationship quality is more proximally related to the need for belongingness than the need for distinctiveness and a low level of relationship quality is more proximally related to the need for distinctiveness. Thus, it is possible that the meta-analytic results found by Gajendren and Harrison (2007) would be more accurately explained by applying a psychological needs approach as opposed to simply looking at worker virtuality. Gajendren and Harrison's (2007) findings could be explained from a psychological need satisfaction approach rather than simply relying on virtuality as moderating factor. To fully evaluate this possibility, this dissertation explores the possibility of a three-way interaction between the source of psychological need satisfaction and worker virtuality on the relationship between need satisfaction with cognitive and affective employee job attitudes.

As noted earlier, belongingness and distinctiveness are satisfied as a perception of similarity to OR connection with others in a given referent group. Consequently, it is possible for an individual to have a low-quality relationship with others and have their need for belongingness satisfied if they feel similar to others. For example, over the past few years organizations have been reevaluating the efficacy of telework programs and many have largely eliminated the practice (Noguchi, 2017). If virtual work offers the benefits shown by previous research, the question remains, why are organizations eliminating telework policies? One possible answer to this question is in the way that psychological needs may or may not be satisfied as a result of working remotely. Fonnor and Roloff (2010) identify a number of conditions under which teleworking is associated with higher levels of job satisfaction. They note that individuals working virtually are

likely to experience lower levels of stress from work interruptions and meetings, and decreased work-life conflict which results in higher levels of job satisfaction. However, Fonnor and Roloff's findings may not adequately capture the entire psychological processes leading to various job attitudes especially when considering the constructs of belongingness and distinctiveness satisfaction. Clearly, virtual work is an important contextual factor that may affect the needs satisfaction – job attitudes relationship. As a result, this dissertation will consider the dimensions of virtual work as a potentially important moderating factor.

Conclusion

Overall, I argue that we will gain a better understanding of the effects of psychological needs on job performance by taking a nuanced view of the way in which the relationship between psychological needs and attitudes are moderated by both the source and the domain in which needs are satisfied. In summary, the need for belongingness is theoretically related to affective attitudes, which should result in interpersonally focused job performance behaviors; the need for distinctiveness is theoretically related to cognitive attitudes, which should result in task focused job performance behaviors; and the relationship between the psychological needs of belongingness and distinctiveness with affective and cognitive attitudes is moderated by the source and role in which the need is satisfied. For a graphical depiction of the overall theoretical model see Figure 1. In the following chapter I provide specific testable hypotheses for each of the theoretical relationships described above.

CHAPTER THREE: MODEL SPECIFICATION AND HYPOTHESIS DEVELOPMENT

In this chapter, I argue that the satisfaction of the psychological needs of belongingness and distinctiveness predict affective and cognitive job attitudes, respectively, and that the source (i.e., individual characteristic vs. group membership) and life domain (i.e., work vs. nonwork) in which a psychological need is satisfied moderates the relationship between the psychological need and job attitude. Furthermore, I hypothesize a three-way relationship such that the domain-moderating effects of psychological need satisfaction are conditional on the virtualness of an individual's job. In other words, I present an argument for *how* the satisfaction of psychological needs leads to specific affective and cognitive job attitudes. I follow this with an argument for *when* or *under what conditions* these relationships are strongest.

The chapter is organized as follows. First, I hypothesize the distinctive relationship between psychological needs and the affective/cognitive aspects of commitment and satisfaction. I focus on these particular job attitudes for two reasons: they are some of the most frequently studied predictors of job performance over the past half-century of organizational research (Cascio & Aguinis), and they have clear affective and cognitive components that make them ideal constructs for evaluating the differential effects of psychological need satisfaction. Given that differentiating between the affective and cognitive pathways to performance as a result of psychological need satisfaction has not been adequately addressed by the extant research (Weiss, 2002), it is prudent to begin with concepts that are well known and have clearly differentiated affective/cognitive components. Second, I provide two series of moderating hypotheses. The first series addresses the moderating effect at which the source (i.e., individual/group) of psychological needs affects the relationship between psychological needs and affective/cognitive attitudes. The second series addresses the moderating effect of the domain (i.e., work/nonwork)

in which a need is satisfied on the relationship between psychological needs and affective/cognitive attitudes. Finally, I offer a set of moderated moderation (i.e., three-way interaction) hypotheses addressing the interaction of the domain of need satisfaction and worker virtuality on the relationship between need satisfaction and job attitudes.

Psychological Needs and Attitudes

Belongingness and Affective Attitudes

The need for belongingness is a powerful psychological need (Vignoles et al., 2005; Baumeister & Leary, 1995; Baumeister, 1991). When individuals lack belongingness, they will specifically seek it out by emphasizing similar aspects between themselves and a given referent group (Branscombe et al., 1999). When the need for belongingness is satisfied, individuals experience acceptance of or closeness to individuals within a specific life domain (Vignoles et al., 2005). Belongingness satisfaction has the theoretical effect of improving an individual's overall sense of affect toward others as a result of either their perceived similarity to or connection with others. Scholars have previously argued that individuals either seek to enhance or maintain their respective levels of belongingness and distinctiveness (Brewer, 1991; Vignoles et al., 2005). Individuals seeking to maintain their level of belongingness can then be said to have their psychological need for belongingness satisfied. This logically should result in greater levels of affective attitudes compared with individuals who perceive a lack of belongingness.

The improvement in the affective dimensions of commitment and satisfaction should occur irrespective of the domain (i.e., work vs. nonwork) in which the attitude is measured. It is possible for different life domains to satisfy different psychological needs, and I address this possibility later in the chapter. Regardless, there are theoretical reasons and empirical support to argue that the satisfaction of a psychological need irrespective of the domain in which it is

satisfied will have an overall effect of improving affective attitudes in the work domain. As noted in Chapter 2, life domains are not completely independent from one another; for example, Ilies, Wilson, and Wagner (2009) found that higher levels of daily job satisfaction are related to higher levels of positive affect at home, lower levels of negative affect at home, and higher levels of marital satisfaction. Additional research by Wayne, Casper, Matthews, and Allen (2013) found that individuals who perceived greater levels of support at work had lower levels of work–family conflict, which resulted in higher levels of organizational commitment. More recently, Leavitt, Barnes, Watkins, and Wagner (2017) found that engaging in sex at home positively predicts job satisfaction and work engagement. Because the experiences in a single life domain have the potential to impact the attitudes and outcomes in other life domains, I hypothesize an overall positive main effect of the need for belongingness on the affective components of the specific work attitudes of organizational commitment and job satisfaction

H1a: Belongingness satisfaction is positively associated with affective commitment.

H1b: Belongingness satisfaction is positively associated with affective job satisfaction.

Distinctiveness and Cognitive Attitudes

The cognitive pathway to commitment and satisfaction operates similarly to the affective path; however, the key driver in this pathway is distinctiveness satisfaction. When an individual's need for distinctiveness is satisfied, it activates a cognitive process wherein the individual relies on their cerebral perceptions to determine their uniqueness (Breakwell, 1986; Brewer, 1991; Snyder & Fromkin, 1980). Similar to belongingness, distinctiveness is an individual difference such that two individuals in the same circumstance/situation may differ as to whether their need for distinctiveness is satisfied (Vignoles et al., 2000). As noted earlier, the need for belongingness and the need for distinctiveness are distinct but related concepts (Brewer,

1991). The key point is that when an individual's psychological need for distinctiveness is not satisfied, they will seek to cognitively differentiate themselves from others (Vignoles et al., 2000). As Brewer notes, distinctiveness is important "for comparable appraisal or self-definition" (1991; p. 478). When the need for distinctiveness is satisfied, individuals should be content with their level of cognitive differentiation from others.

The need for distinctiveness has been conceptualized as a "psychological nutriment" (Deci & Ryan, 2002) that pervades each life domain of the individual. Based on the theoretical understanding of a psychological need presented by Deci and Ryan (2002), Baumeister (1991), and others, a psychological need may be satisfied through the experiences in a single life domain and have effects across other life domains. As noted earlier, previous studies have demonstrated that the experiences in a single life domain can have both positive and negative effects on other domains (e.g., Crouter, 1985; Greenhaus & Buetell, 1985; Greenhaus & Powell, 2006; Ilies, Wilson, & Wagner, 2009; Leavitt et al., 2017; Stevens et al., 2007). As a result, I expect that when the need for distinctiveness is satisfied, there will be a measurable effect of the cognitive aspects commitment and satisfaction within the work domain irrespective of the domain in which the need is satisfied. However, I would expect to see a more nuanced relationship between the domain in which the need for distinctiveness is satisfied and the outcomes in the work domain, which I address later. Because the need for distinctiveness activates a primarily cognitive (as opposed to affective) response, I also expect that it will predict the cognitive dimensions of the same overall job attitudes as belongingness (organizational commitment and job satisfaction).

H2a: Distinctiveness satisfaction is positively associated with continuance commitment.

H2b: Distinctiveness satisfaction is positively associated with cognitive job satisfaction.

Moderating Effects of the Source of Need Satisfaction

Source and Organizational Commitment

Organizational commitment is defined as an individual's overall attachment to an organization (Meyer & Allen, 1984, 1991, 1997). One of the most frequent conceptualizations of commitment is Meyer and Allen's distinction between affective commitment and continuance commitment. Affective commitment is defined as an individual's "emotional attachment to, identification with, and involvement in the organization and continuance commitment denoting the perceived costs associated with leaving the organization" (Meyer, Stanley, Herscovitch, & Topolnytsky, 2002, p. 21). It is very likely that both these aspects of organizational commitment result from the satisfaction of belongingness and distinctiveness; however, the exact relationships are likely to be unique and nuanced depending on the source (i.e., individual characteristic vs. group membership) of need satisfaction.

Continuance commitment arises out of an individual's cognitive cost-benefit analysis of leaving their job (Allen & Meyer, 2000). When the need for distinctiveness is satisfied at the individual source (i.e., "I am distinct from my group members"), dissimilarity should influence the individual's cognitive processing, such that they perceive this dissimilarity as a resource that will in turn lessen the cost of leaving their organization. For example, if an individual perceives that their distinctiveness is a result of their specific knowledge, skills, and abilities, that should positively affect their ability to get a job working for another organization. However, if the need for distinctiveness is satisfied at the group source (i.e., "My group is distinct from other groups"), then the individual should report higher levels of continuance commitment, as their distinctiveness is not as easily transferrable to other organizations/jobs. For example, in an individual who is a member of a highly specialized group, such as a design team for a new model

vehicle, the need for distinctiveness may be met by their membership in that group, and their specific knowledge, skills, and abilities are less likely to transfer to another job. As a result, we would expect that individual to report higher levels of continuance commitment as a result of their cognitive evaluation of their degree of distinctiveness. In other words, an individual's degree of continuance commitment should be lower when the need for distinctiveness is satisfied at the individual source and higher when that need is satisfied at the group source.

Affective commitment arises out of an individual's emotional or affective connection with their coworkers (Bergman, 2006; Meyer & Allen, 2000). When the need for belongingness is satisfied at the individual source (i.e., "I am similar to my other group members"), the individual should perceive a relatively high degree of similarity between themselves and their coworkers. This degree of similarity should foster affective commitment, as similar individuals tend to report higher levels of emotional attachment, a key component of affective commitment (Kelman, 1958; O'Reilly & Chatman, 1986; Klohnen & Luo, 2003). For example, an individual's need for belongingness might be satisfied at the individual source because the individual perceives all members of their referent to be highly similar in some way and thus feels an affinity for others in the group. Consequently, the individual likely would feel some degree of attachment to other members of the group. This should result in an overall positive relationship between belongingness satisfaction at the individual source and affective commitment. When belongingness is satisfied at the group source (i.e., "My group is connected with one another"), we would expect to see a greater degree of affective commitment than when the need is satisfied at the individual source. The satisfaction of belongingness at the group source indicates that the individual feels that the entire group is affectively close with one another. This should have a

greater effect on affective commitment, as it is an emotional evaluation that is stronger than an individual perception of similarity.

Source and Job Satisfaction

Scholars have long focused on job satisfaction as a focal attitude in organizational studies. The exact nature of the relationship between satisfaction and job performance is elusive, with scholars recognizing various potential directional relationships (Judge et al., 2001). In fact, Judge et al. describe at least seven different ways in which job satisfaction may be related to performance. One of the potential relationships noted by Judge et al. is that affect leads to job satisfaction, which in turn is manifested in performance (model 7, Judge et al., 2001). Judge et al. specifically note that measures of satisfaction may be too focused on cognitive evaluations of satisfaction (Breif & Roberson, 1989; Organ & Near, 1985). Schleicher et al. (2004) addressed this by differentiating between the affective and cognitive aspects of satisfaction. They found that the affective–cognitive consistency of satisfaction was the strongest predictor of performance. I suggest that the psychological needs of belongingness and distinctiveness differentially predict affective and cognitive aspects of job satisfaction, and that this relationship is further moderated by the source of need satisfaction.

The affective aspect of job satisfaction is concerned primarily with an individual's emotional evaluation of their job. When an individual's need for belongingness is satisfied, they are likely to feel an improved affect for members of their group (Brewer & Roccas, 2001). This relationship is likely complicated by the source of need satisfaction. As noted in the previous chapter, at the individual source this is a result of their perceptions of similarity with others in their referent group (Brewer, 1991). The need for belongingness at the individual source is satisfied when an individual perceives that they are similar to members within their group

(Vignoles et al., 2006). Belongingness satisfaction at the individual source leads to a greater affinity for one's group and results in improved affective satisfaction. This is consistent with recent research showing that perceptions of similarity are positively associated with satisfaction (Avery, McKay, & Wilson, 2007). This relationship should be stronger when the need for belongingness is satisfied at the group source.

At the group source, belongingness is satisfied when an individual perceives strong interpersonal connections among the entire group (Brewer & Roccas, 2001). Compared with belongingness at the individual source, this should have a greater impact on the belongingness–satisfaction relationship. Belongingness at the group source suggests a degree of interpersonal closeness among all (or at least most) members of the group. This perception of group cohesion is a stronger indicator of affective satisfaction, as the individual is making an affective evaluation of the entire group, compared with their affinity for the group arising as a result of perceived prototypicality. Consequently, I hypothesize that satisfaction of the need for belongingness at the group source will lead to greater levels of affective satisfaction than seen when belongingness is satisfied at the individual source.

The need for distinctiveness at the individual source should be positively related to cognitive satisfaction.² The need for distinctiveness is satisfied at the individual source when an individual believes that they are dissimilar to their group. In this case, an individual may believe that their individual distinctiveness brings value to the overall group. For example, an employee who is dissimilar from their coworkers because of some knowledge, skill, or ability is likely to

² This assumes that need for belongingness is satisfied at the group source. As noted in Chapter 2, belongingness and distinctiveness at the individual source are mutually exclusive. Because psychological needs are critical to the overall functioning of an individual, the satisfaction of both needs on either the individual or group source are necessary conditions for the hypothesized relationships to hold.

believe that this distinctiveness is a specific resource that provides some level of job security. Consequently, I hypothesize that distinctiveness at the individual source is positively associated with cognitive satisfaction.

I expect that distinctiveness satisfaction at the group source should have a similar positive, albeit weaker, relationship with cognitive satisfaction. When distinctiveness is satisfied at the group source, an individual perceives that their group is fundamentally unique and distinct from other groups. This type of group source distinctiveness is likely to increase cognitive satisfaction, in that the individual is engaged in a cognitive evaluation of alternatives. Thus, an individual's perception that their group is distinct from other groups should provide cognitive satisfaction, as the individual likely will view alternative groups as less desirable. However, distinctiveness at the group source (vs. the individual source) is likely to have a weaker relationship with cognitive satisfaction. This is due to the fact that distinctiveness at the individual source provides an individual with more salient information regarding their individual job, whereas distinctiveness at the group source provides information regarding the entire group. For example, an individual who has their need for distinctiveness satisfied at the individual source as a result of some combination of their unique knowledge, skills, and/or abilities should be cognitively satisfied that they contribute something unique to the overall group and thus believe that their specific job/role is important for the overall group. This type of cognitive evaluation is not possible when distinctiveness is satisfied at the group source; therefore, I expect the relationships to be similar in sign but different in strength.

H3a: The relationship between belongingness satisfaction and affective job attitudes is moderated by an individual's perception of group belongingness, such that higher levels of group belongingness will result in a stronger positive relationship between belongingness satisfaction and affective job attitudes.

H3b: The relationship between belongingness satisfaction and affective job attitudes is moderated by an individual's perception of similarity to others in their group, such that higher levels of perceived similarity will result in a stronger positive relationship between belongingness satisfaction and affective job attitudes.

H3c: The moderating effect of an individual's perception of group belongingness on the relationship between belongingness satisfaction and affective job attitudes will be greater than the moderating effect of an individual's perception of similarity to others.

H4a: The relationship between distinctiveness satisfaction and cognitive attitudes is moderated by an individual's perception of group distinctiveness, such that higher levels of group distinctiveness will result in a stronger positive relationship between satisfaction of the need for distinctiveness and cognitive job attitudes.

H4b: The relationship between distinctiveness satisfaction and cognitive job attitudes is moderated by the perception of individual distinctiveness from others in their group, such that higher levels of individual distinctiveness will result in a stronger positive relationship between satisfaction of the need for distinctiveness and cognitive job attitudes.

H4c: The moderating effect of an individual's perception of group distinctiveness on the relationship between distinctiveness satisfaction and cognitive job satisfaction will be greater than the moderating effect of an individual's perception of distinctiveness from others within their group.

H4d: The moderating effect of an individual's perception of distinctiveness from others within their group on the relationship between distinctiveness satisfaction and continuance commitment will be greater than the moderating effect of an individual's perception of group distinctiveness.

Moderating Effects of the Domain of Need Satisfaction

The previous hypotheses offer an explanation of *how* the relationship between psychological needs is related to performance through distinct affective and cognitive pathways. I now turn my attention to offering an additional explanation of *when* the previously described relationships are strongest. Specifically, I explore conditional effects when a psychological need is satisfied within a specific life domain.

In Chapter 2, I discussed the “referent other” as an important consideration in understanding the effects of psychological need satisfaction. In the previous section, I addressed the source (i.e., group vs. individual) at which the referent other may exist. These previous hypotheses were specifically bounded to the work domain; however, it is possible, even likely, that psychological needs are also satisfied in the nonwork domain. The way in which these needs are met across roles is likely predicted by the salience of the individual’s life roles.

The relatively recent focus on understanding the way in which life roles are integrated and/or separated has been valuable in providing a more comprehensive understanding of the relationship between an individual self-concept constructed within specific roles and work outcomes. Burke and Tully argue that “the self, as a whole, is a collection of identities, each of which is experienced indirectly through interaction with the other” across life roles (1977). Within each of these roles, individuals develop a role-specific self-concept (Burke & Tully, 1977). From this perspective, the self-concept that an individual constructs as a function of one role might or might not be relevant in another role. As a result, scholars have noted that the self-concepts constructed within a given life role (e.g., work, nonwork) differ in terms of centrality (Ashforth et al., 2016; Luchetta, 1995; Martire, Stephens, & Townsend, 2000; Settles, 2004; Thoits, 1991). In other words, the psychological needs of belongingness and distinctiveness are more likely to be satisfied in roles that are deemed more salient. This suggests that individuals are more likely to select a referent other from a role/domain that is deemed more central in their life.

Because the boundaries between and across roles range from fluid and malleable to rigid and firm (Kossek et al., 2012), individuals may have their psychological needs satisfied in multiple life roles. The satisfaction of psychological needs in different roles suggests that

individuals exert some control over how they construct their roles within specific social contexts (Mead & Strauss, 1956). For example, an individual may choose to share or keep private specific information about an individual role while in a noncongruent social context. More specifically, individuals may prefer to keep their work and nonwork roles separate (Kossek et al., 2012). The individual preference for integration/separation may indicate that an individual's psychological needs are differentially satisfied by different roles.

I now turn to providing specific hypotheses regarding the nature of the relationship between psychological needs and attitudes when needs are met in different domains.

Psychological Nutriment

Psychological needs have been conceptualized as “psychological nutriment” (Deci & Ryan, 2002) that transcend specific life domains. In other words, the satisfaction of psychological needs is theoretically related to overall functioning across life domains. In addition, there is a preponderance of evidence indicating that the experiences in a single life domain can have both positive and negative effects on other domains (e.g., Greenhaus & Buetell, 1985; Greenhaus & Powell, 2006; Ilies, Wilson, & Wagner, 2009; Stevens et al., 2007; Crouter, 1985; Leavitt et al., 2017). Because satisfaction of psychological needs is generally considered a contributing factor in “overall functioning” (Deci & Ryan, 2002), such satisfaction is expected to have a positive overall effect on individuals' attitudes irrespective of the domain. This is consistent with the optimal distinctiveness *theory*, which posits that individuals seek to find the optimal degree of need satisfaction, and that once needs are satisfied, the individuals are no longer motivated to satisfy their needs. This suggests an overall positive spillover effect, such that irrespective of the domain in which the need is satisfied, such satisfaction will have an overall positive effect on attitudes in other domains. As a result, I expect that when the needs for

belongingness and distinctiveness are satisfied, there will be a measurable effect within the work domain irrespective of the domain in which the need is satisfied.

Domain Specificity

As noted in Chapter 2, numerous studies have provided evidence for the experience of cross-domain effects. One example of this cross-domain effect is work-to-family and family-to-work conflicts. The most dominant framework for explaining these effects has been the domain specificity hypothesis (Frone et al., 1992, 1997). This approach assumes that the attitudes in a domain are most strongly related to outcomes in that same domain. From a traditional work–family conflict perspective, this means that the experience of conflict at work has a greater impact on work outcomes compared with family outcomes. This relationship has been supported by at least three different meta-analytic path analyses (Frone et al., 1992; Ford et al., 2007; Michel & Hargis, 2008).

While this dissertation does not explicitly evaluate work–family conflict, the domain specificity hypothesis is valuable for understanding the relationship between attitudes and outcomes. The domain specificity framework suggests that the domain in which the experience occurs should have the strongest effect on outcomes within that domain. This logically leads to a domain-moderating effect on the relationship between psychological needs and job attitudes. In other words, a psychological need that is satisfied by the work domain will be related to higher levels of attitudes within the work domain.

H5a: The relationship between belongingness satisfaction and affective job attitudes is moderated by the degree to which the need for belongingness is satisfied in the work domain, such that higher levels of satisfaction of belongingness in the work domain will result in a stronger positive relationship between belongingness satisfaction and affective job attitudes.

H5b: The relationship between belongingness satisfaction and affective job attitudes is moderated by the degree to which the need for belongingness is

satisfied in the nonwork domain, such that higher levels of satisfaction of belongingness in the nonwork domain will result in a stronger positive relationship between belongingness satisfaction and affective job attitudes.

H5c: The moderating effect of the need for belongingness being satisfied in the work domain on the relationship between belongingness satisfaction and affective job attitudes will be greater than the moderating effect of the need for belongingness being satisfied in the nonwork domain.

H6a: The relationship between distinctiveness satisfaction and cognitive job attitudes is moderated by the degree to which the need for distinctiveness is satisfied in the work domain irrespective of the source (i.e., group or individual), such that higher levels of satisfaction of distinctiveness in the work domain will result in a stronger relationship between distinctiveness satisfaction and cognitive job attitudes.

H6b: The relationship between distinctiveness satisfaction and cognitive job attitudes is moderated by the degree to which the need for distinctiveness is satisfied in the nonwork domain irrespective of the source (i.e., group or individual), such that higher levels of satisfaction of distinctiveness in the nonwork domain will result in a stronger relationship between distinctiveness satisfaction and cognitive job attitudes.

H6c: The moderating effect of the need for distinctiveness being satisfied in the work domain on the relationship between satisfaction of the need for distinctiveness and cognitive job attitudes will be greater than the moderating effect of the need for belongingness being satisfied in the nonwork domain.

Moderating Effects of Worker Virtuality

The hypothesized moderation effect of the domain in which a need is satisfied on the relationship between need satisfaction and job attitudes is likely to be further moderated by the context of virtual work. Virtualness is defined as the degree to which “individuals work from home, ‘on the road,’ or otherwise outside of traditional offices” (Wiesenfeld, Raghuram, & Garud, 2001). This typically has been operationalized along two dimensions: geographic dispersion and communication frequency/synchronicity.

Many of the studies on virtual work focus on the changes to communication processes and methods as a result of geographic dispersion (Gonzalez-Roma & Hernandez, 2014; Marlow,

Lacerenza, & Salas, 2017). Clearly, communication is critical for the development of team processes, integration, coordination, and performance (Gibson, 2001; Kozlowski & Ilgen, 2006). When geographic dispersion is low, there is increased opportunity for rich communication and shared understanding among coworkers (Cramton, 2001; Daft and Lengel, 1984, 1986). Conversely, geographically dispersed employees must rely on less rich forms of communication, which may lead to various misunderstandings (Daft et al., 1987; Fiol & O'Connor, 2005; Malhotra et al., 2007). Communication frequency/synchronicity is related to geographic dispersion but addresses the issue of psychological distance.

One of the earlier studies in virtual work noted that virtuality reduces task interdependence (Feldmen & Gainey, 1997). The lack of task interdependence is likely to reduce the perceptions of similarity and a psychological fulfillment of belongingness. When task interdependence decreases, there are likely fewer interactions among coworkers and thus less information to allow for the affective and cognitive processes of psychological need satisfaction. The lack of “facetime” for virtual workers alters the interpersonal interactions with individuals in the work domain and has the ability to affect social standing (Bartel, Wrzesniewski, & Wisenfeld, 2012; Van Dyne, Kossek, & Lobel, 2007). This would suggest that virtual work on its own is likely to moderate the need satisfaction–job attitude relationship.

However, I suggest that the process may be more complex than this, considering that individuals are inherently driven to satisfy their psychological needs (Deci & Ryan, 2000; Leary & Baumeister 2000; Li & Feng, 2018; Snyder & Fromkin 1980; Van den Broeck et al., 2016). Specifically, individuals who engage in greater levels of virtual work are still driven to satisfy their psychological needs. The result of virtual work is necessarily fewer opportunities for rich communication in the work domain. Yet the impetus to satisfy the needs for belongingness and

distinctiveness is likely to drive individuals to rely more heavily on their interactions in the nonwork domain to satisfy their needs for belongingness and distinctiveness. This is potentially exacerbated by the fact that individuals engaging in virtual work often work in nonwork locations that afford greater opportunities for rich communication with individuals outside the work domain.

A higher level of virtuality necessarily means that individuals are operating through mediated forms of communication. This should result in fewer relational cues and more ambiguity for virtual employees. The lack of relational cues and ambiguity is likely to trigger an employee to respond by seeking out ways to satisfy their affective and cognitive needs. This is most likely to occur in the most proximal setting (i.e., nonwork). Consequently, the moderating effect of domain in which a need is satisfied is likely conditional on the degree of virtualness of the job. Individuals with higher levels of virtualness are likely to find satisfaction in their most proximal setting (outside of work), whereas individuals with lower levels of virtualness will have more information via the richness of face-to-face communication with their coworkers. This richness of communication will allow for interactions in the work domain to more strongly influence the relationship between belongingness and distinctiveness satisfaction with affective and cognitive job attitudes, respectively; that is, the effect of domain on the needs–attitude relationship will be greater with higher levels of virtuality.

For example, an employee might work from home 3 days per week. During the day, this employee might have a conversation with their partner or lunch with a nonwork friend (vs. a colleague). Thus, opportunities for rich communication outside the work domain are likely to be greater for highly virtual workers, and for these workers, the nonwork domain is more important for the need satisfaction–job attitudes relationship. In short, virtual work lessens the importance

of need satisfaction in the work domain, resulting in a decreased effect of need satisfaction in the work domain on job attitudes.

H7: The moderating effect of the domain of need satisfaction on the relationship between affective attitudes (i.e., job satisfaction and commitment) and the need for belongingness in the work domain is conditional on the degree of virtualness of a job, such that the effect will be less for individuals with a high degree of virtualness compared with individuals with a low degree of virtualness.

H8: The moderating effect of the domain of need satisfaction on the relationship between cognitive attitudes (i.e., job satisfaction and commitment) and the need for distinctiveness in the work domain is conditional on the degree of virtualness of a job, such that the effect will be less for individuals with a high degree of virtualness compared with individuals with a low degree of virtualness.

Overall, the psychological needs of belongingness and distinctiveness likely have specific relationships with affective and cognitive attitudes, which in turn result in specific in-role and extra-role behaviors. Needs are likely to be satisfied across life domains, as well as by different sources within specific domains. Both the source and domain are hypothesized to have moderating effects on the relationship between psychological needs and the affective and cognitive components of attitudes.

CHAPTER FOUR: METHOD & RESULTS

This dissertation seeks to understand the cognitive and affective paths to job attitudes as a result of psychological needs satisfaction. As a result this study is designed to test a model of the effects of psychological needs satisfaction on affective and cognitive job attitudes as well as the moderating effects of the domain and source in which psychological needs are satisfied as well as the context of virtuality. In this chapter I provide an overview of the method/design of the study and analysis of the data. The first part of this chapter is dedicated to addressing the method and design. The second part of this chapter provides a comprehensive review of the analyses and results.

Method

Sample & Procedure

To test the previously hypothesized relationships a survey of alumni from a regional college in the mid-Atlantic United States through the year 2017 was conducted. Individuals were invited to complete an online survey hosted by Qualtrics via an electronic link sent directly by the college. A reminder was sent one week after the initial contact. In return for their participation, participants were entered into a drawing to receive a \$25 Amazon gift card per 50 participants. Overall the survey was sent to a population of 9720 distinct email addresses and 2475 (25%) of those emails were opened. Of the emails that were opened by the recipients 603 (24%) clicked the link and 472 (19%) completed at least a portion of the survey and 336 (13%) completed the entire survey.

Sixty-seven percent of the respondents were female. This is relatively consistent with the male-female ratio from the participating institution (61% female). Sixty-eight percent of the

sample were married or in a domestic partnership; they ranged in age from 22 to 75 and averaged between 35 and 44 years of age, were employed in full-time jobs (84%) working an average of 42 hours per week, with an average salary between \$60,000 and \$70,000 and had been with their current employer for 8 years. Forty-four percent of the respondents had received an advanced degree.

Power Analysis

In 2014 Bosco and colleagues published a comprehensive guide to correlational effect size benchmarks. Cohen's effect size benchmarks ranging from small to large ($r = .2, .4, .6$, 1962; $r = .1, .3, .5$, 1988) are based on a non-empirical approach. To address this Bosco et al. provide scholars with a comprehensive guide of effect size benchmarks and required sample sizes for the testing of different constructs. They gathered more than 140,000 correlations from published research within the management and applied psychology domain from the years 1980 – 2010. Using this data they produced empirically based effect size benchmarks for 20 broad research domains including attitudes, behaviors, and performance. Based on this empirical data they offer sample size guidelines to detect effect sizes that fall between the 20th and 80th percentile of the published correlations they reviewed. I used their guidelines as a basis for determining the appropriate sample size to test each of the hypotheses. Based on the effect size benchmarks and power analyses provided by Bosco et al. a sample size of 300 should provide sufficient power (.80) to detect an average (50th percentile) effect size for each of the proposed relationships within my model. Consequently, as this study is based on an actual sample size of greater than 300 concerns of type II error are diminished.

Bosco et al. also provide an I^2 statistic. The I^2 is a measure of the total variation in the effect size benchmarks that are due to heterogeneity of variance as opposed to sample error

(Higgins & Thompson, 2002). Bosco et al. derived their sample size benchmarks using existing meta-analysis data (2014). The I^2 statistic ranges from 0 – 100 with higher values indicating a greater likelihood of the presence of moderating effects (Bosco et al. 2014; Higgins & Thompson, 2002). The I^2 for attitude:attitude relationships derived from the meta-analytic correlations derived by Bosco et al. is 95.73. This indicates a high likelihood of the of the presence of moderating variables. While there are no *a priori* benchmarks for sample size needed to reach .80 power in models with more than two focal variables (e.g. moderation), the presence of such a high I^2 is an encouraging justification to evaluate the existence of moderating effects.

Measures

A complete list for the survey items can be found in Appendix A. An overview of each of the measures is provided below. Table 1 provides the means, standard deviation, and bivariate correlations of variables considered in the study.

Belongingness Satisfaction

Belongingness satisfaction was measured using a 6-item scale adapted from Malone et al. (2012). Sample items included “I am satisfied with how connected I feel with others; I am satisfied with the bonds I have with other people in my life” ($\alpha = .90$). This measure used a 5-point Likert scale response anchored with strongly disagree to strongly agree.

Table 1. Means, Standard Deviations, and Bivariate Correlations

Variables	Mean	SD	1	2	3	4	5	6	7	8
1. Age	3.9	1.296	1							
2. Gender	1.67	0.47	-.185**	1						
3. Education Level	5.54	0.662	.181**	-0.095	1					
4. Family Status	0.243	0.933	.339**	-.176**	.128*	1				
5. Salary	6.37	2.889	.276**	-.410**	.241**	.119*	1			
6. Need for Belongingness (trait)	3.311	0.631	-.254**	.301**	-0.03	-0.084	-.273**	1		
7. Need for Distinctiveness (trait)	2.552	0.762	-.127*	-0.057	0.02	-.120*	-0.071	-0.047	1	
8. Belongingness Satisfaction	4.149	0.717	0.073	0.014	.142**	0.09	.120*	-0.086	-0.03	1
9. Distinctiveness Satisfaction	4.116	0.668	-0.017	0.015	0.091	-0.018	0.095	-.167**	.254**	.496**
10. Perceived Group Distinctiveness at Work	2.878	0.955	0.005	-0.032	0.045	-0.025	.135*	-0.093	.181**	.207**
11. Perceived Group Belongingness at Work	3.276	1.001	.138*	0.053	0.074	0.02	0.106	-0.017	-0.04	.415**
12. Individual Distinctiveness at Work	3.262	0.841	.126*	-.209**	0.074	-0.021	.230**	-.155**	.327**	.123*
13. Perceived Group Distinctiveness outside of Work	2.867	0.889	-0.026	-0.02	-0.006	0.016	0.051	-0.018	.285**	.225**
14. Perceived Group Belongingness outside of Work	3.673	1.084	-0.059	.148**	-0.022	-0.04	-0.013	.124*	0.047	.451**
15. Individual Distinctiveness outside of Work	2.933	0.918	-0.032	-.122*	0.096	-0.02	0.047	-0.046	.514**	.110*
16. Affective Job Satisfaction	3.87	0.829	.208**	-.111*	.143**	.169**	.159**	-.126*	-.134*	.339**
17. Cognitive Job Satisfaction	3.908	0.784	0.077	-0.104	.157**	0.103	.226**	0.002	-.188**	.295**
18. Virtuality	0.764	4.607	-0.016	-0.095	0.08	0.132	0.153	-0.097	0.024	0.096
19. Affective Commitment	3.984	1.168	.230**	-0.106	.154**	.141**	.192**	0	-0.082	.306**
20. Continuance Commitment	3.161	0.904	0.025	0.075	0.062	-0.043	-0.03	0.047	.115*	-.147**

Note. N ranges from 337-340. ** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed).

(table continues)

Table 1 continued

Variables	9	10	11	12	13	14	15	16	17	18	19
9. Distinctiveness Satisfaction	1										
10. Perceived Group Distinctiveness at Work	.254**	1									
11. Perceived Group Belongingness at Work	.339**	.256**	1								
12. Individual Distinctiveness at Work	.244**	.349**	.205**	1							
13. Perceived Group Distinctiveness outside of Work	.276**	.175**	0.102	.237**	1						
14. Perceived Group Belongingness outside of Work	.273**	0.004	.314**	0.098	.399**	1					
15. Individual Distinctiveness outside of Work	.300**	.271**	.153**	.452**	.295**	.144**	1				
16. Affective Job Satisfaction	.276**	.203**	.410**	.148**	0.044	0.09	0	1			
17. Cognitive Job Satisfaction	.216**	.158**	.319**	.133*	0.03	0.1	0.009	.700**	1		
18. Virtuality	.181*	0.053	-0.081	.265**	0.094	0.154	0.105	0.136	.302**	1	
19. Affective Commitment	.272**	.236**	.436**	.207**	0.042	0.09	0.063	.691**	.655**	.261**	1
20. Continuance Commitment	-0.043	-.113*	-.245**	-0.019	-0.009	-0.048	-0.038	-.187**	-.136*	-0.108	-0.088

Note. N ranges from 337-340. ** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed).

Distinctiveness Satisfaction

Distinctiveness satisfaction was measured using a 6-item scale adapted from Simcek & Yelencetin (2010). Sample items included “Overall, in my life I am satisfied with how unique I feel; In general, I am satisfied with my characteristics that distinguish me from other people” ($\alpha = .90$) This measure used a 5-point Likert scale response anchored with strongly disagree to strongly agree.

Domain and Source of Needs Satisfaction

In this section I provide a detailed description of the scales used to measure the following constructs: group belongingness at work, group belongingness outside of work, group distinctiveness at work, group distinctiveness outside of work, individual distinctiveness at work, and individual distinctiveness outside of work. Prior to completing the following items, participants were asked to identify one meaningful group that they are a part of at work and to write down a name for this group for example, “new product development team”. Participants were then asked to identify a meaningful group that they were a part of outside of work and type in a name for this group. For example, a participant might type in “Wednesday night running club”.

Group belongingness at work. Group belongingness at work was measured using a scale adapted from Sheldon and Bettencourt (2002). The original scale contained three items: 1) How close and connected to you feel with other members of the group 2) How much of a sense of relatedness do you feel with the other members of the group 3) To what extent do you feel a sense of personal friendship with the other group members. The general referent, “this/your group”, was then replaced with “your group at work” and their typed response for their meaningful group at work was then piped into each question in parentheses. For example, “How

close and connected do you feel with other member of your group at work (i.e. new product development team)?”. Responses were measured using a 5-point Likert scale ranging from very much to not at all. Overall responses were reliable ($\alpha = .93$).

Group belongingness outside of work. Group belongingness outside of work used the same procedure described above to modify the same Sheldon and Bettencourt scale for the non-work domain (2002). Participants were asked to think about a specific meaningful group outside of work and type in a name for this group. This response was then piped into each question in parentheses following the changed referent. For example, if the participant types “Wednesday night running club”, the referent in each of the three items was changed from, “this/your group”, to “this/your group outside of work (i.e. Wednesday night running club)”. Overall reliability was adequate ($\alpha = .96$).

Group Distinctiveness at Work. Group distinctiveness at work was measured using different three item scale adapted from Sheldon and Bettencourt (2002). The measure included the following three items: 1) How different is your group from other groups? 2) How much does this group seem to stand out, compared to other groups? 3) How much does this group seem unique, compared to other groups?. Following the procedure described above, the general “group” was replaced by “group at work”. Then, the meaningful group at work that the participant typed in was piped into the question following the referent shift. For example, an item would read: “How different is your group *at work* (i.e. new product development team) from other groups *at work*”. Reliability for this 3-item measure was acceptable ($\alpha = .90$).

Group Distinctiveness Outside of Work. The same Sheldon and Bettencourt item used to measure group distinctiveness at work was modified (2002). However, the referent was changed to “group outside of work” and their individually identified group outside of work was piped into

the item following the question. For example, if the participant typed “Wednesday night running club” for their meaningful group outside of work an item would read as follows: “How different is your group outside of work (i.e. Wednesday night running club) from other groups outside of work?”. This scale was sufficiently reliable ($\alpha = .86$).

Individual Distinctiveness at Work. Individual distinctiveness at work was measured using a modified three item scale from Sheldon and Bettencourt (2002). Items included: 1) How much do you feel like you stand out within this group? 2) How much do you feel unique as you participate in this group? 3) How distinct and separate do you feel within this group? Due to concerns about reliability and to try and fully capture the construct, three additional items (How different are you from your group; How similar are you to other members within your group; How much do you agree with following statement: I am exactly like everyone else within my group) were added to Sheldon & Bettencourt’s original items. The referent in each of the items was changed to the group at work identified by the participant. A sample item would read “How much do you feel like you stand out within your group at work (i.e. new product development group)?”. Using all six items, reliability was low ($\alpha = .75$). However, using only the three original Sheldon and Bettencourt items, reliability improved ($\alpha = .83$). Based on this and additional analysis described below, only the original three Sheldon and Bettencourt items were retained.

Individual Distinctiveness Outside of Work. Individual distinctiveness outside of work was measured using the same six items from individual distinctiveness at work. However, the referent was shifted to the participant identified group outside of work. For example, an item would read “How much do you feel you stand out within your group outside of work (i.e. Wednesday night running club)?”. Using all six items, reliability was low ($\alpha = .76$). However,

using only the three original Sheldon and Bettencourt items, reliability improved ($\alpha = .90$). Based on this and additional analysis described below, only the original three Sheldon and Bettencourt items were retained.

When adding items to a scale there is some risk that the scale may be fundamentally altered. Additionally, due to the similarity with the independent variables, I was concerned that each of these scales measuring constructs within the domain and from different sources, these scales might not be sufficiently distinct. In addition evaluating reliability, I conducted an exploratory factor analysis using principle axis factoring for and included each item from the Simcek & Yelencetin scale (IV), and each item from the Sheldon & Bettencourt measure including the three added items for both the work and non-work domains. I conducted an exploratory factor analysis as it was unclear if the additional items added to the domain need satisfaction measure were measuring the same the same construct.

Using eigenvalues greater than 1, results from the factor analysis indicated a 5-factor structure. Individual factor loadings can be found in Table 2. The item loadings indicated that the Simsek & Yelencetin items loaded together. Thus, I concluded that the measure for the independent variable of satisfaction of the need for distinctiveness is measuring something different from the moderating variables. The remaining 12 items loaded on four separate factors. Two of these factors addressed need satisfaction at work and two addressed need satisfaction outside of work. As suspected, the items added to the Sheldon and Bettencourt scale loaded on their own distinct factor. The only exception was the item “How different are you from your group outside of work”. This item loaded strongly with the original Sheldon and Bettencourt items. Overall, this provided evidence that the moderating variables and independent variables are, in fact, distinct constructs. Because the additional items that were added to the moderating

domain of need satisfaction variables were similarly distinct, I dropped these additional items from the analysis and calculated scale scores based on the original three-item measures.

Virtuality

Virtuality is conceptualized as a composite of geographic dispersion and communication frequency/synchronicity. Geographic dispersion was assessed using items addressing the degree of geographic dispersion of supervisor and coworkers (e.g. same office, same city), frequency of telework in days per week, mileage from office when teleworking. Communication frequency included indicators of communication frequency through face-to-face, e-mail, text messaging, and social media. Following the procedures outlined by Hoch and Kozlowski (2014) I calculated a ratio of relative communication frequency by dividing the sum of the asynchronous mediated methods (mediated methods) by the sum of all communication (mediated and face-to-face). In total there this resulted in five individual items assessing virtuality: geographic dispersion from coworkers, geographic dispersion from supervisor, frequency of remote work, average distance when working remotely, and ratio of mediated communication to face-to-face. Each of these indicators were subjected to a z-score transformation and were summed to create the virtuality composite variable. Cronbach's α was .82. The measure ranged from -8.10 to 12.47, with $M = .762$, and $SD = 4.607$. Higher scores indicate greater degree of virtuality.

Table 2. Rotated Factor Loadings

Scale	Item	Factor				
		1	2	3	4	5
Distinctiveness Satisfaction (Simsek & Yalincetin, 2010)	I am satisfied that as people get to know me more, they begin to recognize my special features.	0.587	0.151	0.058	0.051	0.115
	Overall in my life I am satisfied with how unique I feel.	0.824	0.146	0.075	0.005	-0.08
	In general I am satisfied with my characteristics that distinguish me from others.	0.859	0.058	0.071	0.026	-0.038
	In my life I am satisfied that characteristics that make me up are distinct from others.	0.839	0.07	0.092	-0.044	-0.003
	Overall in my life I am satisfied that some of my characteristics are completely unique to me.	0.733	0.074	0.087	-0.042	0.045
	I am satisfied with how distinct I am from other people in my life.	0.813	0.068	0.063	-0.025	-0.059
Individual Distinctiveness at Work (Sheldon & Bettencourt, 2002)	How much do you feel like you stand out at work?	0.146	0.167	0.76	0.06	-0.036
	How much do you feel unique when you participate with people at work?	0.186	0.265	0.821	-0.07	0.03
	How distinct and separate do you feel within your group at work?	-0.001	0.233	0.663	-0.286	0.066
Individual Distinctiveness at Work (added items)	How different are you from your group at work?	0.085	0.269	0.456	-0.637	0.075
	How similar are you to other members within your group at work?	0.076	0.001	0.043	0.645	0.128
	How much do you agree with the following statement: I am exactly like everyone else within my group at work.	-0.099	0.013	-0.16	0.419	0.334
Individual Distinctiveness at Outside of Work (Sheldon & Bettencourt, 2002)	How much do you feel like you stand out outside of work?	0.195	0.811	0.167	0.023	0.023
	How much do you feel unique when you participate with people outside of work?	0.23	0.835	0.209	-0.015	0.054
	How distinct and separate do you feel within your group outside of work?	0.072	0.82	0.241	-0.05	-0.042
Individual Distinctiveness at Outside of Work (added items)	How different are you from your group outside of work?	0.033	0.709	0.118	-0.126	-0.248
	How similar are you to other members within your group outside of work?	0.155	-0.024	0.073	0.095	0.515
	How much do you agree with the following statement: I am exactly like everyone else within my group outside of work.	-0.162	-0.11	-0.003	0.068	0.776

Note. Extraction Method: Principal Axis Factoring. Rotation Method: Varimax with Kaiser Normalizations. Rotation converged in 6 iterations.

Job Attitudes

The attitudes of job satisfaction and organizational commitment were measured using previously validated scales. These specific measures were selected as they have distinct measures of affective and cognitive aspects of the overall job attitude and thus can be analyzed independently. Affective job satisfaction ($\alpha = .93$) and cognitive job satisfaction ($\alpha = .87$) were each measured using separate 18-item scales (Schleicher et al., 2004). Affective commitment ($\alpha = .85$) and continuance commitment ($\alpha = .80$) were each measured using separate 8-item scales (Allen & Meyer, 1990). Each of these measures used Likert scale ratings anchored with strongly agree to strongly disagree.

Given the self-report nature of these outcomes it is possible that they may not be distinct constructs. I conducted a series of three confirmatory factor analyses (CFA) to investigate this possibility. I fit the model using lavaan version 0.5-23 (Rosseel, 2012) in R version 3.3.1 using maximum likelihood estimation, with full information maximum likelihood for the missing data. The latent factors were standardized. The first model evaluated a 2-factor structure collapsing across affective and cognitive constructs. Model 1 combined affective job satisfaction with affective commitment and cognitive job satisfaction with continuance commitment. The data fit for this model was poor (TLI = .54; CFI = .57; RMSEA = .113; SRMR = .112). The second model also evaluated a 2-factor structure but collapsed across attitudinal constructs. Model 2 combined affective job satisfaction with cognitive job satisfaction and affective commitment with continuance commitment. The data fit for this model was poor (TLI = .56; CFI = .58; RMSEA = .111; SRMR = .118). The third model evaluated each of the four constructs as distinct from one another. The data fit for this model improved considerably and provided the best fit of

the three CFA models. Given this information I concluded that there is sufficient evidence to treat each of the four constructs as distinct for hypothesis testing purposes.

Control Variables

The strength of psychological needs differs across individuals. Because of this, it is important to control for the individual differences across individuals. Psychological need strength for belongingness was measured using a 10-item scale ($\alpha = .80$) from Leary et al. (2005). Psychological need strength for distinctiveness was measured using a 4-item scale ($\alpha = .87$) from Lynn & Harris (1997). This was used as a standard control variable in each of the analyses. Additionally, self-reports of age, gender, educational level, family status, hours worked per week, and salary were used as control variables.

Analysis

Data were analyzed using linear regression and conditional process analysis following the procedures described by Hayes (2013). Hypothesis 1 and 2 proposed a direct linear relationship and thus analysis was conducted using the general linear model. Hypotheses 3 through 8 were analyzed using conditional process analysis described by Hayes (2013). Using this approach allows one to test each individual relationship simultaneously with the whole model. Conditional process analysis utilizes the same general linear model framework as structural equation modelling, however, it is more appropriate when the moderating effect is the interesting phenomenon (Hayes, 2013). The analysis of the data using the procedures outlined by Hayes (vs. structural equation modelling) is driven by the decision to focus more specifically on the moderating (vs. mediating) phenomenon. For moderation effects, bootstrapped 95% confidence intervals using 5000 draws are also reported. For each of the analyses described below, the

following control variables were used: age, gender, family status, salary, average and hours worked per week.

Direct Effects

Hypothesis one predicted a positive direct effect of belongingness satisfaction on a) affective commitment and b) affective job satisfaction. To evaluate this hypothesis I first conducted a general linear model (GLM) analysis using SPSS including modeling the effect of belongingness satisfaction on both affective job satisfaction and affective commitment in a simultaneous model while controlling for age, salary, gender, family status, education level, weekly working hours, and the level of the need for belongingness. Assumptions of equality of error variance (Lavene's test) were satisfied for both affective job satisfaction ($p = .350$) and affective commitment ($p = .968$). Multivariate test's indicated a significant main effect of belongingness satisfaction (Pillai's trace = .152, $F(2,316)=28.274$, $p < .001$). Overall, this test provides evidence of a main effect of belongingness satisfaction when both affective job satisfaction and affective commitment were in the model. To further evaluate the exact nature and strength of these relationships I conducted additional individual analyses as follows.

Two separate regression analyses were conducted to evaluate the different focal outcomes. The first analysis evaluated the impact of belongingness satisfaction on affective commitment. The results of the regression were significant and indicated belongingness satisfaction explained 8% of the variance in affective commitment above and beyond the control variables. The second analysis evaluated the impact of belongingness satisfaction on affective job satisfaction. The results of the regression were significant and indicated belongingness satisfaction was a significant predictor explaining 13% of the variance in affective job

satisfaction above and beyond the control variables. The results of these regression analyses provide support for hypothesis 1a and 1b (see tables 3 and 4).

Table 3. Summary of Regression Analyses of Belongingness Satisfaction Predicting Affective Commitment

Variable	Model 1			Model 2		
	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β
Gender	-0.093	0.147	-0.038	-0.151	0.141	-0.061
Age	0.183	0.056	0.191**	0.188	0.054	0.196**
Education Level	0.183	0.1	0.102	0.128	0.096	0.071
Family Status	0.062	0.073	0.049	0.029	0.07	0.023
Hours worked per week	0.007	0.008	0.052	0.005	0.007	0.04
Salary	0.042	0.026	0.103	0.033	0.025	0.082
Belongingness Need Strength	0.196	0.101	0.11	0.249	0.097	0.14***
Belongingness Satisfaction				0.475	0.085	0.29***
R^2		0.101			0.181	
F for change in R^2		5.183***			31.416***	

Note. N=328 * $p < .05$. ** $p < .01$. *** $p < .001$.

Table 4. Summary of Regression Analyses of Belongingness Satisfaction Predicting Affective Job Satisfaction

Variable	Model 1			Model 2		
	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β
Gender	-0.009	0.105	-0.005	-0.06	0.098	-0.034
Age	0.085	0.04	0.125*	0.09	0.038	0.132*
Education Level	0.144	0.072	0.114*	0.095	0.067	0.075
Family Status	0.071	0.053	0.08	0.042	0.049	0.047
Hours worked per week	-0.003	0.006	-0.029	-0.004	0.005	-0.045
Salary	0.025	0.019	0.088	0.017	0.017	0.061
Belongingness Need Strength	-0.051	0.072	-0.041	-0.004	0.068	-0.003
Belongingness Satisfaction				0.42	0.059	0.364***
<i>R</i> ²		0.072			0.198	
<i>F</i> for change in <i>R</i> ²		3.565***			50.57***	

Note. *N*=328. **p* < .05. ***p* < .01. ***<.001

Hypothesis two predicted a positive direct effect of distinctiveness satisfaction on a) continuance commitment and b) cognitive job satisfaction. Evaluation of this hypothesis used the same procedure as above. Results of a GLM model of distinctiveness satisfaction on cognitive job satisfaction and continuance commitment simultaneously while controlling for age, salary, gender, family status, education level, weekly working hours, and the level of the need for distinctiveness indicated a significant main effect. Assumptions of equality of error variance (Lavene's test) were satisfied for both cognitive job satisfaction ($p = .572$) and continuance commitment ($p = .202$). Multivariate test's indicated a significant main effect of distinctiveness satisfaction (Pillai's trace = .105, $F(2,317)=18.503$, $p < .001$). Overall, this test provides evidence

of a main effect of distinctiveness satisfaction when both cognitive job satisfaction and continuance commitment were in the model. To further evaluate the exact nature and strength of these relationships I conducted additional individual analyses as follows.

The analysis for hypothesis 2a evaluated the impact of distinctiveness satisfaction on continuance commitment. The results of the regression were not significant (See Table 5). Overall, the data did not support hypothesis 2a. The analysis for hypothesis 2b evaluated the impact of distinctiveness satisfaction on cognitive job satisfaction. The results of the regression analysis were significant ($R^2 = .19$, $F(8,321)=9.63$, $p<.01$) and indicated that distinctiveness satisfaction accounted for 9% of the variance in cognitive job satisfaction above and beyond the control variables ($\beta = .31$, $p<.01$, $\Delta R^2 = .09$) (See Table 6). This offers support for hypothesis 2b, suggesting that satisfaction of the need for distinctiveness leads to cognitive job satisfaction.

Table 5. Summary of Regression Analyses of Distinctiveness Satisfaction Predicting Continuance Commitment

Variable	Model 1			Model 2		
	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β
Gender	0.14	0.117	0.074	0.153	0.117	0.081
Age	0.056	0.045	0.076	0.058	0.045	0.078
Education Level	0.064	0.081	0.046	0.073	0.081	0.053
Family Status	-0.012	0.059	-0.012	-0.01	0.059	-0.011
Hours worked per week	0.007	0.006	0.07	0.007	0.006	0.074
Salary	-0.016	0.021	-0.053	-0.013	0.021	-0.043
Distinctiveness Needs Strength	0.117	0.064	0.103	0.145	0.066	0.127*
Distinctiveness Satisfaction				-0.133	0.08	-0.095
<i>R</i> ²		0.027			0.036	
<i>F</i> for change in <i>R</i> ²		1.288			2.738	

Note. *N*=328. **p* < .05. ***p* < .01. ***<.001

Table 6. Summary of Regression Analyses of Distinctiveness Satisfaction on Cognitive Job Satisfaction

Variable	Model 1			Model 2		
	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β
Gender	-0.046	0.099	-0.027	-0.077	0.094	-0.046
Age	-0.017	0.037	-0.026	-0.021	0.035	-0.033
Education Level	0.17	0.067	0.142*	0.142	0.064	0.119*
Family Status	0.095	0.099	0.056	0.094	0.094	0.055
Hours worked per week	-0.009	0.005	-0.109	-0.011	0.005	-0.123*
Salary	0.058	0.017	0.214**	0.05	0.017	0.185**
Distinctiveness Needs Strength	-0.146	0.053	-0.149**	-0.224	0.052	-0.228***
Distinctiveness Satisfaction				0.38	0.063	0.313***
<i>R</i> ²		0.107			0.197	
<i>F</i> for change in <i>R</i> ²		5.505***			35.869***	

Note. *N*=328. **p* < .05. ***p* < .01. ***<.001

Overall, there was support for hypothesis 1 suggesting that belongingness satisfaction is positively related to affective job attitudes. Hypothesis 2 was partially supported suggesting that the relationship between distinctiveness satisfaction and cognitive job attitudes is more nuanced than hypothesized.

Supplemental Analyses

Taken together, Hypotheses 1 and 2 proposed direct linear relationships along affective and cognitive pathways. As discussed in chapters two and three, previous research provides theoretical support for belongingness satisfaction operating through an affective psychological mechanism and distinctiveness satisfaction operating through a cognitive

psychological mechanism. As tested in the current study there is partial support for this notion. However, it is possible that distinctiveness satisfaction also triggers an affective response evident in affective job attitudes and belongingness satisfaction triggers a cognitive response evident in cognitive job attitudes.

While this possibility was not hypothesized a priori it is valuable for both scholars and practitioners to understand these specific potential empirical relationships. Consequently, I conducted a supplemental analyses modeling distinctiveness satisfaction as an additional predictor of affective attitudes above and beyond belongingness satisfaction as well as a modeling belongingness satisfaction as a predictor of cognitive attitudes above and beyond distinctiveness satisfaction (see tables 7 through 10). Results from these supplemental analyses did, in fact, indicate that distinctiveness satisfaction is a significant predictor of both affective commitment and affective job satisfaction above and beyond belongingness satisfaction alone. Additionally, when belongingness satisfaction was added to the model for cognitive outcomes, belongingness satisfaction was a similarly significant predictor of both continuance commitment and cognitive job satisfaction. These supplemental analyses indicate that the needs satisfaction pathways to various job attitudes might not be appropriately bifurcated by affective/cognitive mechanisms.

Table 7. Summary of Regression Analyses of Distinctiveness Satisfaction on Affective Commitment Above and Beyond Belongingness Satisfaction

Variable	Model 1			Model 2			Model 3		
	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β
Gender	-0.107	0.151	-0.043	-0.171	0.144	-0.069	-0.202	0.141	-0.081
Age	0.179	0.057	0.187**	0.185	0.054	0.192**	0.185	0.053	0.192**
Education Level	0.187	0.101	0.105	0.132	0.097	0.074	0.12	0.095	0.067
Family Status	0.057	0.074	0.045	0.027	0.071	0.021	0.031	0.069	0.025
Hours worked per week	0.007	0.008	0.058	0.006	0.008	0.046	0.005	0.007	0.041
Salary	0.038	0.026	0.095	0.029	0.025	0.072	0.026	0.025	0.064
Belongingness Needs Strength	0.192	0.102	0.107	0.249	0.098	0.14**	0.29	0.096	0.162**
Distinctiveness Needs Strength	-0.072	0.08	-0.049	-0.064	0.076	-0.043	-0.151	0.078	-0.103*
Belongingness Satisfaction				0.475	0.085	0.29***	0.296	0.095	0.181**
Distinctiveness Satisfaction							0.423	0.108	0.233***
R^2		0.103			0.183			0.220	
<i>F</i> for change in R^2		4.602***			31.221***			15.211***	

Note. $N=328$. * $p < .05$. ** $p < .01$. *** $p < .001$

Table 8. Summary of Regression Analyses of Distinctiveness Satisfaction on Affective Job Satisfaction Above and Beyond Belongingness Satisfaction

Variable	Model 1			Model 2			Model 3		
	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β
Gender	-0.049	0.107	-0.028	-0.107	0.1	-0.061	-0.128	0.098	-0.073
Age	0.079	0.04	0.116	0.083	0.037	0.123**	0.083	0.037	0.123
Education Level	0.153	0.072	0.121**	0.104	0.067	0.083	0.095	0.065	0.076**
Family Status	0.067	0.053	0.075	0.04	0.049	0.045	0.044	0.048	0.049
Hours worked per week	-0.001	0.006	-0.013	-0.003	0.005	-0.028	-0.003	0.005	-0.034
Salary	0.018	0.019	0.064	0.01	0.017	0.035	0.008	0.017	0.027
Belongingness Needs Strength	-0.049	0.073	-0.039	0.002	0.068	0.002	0.031	0.067	0.024
Distinctiveness Needs Strength	-0.112	0.057	-0.109*	-0.105	0.053	-0.102*	-0.166	0.054	-0.161**
Belongingness Satisfaction				0.423	0.059	0.366***	0.298	0.066	0.258***
Distinctiveness Satisfaction							0.296	0.075	0.231***
<i>R</i> ²		0.084			0.211			0.248	
<i>F</i> for change in <i>R</i> ²		3.652***			51.606***			15.583***	

Note. *N*=328. **p* < .05. ***p* < .01. ***<.001

Table 9. Summary of Regression Analyses of Belongingness Satisfaction on Continuance Commitment Above and Beyond Distinctiveness Satisfaction

Variable	Model 1			Model 2			Model 3		
	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β
Gender	0.144	0.122	0.075	0.16	0.122	0.083	0.172	0.121	0.09
Age	0.061	0.046	0.082	0.06	0.046	0.081	0.058	0.045	0.079
Education Level	0.06	0.081	0.043	0.07	0.081	0.05	0.084	0.081	0.061
Family Status	-0.015	0.06	-0.016	-0.013	0.059	-0.014	-0.003	0.059	-0.003
Hours worked per week	0.007	0.006	0.069	0.007	0.006	0.073	0.008	0.006	0.076
Salary	-0.013	0.021	-0.043	-0.011	0.021	-0.036	-0.009	0.021	-0.03
Belongingness Needs Strength	0.119	0.064	0.105	0.144	0.066	0.127	0.12	0.066	0.106
Distinctiveness Needs Strength	0.036	0.082	0.026	0.017	0.083	0.013*	0.01	0.082	0.007
Distinctiveness Satisfaction				-0.128	0.081	-0.091	-0.022	0.092	-0.016
Belongingness Satisfaction							-0.191	0.081	-0.151*
<i>R</i> ²		0.028			0.036			0.052	
<i>F</i> for change in <i>R</i> ²		1.159			2.455			5.598**	

Note. *N*=327. **p* < .05. ***p* < .01. ***<.001

Table 10. Summary of Regression Analyses of Belongingness Satisfaction on Cognitive Job Satisfaction Above and Beyond Distinctiveness Satisfaction

Variable	Model 1			Model 2			Model 3		
	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β
Gender	-0.068	0.1	-0.041	-0.118	0.095	-0.071	-0.132	0.093	-0.08
Age	-0.01	0.037	-0.016	-0.01	0.035	-0.015	-0.009	0.034	-0.014
Education Level	0.165	0.067	0.138**	0.133	0.063	0.111**	0.115	0.062	0.096
Family Status	0.095	0.099	0.056	0.094	0.093	0.055	0.076	0.091	0.045
Hours worked per week	-0.009	0.005	-0.107	-0.01	0.005	-0.119	-0.011	0.005	-0.123**
Salary	0.06	0.018	0.224**	0.054	0.017	0.2*	0.051	0.016	0.19**
Belongingness Needs Strength	-0.144	0.053	-0.146**	-0.223	0.052	-0.227***	-0.191	0.051	-0.195***
Distinctiveness Needs Strength	0.079	0.068	0.066	0.137	0.065	0.115**	0.147	0.063	0.123***
Distinctiveness Satisfaction				0.399	0.064	0.329***	0.264	0.071	0.218**
Belongingness Satisfaction							0.245	0.062	0.224***
<i>R</i> ²		0.111			0.208			0.245	
<i>F</i> for change in <i>R</i> ²		4.991***			39.26***			15.553***	

Note. *N*=328. **p* < .05. ***p* < .01. ***<.001

Moderating Effects of the Source of Need Satisfaction

In this next section I review the analyses used to test hypotheses three and four. Hypothesis three addressed the potential moderating effects of the source of need satisfaction (individual vs. group) on affective attitudes and hypothesis four addressed the potential moderating effects of the source of need satisfaction on cognitive job attitudes. The following hypotheses were tested using conditional process analysis (Hayes, 2013). Significant moderation effects were then probed to evaluate the exact nature and direction of the relationships at low, average, and high levels of the moderator. All variables were mean centered prior to analysis to aid in interpretation. Additionally, bootstrapped confidence intervals using 5000 draws were calculated for conditional effects of the focal predictor at each probed level of the moderator.

Further, the moderation comparison hypotheses (H3c; H4c; H4d; H5c; H6c) were tested by evaluating the strength of hypothesized moderation effects. As I did not propose three-way interaction effects here, Hayes (2013) suggests the most appropriate way to compare the moderation effects of two distinct variables is by including both in a single model (Process Model #2). This allows the estimation of the overall R^2 change due to both moderators. Additionally, it allows for the estimation of the unique variance each moderation effect has on the main relationship. The equation used to test the moderation comparison hypotheses is: $Y = i_1 + b_1X + b_2M + b_3W + b_4XM + b_5XW + e_y$ where X is the independent variable, M and W are the moderators, XM and XW are the moderation interaction terms. According to Hayes “ b_1 estimates the conditional effect of X on Y when both W and M are zero... Regression coefficients b_4 and b_5 determine how much X 's effect is contingent on M and W respectively. More specifically, b_4 quantifies how much the conditional effect of X on Y changes as M changes by one unit, holding W constant... Tests of significance or confidence intervals based on b_4 and b_5 answer the

question as to whether M moderates X's effect and whether W moderates X's effect, respectively." (p 303, 2013). Thus, including both hypothesized moderation effects in the same model is required for evaluating the overall hypothesized relationship between need satisfaction and job attitudes. This allows the partitioning of the unique variance each moderation effect has on the overall model.

Support for the moderation comparison hypotheses (H3c; H4c; H4d; H5c; H6c) will be evaluated in two parts. In order to fully support these hypotheses the primary moderation must be significant. It is not necessary for the remaining hypothesized interaction effect to be significant as the interaction effect would be nil. If both moderation effects (b_4 and b_5) are significant then support for the hypotheses will occur only if the target moderation effect results in a larger R^2 change than the secondary moderation effect.

Source and Affective Job Attitudes

Hypothesis 3a predicted that the relationship between belongingness satisfaction and affective job attitudes is moderated by an individual's perception of group belongingness such that higher levels of group belongingness will result in a stronger positive relationship between belongingness satisfaction and affective job attitudes. Evaluation for this hypothesis was conducted in two separate analyses as described below.

The first analysis looked at the outcome of affective job satisfaction. Results for this model were significant ($R^2 = .32$, $F(10,319)=14.69$, $p < .01$) and indicated that there was a significant interaction between belongingness satisfaction and the degree of group belongingness on affective job satisfaction ($\Delta R^2 = .03$, $p < .01$) (Table 11). Due to the significant interaction effect, the data were probed to evaluate the exact nature of the interaction. Results indicated that the impact of belongingness satisfaction on affective job satisfaction was greatest when group

belongingness at work was low ($\beta = .35, p < .01$) and that there was a significant but weaker positive interaction effect at average levels of group belongingness ($\beta = .16, p = .01$) (Table 12; Figure 6). Additionally, there was no significant interaction effect when group belongingness at work was high ($\beta = -.02, p = .82$).

Table 11. Summary Statistics for Interaction of Belongingness Satisfaction and Group Belongingness at Work on Affective Job Satisfaction

Predictor	B	SE B	95% CI	
BS	.174**	0.07	0.046	0.302
GBW	.289***	0.04	0.205	0.373
BS X GBW	-.187***	0.05	-0.289	-0.085
Gender	-0.108	0.09	-0.288	0.072
Age	0.066	0.04	-0.003	0.135
Education Level	0.097	0.06	-0.026	0.219
Family Status	0.057	0.05	-0.032	0.147
Working hours per week	-0.005	0	-0.014	0.005
Salary	0.009	0.02	-0.023	0.04
Need for Belongingness	-0.023	0.06	-0.146	0.101

Model	R	R ²	Change in R ²	F(df)
Entire model	0.562	0.315	--	14.69(10, 319)***
BS X GBW	--	--	0.028	13.08(1, 319)***

Note. * $p < .05$; ** $p < .01$; *** $p < .001$; BS = Belongingness Satisfaction; GBW = Group Belongingness at Work; N=329.

Table 12. Conditional Effects of Belongingness Satisfaction at values of Group Belongingness at Work on Affective Job Satisfaction

	B	SE B	95% CI	
Group Belongingness at Work				
Low	-.948	.351***	.064	.225 .477
High	.053	.164*	.066	.034 .294
	1.053	-.023	.100	-.220 .173

Note. * $p < .05$; ** $p < .01$; *** $p < .001$

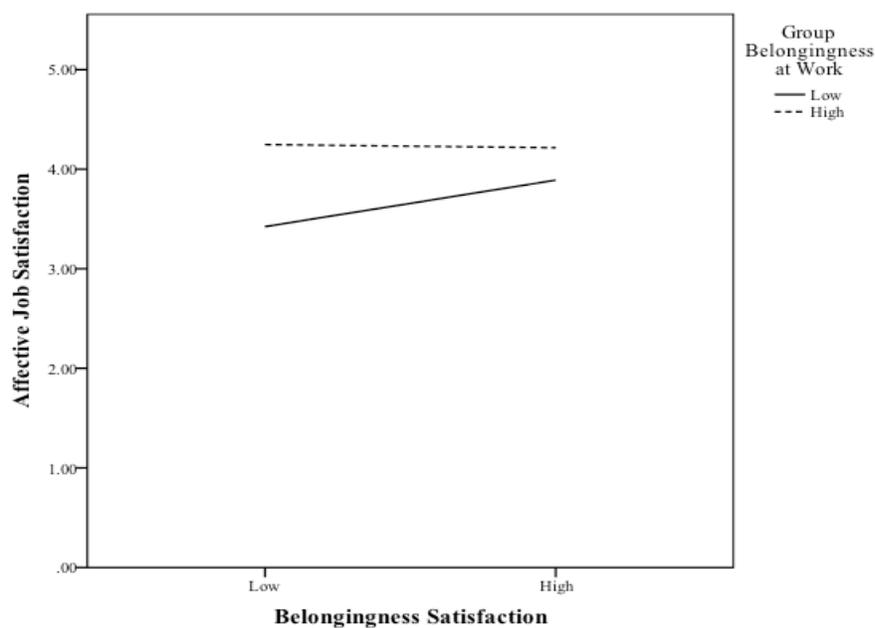


Figure 6. The moderating effect of group belongingness at work on the relationship between belongingness satisfaction and affective job satisfaction.

The second analysis looked at the outcome of affective commitment. Results for this model were significant ($R^2 = .29$, $F(10,319)=12.84$, $p < .01$) and indicated that there was a significant interaction between belongingness satisfaction and the degree group belongingness on

affective commitment ($\Delta R^2 = .01, p = .05$) (Table 13). Due to the significant interaction effect, results were probed to explore the exact nature of the interaction (Table 14). Results indicated that the impact of belongingness satisfaction on affective commitment was greatest when group belongingness at work was low ($\beta = .31, p < .01$) and that there was a marginally significant positive interaction effect at average levels of group belongingness ($\beta = .17, p = .08$).

Additionally, there was no significant interaction effect when group belongingness at work was high ($\beta = .02, p = .86$). While there was a significant interaction effect, the pattern of the interaction was in the opposite expected direction (see Figure 7). As a result, the data do not support hypothesis 3a.

Table 13. Summary Statistics for Interaction of Belongingness Satisfaction and Group Belongingness at Work on Affective Commitment

Predictor	B	SE B	95% CI	
BS	0.175	0.09	-0.01	0.361
GBW	.417***	0.06	0.296	0.538
BS X GBW	-0.143	0.07	-0.29	0.004
Gender	-0.226	0.13	-0.486	0.034
Age	.151**	0.05	0.051	0.251
Education Level	0.136	0.09	-0.042	0.313
Family Status	0.047	0.07	-0.083	0.177
Working hours per week	0.004	0.01	-0.01	0.018
Salary	0.021	0.02	-0.025	0.067
Need for Belongingness	.216*	0.09	0.038	0.395

Model	R	R ²	Change in R ²	F(df)
Entire model	0.536	0.287	--	12.84(10, 319)***
BS X GBW	--	--	0.008	3.66(1, 319)

Note. *p < .05; **p < .01; ***p < .001; BS = Belongingness Satisfaction; GBW = Group Belongingness at Work; N=329.

Table 14. Conditional Effects of Belongingness Satisfaction at values of Group Belongingness at Work on Affective Commitment

	B	SE B	95% CI	
Group Belongingness at Work				
	-.948	.311***	.128	.494
	.053	.168	-.021	.356
	1.053	.025	-.260	.309

Note. *p < .05; **p < .01; ***p < .001

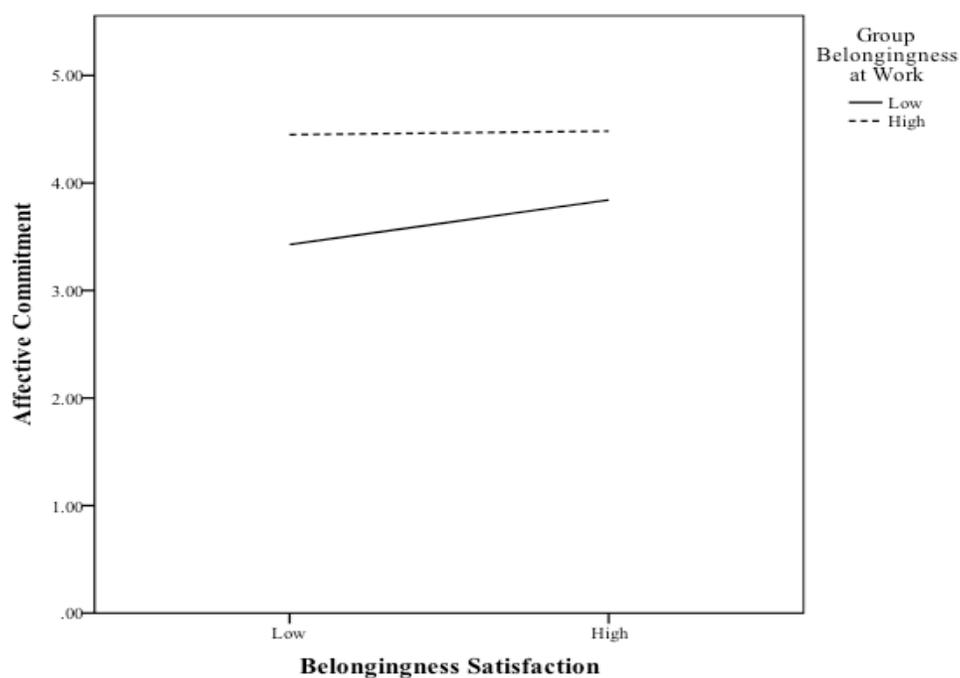


Figure 7. The Moderating Effect of Group Belongingness at Work on the Relationship Between Belongingness Satisfaction and Affective Commitment.

Hypothesis 3b predicted that the relationship between belongingness satisfaction and affective job attitudes is moderated by an individual's perception similarity to others in their group such that higher levels of perceived similarity will result in a stronger positive relationship

between satisfaction of the need for belongingness and affective job attitudes. As with the previous moderating hypothesis, this was analyzed in two separate analyses.

The first analysis addressed the outcome of affective job satisfaction. Results for this model were significant ($R^2 = .23$, $F(10,319)=9.39$, $p < .01$) and indicated that there was a significant interaction effect of an individual's similarity perception to others in their group and satisfaction of the need for distinctiveness ($\Delta R^2 = .03$, $p < .01$) on an individual's affective job satisfaction (Table 15). In probing the interaction results further indicated that the interactive effect was greatest at low levels of perceived distinctiveness (i.e. high levels of perceived similarity) ($\beta = .56$, $p < .01$) compared to average ($\beta = .34$, $p < .01$) high levels of perceived distinctiveness ($\beta = .20$, $p = .03$) (Table 16). For a graphic depiction see Figure 8.

Table 15. Summary Statistics for Interaction of Belongingness Satisfaction and Individual Distinctiveness at Work on Affective Job Satisfaction

Predictor	B	SE B	95% CI		
BS	.358***	0.06	0.238	0.478	
IDW	0.051	0.05	-0.051	0.154	
BS X IDW	-.215**	0.07	-0.345	-0.085	
Gender	-.040*	0.1	-0.231	0.152	
Age	0.092	0.04	0.019	0.165	
Education Level	0.091	0.07	-0.04	0.221	
Family Status	0.053	0.05	-0.043	0.149	
Working hours per week	-0.002	0.01	-0.012	0.008	
Salary	0.015	0.02	-0.018	0.049	
Need for Belongingness	0.022	0.07	-0.11	0.154	
Model	R	R²	Change in R²		F(df)
Entire model	0.477	0.227	--		9.39(10, 319)***
BS X IDW	--	--	0.026	10.53(1, 319)**	

Note. *p < .05; **p < .01; ***p < .001; BS = Belongingness Satisfaction; IDW = Individual Distinctiveness at Work; N=329.

Table 16. Conditional effects of Belongingness Satisfaction at values of Individual Distinctiveness at Work on Affective Job Satisfaction

	B	SE B	95% CI	
Individual Distinctiveness at Work				
	-.921	.556***	.410	.701
	.079	.341***	.218	.464
	.746	.198*	.025	.371

Note. *p < .05; **p < .01; ***p < .001

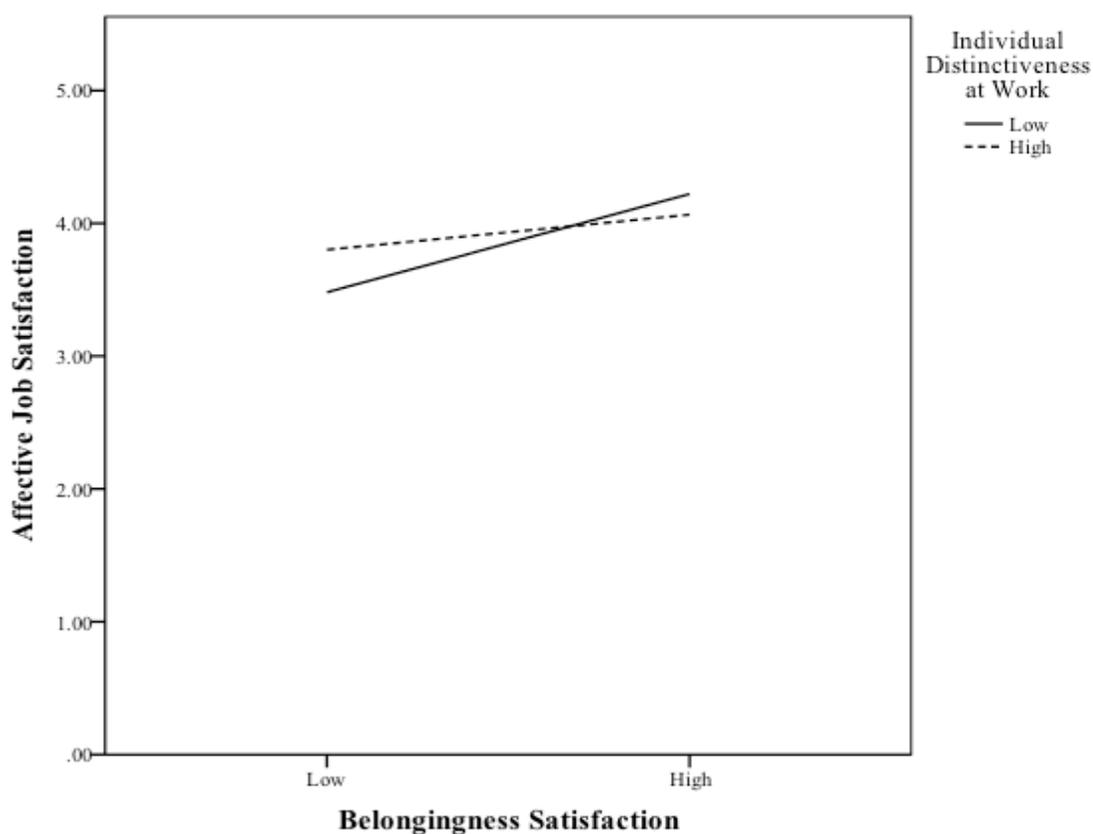


Figure 8. The Moderating Effect of Individual Distinctiveness at Work on the Relationship Between Belongingness Satisfaction and Affective Job Satisfaction.

The second analysis for hypothesis 3b used the same procedure with the exception of the dependent variable which was switched to affective commitment. Results of this analysis indicated that the overall model was significant ($R^2 = .20$, $F(10,319) = 8.01$, $p < .01$). However, modeling the interaction effect of perceived similarity to others and satisfaction of the need for belongingness did not account for any additional variance ($\Delta R^2 < .01$, $p = .155$) (Table 17). This suggests that the effect of belongingness satisfaction on affective job commitment does not depend on an individual's perceived similarity to others in their group. Overall, hypothesis 3b was partially supported.

Table 17. Summary Statistics for Interaction of Belongingness Satisfaction and Individual Distinctiveness at Work on Affective Commitment

Model	R	R²	Change in R²	F(df)
Entire model		0.448	0.201	-- 8.01(10, 319)***
BS X IDW	--	--	0.005	2.03(1, 319)
Predictor	B	SE B	95% CI	
BS	.414***	0.09	0.241	0.587
IDW	.171*	0.08	0.023	0.319
BS X IDW	-0.136	0.1	-0.323	0.052
Gender	-0.106	0.14	-0.382	0.171
Age	.183***	0.05	0.077	0.288
Education Level	0.124	0.1	-0.064	0.312
Family Status	0.045	0.07	-0.093	0.183
Working hours per week	0.005	0.01	-0.01	0.02
Salary	0.028	0.02	-0.02	0.077
Need for Belongingness	.271**	0.1	0.081	0.461

Note. * $p < .05$; ** $p < .01$; *** $p < .001$; BS = Belongingness Satisfaction; IDW = Individual Distinctiveness at Work; N=329.

Hypothesis 3c postulated that the moderating effect of an individual's perception of group belongingness on the relationship between belongingness satisfaction affective job attitudes will be greater than the moderating effect of an individual's perception of similarity to others within their group. As noted above, this hypothesis was testing using the process of additive multiple moderation. To evaluate this hypothesis I first began with the dependent variable of affective job satisfaction. To compare the magnitude of the moderation effects of perception of group belongingness and similarity to others within the group on the relationship between satisfaction of the need for belongingness and affective job satisfaction, both moderating variables were included in the model. As noted earlier this has the effect of evaluating each moderation effect while holding the other constant. Overall, the results indicated that the model was significant ($R^2 = .33$, $F(12,317)=12.88$, $p < .01$). Both moderating effect of perception of group belongingness ($\Delta R^2 = .013$, $F(1,317)$, $p = .01$) and similarity to others ($\Delta R^2=.012$, $F(1,317)=5.84$, $p = .02$) were significant (Table 18). The point estimate of the moderating effect of the perception of group belongingness was slightly greater than similarity to others. However, the bootstrapped confidence interval for both point estimates overlap (Table 18). Thus, the data do not support hypothesis 3c. Conditional effects of belongingness satisfaction at values of group belongingness at work and individual distinctiveness at work on affective job satisfaction are provided in Table 19. Figure 9 provides a graphical depiction of the moderating effects.

Next, I explored the dependent variable of affective commitment using the same procedures. In this analysis neither of the moderating variables had a significant impact on the relationship between belongingness satisfaction and affective commitment (See Table 20). This

does not provide additional support for hypothesis 3c. Overall, hypothesis 3c was partially supported.

Table 18. Conditional effects of Belongingness Satisfaction by Group Belongingness at Work and Individual Distinctiveness at Work on Affective Job Satisfaction

Model	R	R²	Change in R²	F(df)
Entire model	0.573	0.328	--	12.88(12, 317)***
BS X GBW	--	--	0.013	6.26(1, 317)*
BS X IDW	--	--	0.012	5.84(1,317)*

Predictor	B	SE B	95% CI	
BS	.158*	0.07	0.03	0.285
GBW	.288***	0.04	0.203	0.373
BS X GBW	-.139*	0.06	-0.247	-0.03
IDW	-0.016	0.05	-0.114	0.083
BS X IDW	-.161*	0.07	-0.292	-0.03
Gender	-0.108	0.09	-0.288	0.073
Age	.070*	0.04	0.001	0.138
Education Level	0.096	0.06	-0.026	0.218
Family Status	0.061	0.05	-0.029	0.15
Working hours per week	-0.003	0	-0.012	0.007
Salary	0.009	0.02	-0.023	0.04
Need for Belongingness	-0.007	0.06	-0.131	0.116

* $p < .05$; ** $p < .01$; *** $p < .001$; BS = Belongingness Satisfaction; GBW = Group Belongingness at Work; IDW = Individual Distinctiveness at Work, N=329.

Table 19. Conditional effects of Belongingness Satisfaction at values of Group Belongingness at Work and Individual Distinctiveness at Work on Affective Job Satisfaction.

Moderator		B	SE B	95% CI	
Group Belongingness at Work	Individual Distinctiveness at Work				
-0.948	-0.921	.437***	.073	.293	.580
	.079	.276***	.071	.136	.416
.053	.746	.169	.099	-.026	.364
	-0.921	.298***	.086	.129	.468
1.053	.079	.138*	.067	.006	.269
	.746	.030	.086	-.139	.199
	-0.921	.160	.125	-.086	.406
	.079	-.001	.100	-.197	.195
	.746	-.108	.105	-.315	.099

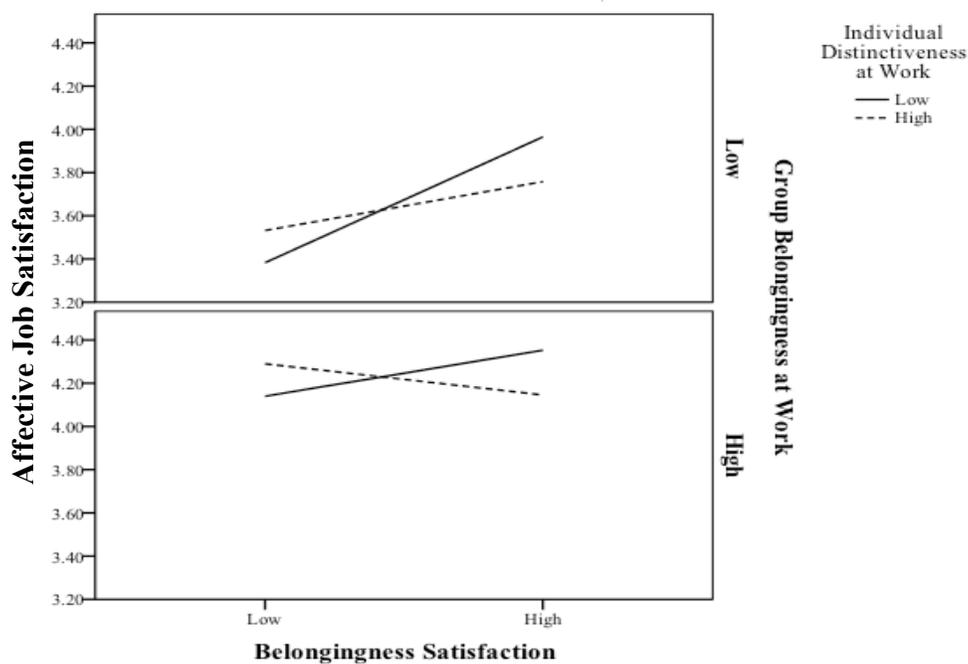


Figure 9. The Moderating Effects of Group Belongingness and Individual Distinctiveness at Work on the Relationship Between Belongingness Satisfaction and Affective Job Satisfaction.

Table 20. Conditional effects of Belongingness Satisfaction by Group Belongingness at Work and Individual Distinctiveness at Work on Affective Commitment

Model	R	R²	Change in R²	F(df)
Entire model	0.541	0.292	--	10.90(12, 317)***
BS X IDW	--	--	0.002	1.03(1, 317)
BS X GBW	--	--	0.004	1.82(1,317)
Predictor	B	SE B	95% CI	
BS	0.163	0.09	-0.023	0.349
IDW	0.078	0.07	-0.065	0.221
BS X IDW	-0.098	0.1	-0.288	0.092
GBW	.401***	0.06	0.277	0.524
BS X GBW	-0.109	0.08	-0.267	0.05
Gender	-0.203	0.13	-0.465	0.06
Age	.150**	0.05	0.05	0.25
Education Level	0.134	0.09	-0.043	0.312
Family Status	0.054	0.07	-0.076	0.184
Working hours per week	0.004	0.01	-0.01	0.018
Salary	0.02	0.02	-0.026	0.066
Need for Belongingness	.230*	0.09	0.051	0.41

* $p < .05$; ** $p < .01$; *** $p < .001$; BS = Belongingness Satisfaction; GBW = Group Belongingness at Work; IDW = Individual Distinctiveness at Work, N=329.

Source and Cognitive Job Attitudes

Hypothesis 4a through 4d looks at the moderating effects of the source of need satisfaction (i.e. individual vs. group) on the cognitive dimensions of job satisfaction and commitment. Each of these hypotheses were evaluated using the same procedure as hypothesis 3.

Hypothesis 4a postulated that the relationship between distinctiveness satisfaction and cognitive attitudes is moderated by an individual's perception of group distinctiveness such that

higher levels of group distinctiveness will result in a stronger positive relationship between satisfaction of the need for distinctiveness and cognitive job attitudes. To test this hypothesis, the outcomes of cognitive job satisfaction and commitment were evaluated separately. Results indicated that an individual's perception of group distinctiveness does not moderate the relationship between satisfaction of the need for distinctiveness and cognitive job satisfaction (See Table 21). The data did reveal a significant moderation effect of group distinctiveness on the relationship between satisfaction of the need for distinctiveness and continuance commitment ($\Delta R^2 = .04$, $F(1,316) = 12.45$, $p < .01$) (Table 22). However, upon probing this interaction effect the direction of the relationship was not as predicted. Results indicated that low levels of group distinctiveness does not moderate the relationship and that at average ($\beta = -.16$, $p = .05$) and high levels ($\beta = -.41$, $p < .01$) of group distinctiveness the relationship between distinctiveness satisfaction and continuance commitment was negative (Table 23). Overall, the data did not provide support for hypothesis 4a. A visual representation of the interaction effect is presented in Figure 10.

Table 21. Summary Statistics for Interaction of Distinctiveness Satisfaction and Group Distinctiveness at Work on Cognitive Job Satisfaction

Model	R	R²	Change in R²	F(df)
Entire model	0.467	0.219	--	8.86(10, 317)***
DS X GDW	--	--	0.002	.901(1, 317)
Predictor	B	SE B	95% CI	
DS	.359***	0.06	0.232	0.486
GDW	.107*	0.04	0.023	0.19
DS X GDW	0.055	0.06	-0.058	0.167
Gender	-0.118	0.09	-0.298	0.062
Age	-0.014	0.04	-0.083	0.055
Education Level	.159*	0.06	0.035	0.284
Family Status	0.011	0.05	-0.08	0.102
Working hours per week	-0.014**	0.01	-0.024	-0.004
Salary	.046**	0.02	0.014	0.078
Need for Distinctiveness	-.255***	0.05	-0.358	-0.152

* $p < .05$; ** $p < .01$; *** $p < .001$; DS = Distinctiveness Satisfaction; GDW = Group Distinctiveness at Work. , N=328.

Table 22. Summary Statistics for Interaction of Distinctiveness Satisfaction and Group Distinctiveness at Work on Continuance Commitment

Model	R	R²	Change in R²	F(df)
Entire model	0.3	0.09	--	3.12(10, 316)***
DS X GDW	--	--	0.036	12.45(1, 316)***
Predictor	B	SE B	95% CI	
DS	-0.132	0.08	-0.29	0.026
GDW	-.135*	0.05	-0.24	-0.031
DS X GDW	-.253***	0.07	-0.394	-0.112
Gender	0.199	0.11	-0.026	0.425
Age	0.054	0.04	-0.033	0.14
Education Level	0.096	0.08	-0.059	0.252
Family Status	0.003	0.06	-0.111	0.117
Working hours per week	0.01	0.01	-0.002	0.023
Salary	-0.009	0.02	-0.049	0.031
Need for Distinctiveness	.195**	0.07	0.067	0.324

* $p < .05$; ** $p < .01$; *** $p < .001$; DS = Distinctiveness Satisfaction; GDW = Group Distinctiveness at Work. , N=326.

Table 23. Conditional Effects of Distinctiveness Satisfaction at Values of Group Distinctiveness at Work on Continuance Commitment

	B	SE B	95% CI	
Group Distinctiveness at Work				
	-.896	.095	.096	-.093 .283
	.104	-.158	.082	-.319 .003
	1.104	-.411***	.121	-.648 -.174

* $p < .05$; ** $p < .01$; *** $p < .001$.

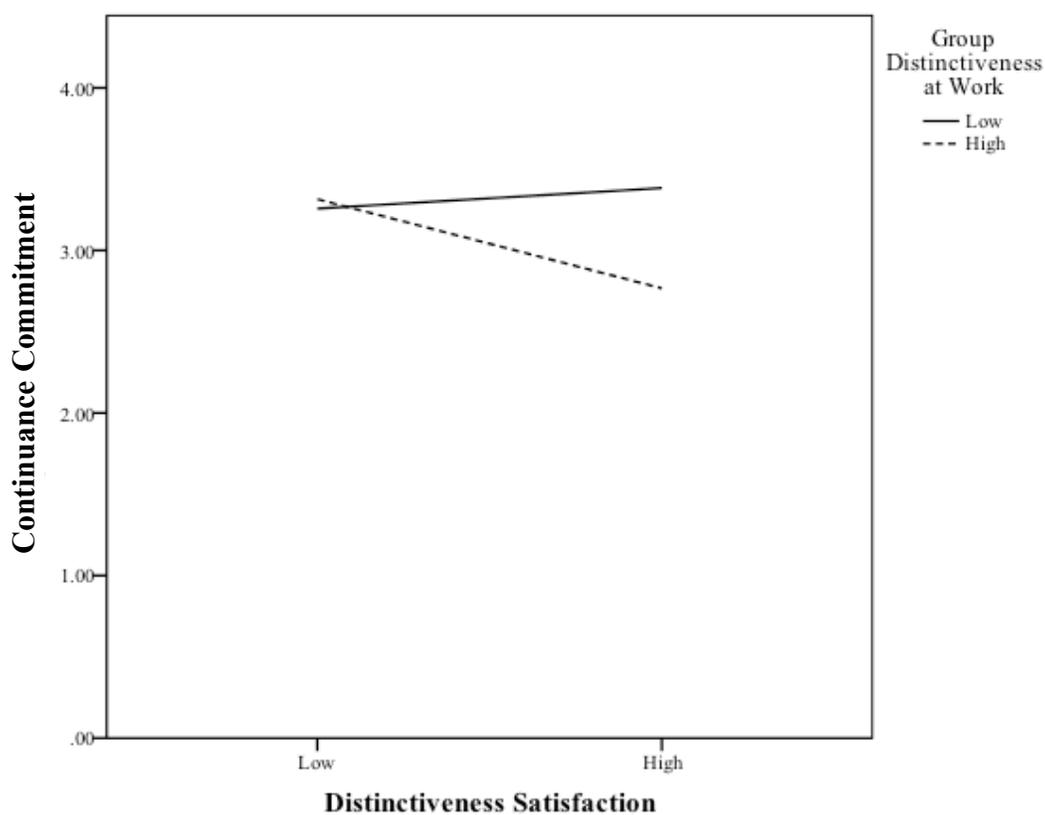


Figure 10. The Moderating Effects of Group Distinctiveness at Work on the Relationship Between Distinctiveness Satisfaction and Continuance Commitment

The next hypothesis predicted that the relationship between distinctiveness satisfaction and cognitive job attitudes is moderated by the perception of individual distinctiveness from others in their group such that higher levels of individual distinctiveness will result in a stronger positive relationship between satisfaction of the need for distinctiveness and cognitive job attitudes. I conducted two analyses for this hypothesis. The first analysis evaluated the impact on the dependent variable of cognitive job satisfaction. Results for this analysis indicated that perception of individual distinctiveness did not moderate the target relationship ($\Delta R^2 < .00$, $F(1,319) = .00$, $p = .97$) (See Table 24). The second analysis evaluating the dependent variable of continuance commitment did find a significant moderation effect of perception of individual distinctiveness on the relationship between satisfaction of the need for distinctiveness and continuance commitment ($\Delta R^2 = .03$, $F(1,318) = 10.28$, $p < .01$) (Table 25). Probing this interaction found a negative relationship between belongingness satisfaction and continuance commitment at average and high levels of perceived individual distinctiveness (Table 26). For a graphic depiction see Figure 11. As a result of these analysis I conclude that the data do not support hypothesis 4b.

Table 24. Summary Statistics for Interaction of Distinctiveness Satisfaction and Individual Distinctiveness at Work on Cognitive Job Satisfaction

Model	R	R²	Change in R²	F(df)	
Entire model		0.452	0.204	--	8.19(10, 319)***
DS X IDW	--	--		0	.001(1, 319)
Predictor	B	SE B	95% CI		
DS	.347***	0.07	0.214		0.48
IDW	.112*	0.05	0.004		0.22
DS X IDW	-0.002	0.06	-0.125		0.121
Gender	-0.082	0.09	-0.264		0.1
Age	-0.023	0.04	-0.092		0.047
Education Level	.154*	0.06	0.03		0.279
Family Status	0.014	0.05	-0.078		0.106
Working hours per week	-.012*	0.01	-0.022		-0.002
Salary	.045**	0.02	0.012		0.077
Need for Distinctiveness	-.262***	0.05	-0.369		-0.154

* $p < .05$; ** $p < .01$; *** $p < .001$; DS = Distinctiveness Satisfaction; IDW = Individual Distinctiveness at Work. , N=329.

Table 25. Summary Statistics for Interaction of Distinctiveness Satisfaction and Individual Distinctiveness at Work on Cognitive Continuance Commitment

Model	<i>R</i>	<i>R</i> ²	Change in <i>R</i> ²	<i>F</i> (<i>df</i>)
Entire model	0.261	0.068	--	2.33(10, 318)*
DS X IDW	--	--	0.03	10.28(1, 318)**
Predictor	B	SE B	95% CI	
DS	-.194*	0.08	-0.36	-0.027
IDW	-0.093	0.07	-0.228	0.042
DS X IDW	-.250**	0.08	-0.404	-0.097
Gender	0.16	0.12	-0.069	0.389
Age	0.071	0.04	-0.017	0.158
Education Level	0.061	0.08	-0.096	0.217
Family Status	0	0.06	-0.115	0.115
Working hours per week	0.012	0.01	0	0.025
Salary	-0.01	0.02	-0.051	0.031
Need for Distinctiveness	.193**	0.07	0.058	0.328

p* < .05; *p* < .01; ****p* < .001; DS = Distinctiveness Satisfaction; IDW = Individual Distinctiveness at Work. , N=328.

Table 26. Conditional effects of Distinctiveness Satisfaction at values of Individual Distinctiveness at Work on Continuance Commitment

	B	SE B	95% CI	
Individual Distinctiveness at Work				
	-.919	.036	-.149	.221
	.081	-.214*	-.384	-.044
	.748	-.381**	-.608	-.153

p* < .05; *p* < .01; ****p* < .001

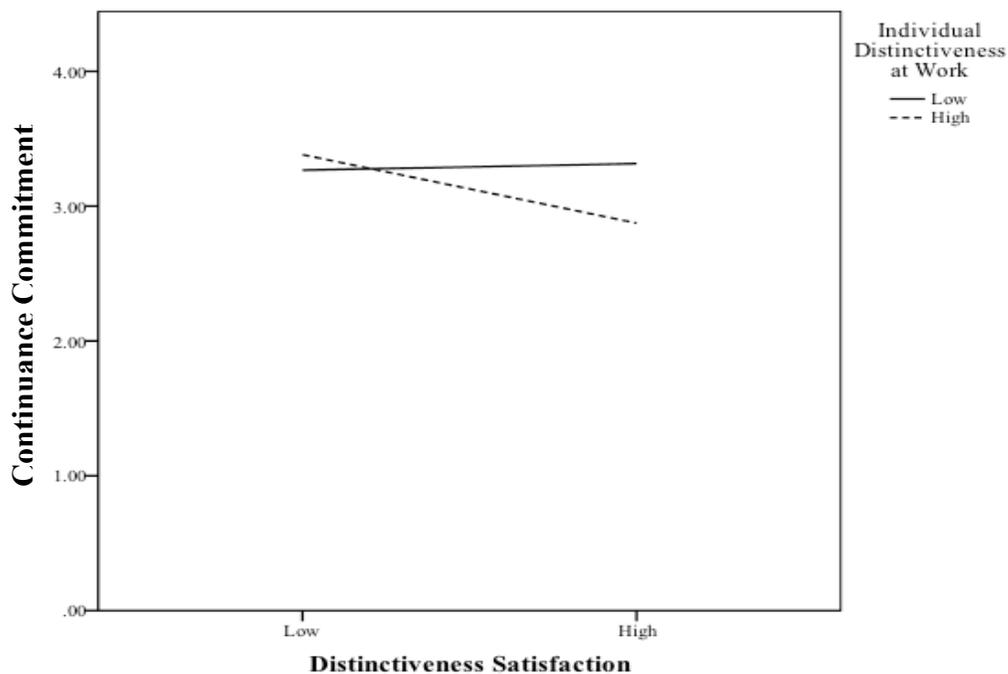


Figure 11. The Moderating Effects of Individual Distinctiveness at Work on the Relationship Between Distinctiveness Satisfaction and Continuance Commitment

The next hypothesis (4c) predicted that the moderating effect of an individual's perception of group distinctiveness on the relationship between distinctiveness satisfaction and cognitive job satisfaction would be greater than the moderating effect of an individual's perception of distinctiveness from others within their group. To test this hypothesis I followed Hayes (2013) process model to test multiple additive moderating effects. Results showed that neither of the moderating effects had a significant impact on cognitive job satisfaction (Table 27). Consequently, the data do not support hypothesis 4c. Hypothesis 4d similarly predicted a difference in strength of the moderating effects of individual and group distinctiveness perceptions such that perceptions of individual distinctiveness would have a greater effect on the

relationship between satisfaction of the need for distinctiveness and continuance commitment. Results indicated that perceptions of group distinctiveness significantly moderated the target relationship ($\Delta R^2 = .01$, $F(1,314) = 4.92$, $p = .03$) whereas perceptions of individual distinctiveness had no significant moderating effect (See Table 28 and 29). Figure 12 provides a graphical depiction of the interaction. Thus, the data did not support hypothesis 4d.

Table 27. Conditional effects of Distinctiveness Satisfaction by Group Distinctiveness at Work and Individual Distinctiveness at Work on Cognitive Job Satisfaction

Model	<i>R</i>	<i>R</i> ²	Change in <i>R</i> ²	<i>F</i> (<i>df</i>)
Entire model		0.473	0.224	-- 7.57(12, 315)***
DS X GDW		--	--	0.004 1.61(1, 315)
DS X IDW		--	--	0.001 .41(1,315)
Predictor	B	SE B	95% CI	
DS	.334***	0.07	0.201	0.467
GDW	.088*	0.04	0.001	0.176
DS X GDW	0.088	0.07	-0.048	0.223
IDW	0.074	0.06	-0.039	0.187
DS X IDW	-0.047	0.07	-0.192	0.098
Gender	-0.101	0.09	-0.283	0.08
Age	-0.018	0.04	-0.088	0.051
Education Level	.156*	0.06	0.032	0.281
Family Status	0.013	0.05	-0.078	0.104
Working hours per week	-.014**	0.01	-0.024	-0.004
Salary	.044**	0.02	0.012	0.077
Need for Distinctiveness	-.274***	0.05	-0.381	-0.166

* $p < .05$; ** $p < .01$; *** $p < .001$; DS = Distinctiveness Satisfaction; GDW = Group Distinctiveness at Work; IDW = Individual Distinctiveness at Work, N=327.

Table 28. Conditional effects of Distinctiveness Satisfaction by Group Distinctiveness at Work and Individual Distinctiveness at Work on Continuance Commitment

Model	R	R²	Change in R²	F(df)
Entire model	0.312	0.097	--	2.82(12, 314)**
DS X GDW	--	--	0.014	4.92(1, 314)*
DS X IDW	--	--	0.006	2.09(1,314)
Predictor	B	SE B	95% CI	
DS	-0.155	0.08	-0.32	0.011
GDW	-.126*	0.06	-0.235	-0.017
DS X GDW	-.191*	0.09	-0.36	-0.022
IDW	-0.056	0.07	-0.199	0.083
DS X IDW	-0.133	0.09	-0.315	0.048
Gender	0.192	0.12	-0.035	0.42
Age	0.062	0.04	-0.025	0.15
Education Level	0.085	0.08	-0.071	0.241
Family Status	0.005	0.06	-0.109	0.119
Working hours per week	0.012	0.01	0	0.025
Salary	-0.007	0.02	-0.048	0.034
Need for Distinctiveness	.214**	0.07	0.08	0.349

* $p < .05$; ** $p < .01$; *** $p < .001$; DS = Distinctiveness Satisfaction; GDW = Group Distinctiveness at Work; IDW = Individual Distinctiveness at Work.

Table 29. Conditional effects of Belongingness Satisfaction at values of Group Distinctiveness at Work and Individual Distinctiveness at Work on Continuance Commitment

Moderator		B	SE B	95% CI	
Group Distinctiveness at Work	Individual Distinctiveness at Work				
		-.914	.138	-.058	.334
		-.896	.086	-.233	.243
		.752	-.084	-.409	.241
		-.914	-.053	-.262	.157
		.104	.086	-.356	-.016
		.752	-.275*	-.510	-.040
		-.914	-.243	-.570	.084
		1.104	-.377**	-.618	-.135
		.752	-.465***	-.715	-.216

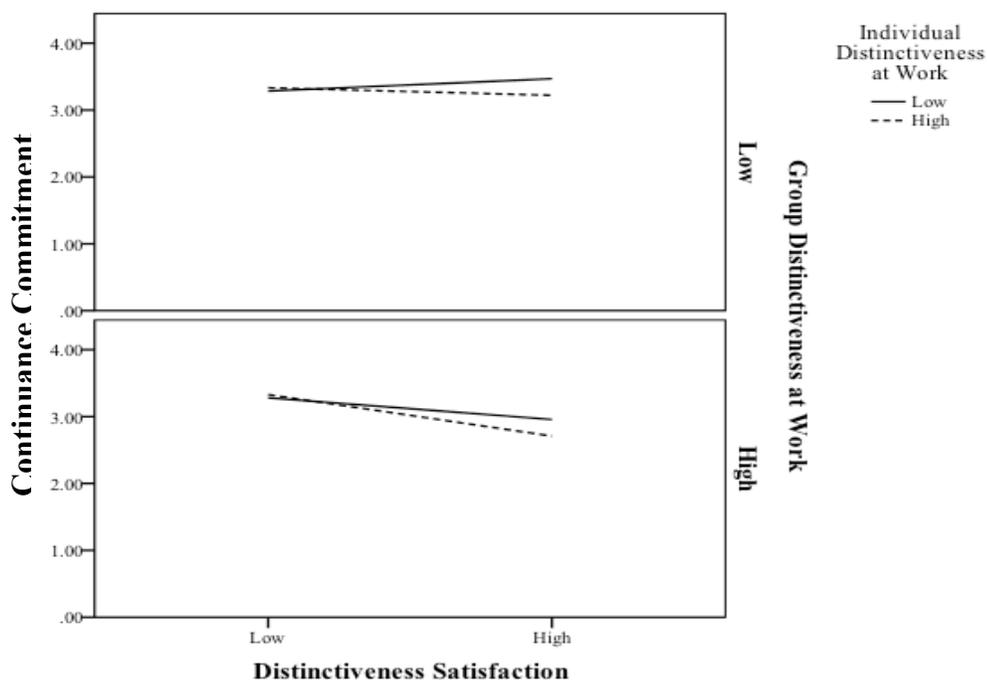


Figure 12. The Moderating Effects of Group and Individual Distinctiveness at Work on the Relationship Between Distinctiveness Satisfaction and Continuance Commitment.

Supplemental Analyses

Although this dissertation focuses more on the individual moderating effects of source of need satisfaction and their relative strength, it is possible that there are unique three-way interactions at play. As a post-hoc analysis I modeled three-way interactions for individual and group belongingness on affective attitudes as well as three-way interactions for individual and group distinctiveness on cognitive attitudes. Only significant results are discussed in this section. For a brief overview of all supplemental 3-way interactions see Table 30.

Table 30. Summary of Post-hoc Three-way Interaction Analyses on Affective and Cognitive Job Attitudes.

Three-Way Interactions	Dependent Variable	Change in R ²
BS x GBW X IBW	Affective Job Satisfaction	.0147**
	Affective Commitment	NS
BS x GBW X GBOW	Affective Job Satisfaction	.0306***
	Affective Commitment	.0162**
BS x IBW x IBOW	Affective Job Satisfaction	NS
	Affective Commitment	NS
DS x GDW x IDW	Cognitive Job Satisfaction	NS
	Continuance Commitment	NS
DS x GDW x GDOW	Cognitive Job Satisfaction	NS
	Continuance Commitment	.0142*
DS x IDW x IDOW	Cognitive Job Satisfaction	NS
	Continuance Commitment	.0219**

Note. * $p < .05$; ** $p < .01$; *** $p < .001$; BS = Belongingness Satisfaction; DS = Distinctiveness Satisfaction; GBW = Group Belongingness at Work; GBOW = Group Belongingness Outside of Work; IBW = Individual Belongingness at Work; IBOW = Individual Belongingness Outside of Work; GDW = Group Distinctiveness at Work; GDOW = Group Distinctiveness Outside of Work; IDW = Individual Distinctiveness at Work; IDOW = Individual Distinctiveness Outside of Work.

There was a single significant three-way interaction between belongingness satisfaction by perceptions of group belongingness by perceptions of individual distinctiveness on affective job satisfaction ($\Delta R^2 = .01$, $F(1,314)=7.12$, $p < .01$) (Table 31). Looking into this relationship further the conditional effect of perceptions of group belongingness at work by belongingness satisfaction is only significant at high levels of individual belongingness at work (i.e. low levels of individual distinctiveness at work) (Table 32). The pattern of the conditional effects reveal that belongingness satisfaction is only a significant predictor of affective job satisfaction at average to high levels of individual belongingness at work and low to average group belongingness at work.

The interpretation of this result is rather complex. First, this means that when an individual perceives themselves as similar to others in their work group but perceives only low to moderate connection with them, the individual's overall belongingness satisfaction becomes important for their affective job satisfaction. Next, this means that when an individual perceives themselves as distinct from others in their work group, irrespective of their level of connection with others in their work group, the individual's overall belongingness satisfaction is not an important predictor of affective job satisfaction.

Table 31. Summary Statistics for three-way interaction of Belongingness Satisfaction, Group Belongingness at Work, and Individual Distinctiveness at work on Affective Job Satisfaction

Model	R	R²	Change in R²	F(df)
Entire model	0.5917	0.3501	--	12.08(14,314)***
BS X GBW X IDW	--	--	0.0147	7.12(1,314)***
Predictor	B	SE B	95% CI	
BS	0.15	0.0645	0.023	0.277
GBW	0.265	0.0437	0.1789	0.3511
BS X GBW	-0.0823	0.0608	-0.2018	0.0373
IDW	-0.0732	0.0526	-0.1767	0.0303
BS X IDW	-0.1389	0.0759	-0.2883	0.0105
GBW X IDW	0.0846	0.0462	-0.0064	0.1755
BS X GBW X IDW	0.1463	0.0549	0.0384	0.2543
Gender	-0.123	0.0925	-0.3051	0.059
Age	0.0584	0.0347	-0.0098	0.1267
Education Level	0.1036	0.0612	-0.0169	0.224
Family Status	0.0696	0.045	-0.019	0.1582
Working hours per week	-0.0031	0.0049	-0.0127	0.0066
Salary	0.0122	0.0161	-0.0195	0.0439
Need for Distinctiveness	0.0235	0.0631	-0.1006	0.1476

* $p < .05$; ** $p < .01$; *** $p < .001$; BS = Belongingness Satisfaction; GBW = Group Belongingness at Work; IDW = Individual Distinctiveness at Work, N=328.

Table 32. Conditional effects of Belongingness Satisfaction at values of Group Belongingness at Work and Individual Distinctiveness at Work on Affective Job Satisfaction

Moderator		B	SE B	95% CI	
Group Belongingness at Work	Individual Distinctiveness at Work				
-0.944	-0.923	.484***	0.078	0.3308	0.6361
	0.077	.206**	0.076	0.0577	0.355
	0.7437	0.022	0.108	-0.1911	0.2343
-0.0557	-0.923	0.266**	0.093	0.0836	0.4468
	0.077	.135*	0.066	0.0048	0.2659
	0.7437	0.048	0.091	-0.1301	0.2265
1.057	-0.923	0.049	0.137	-0.2202	0.3177
	0.077	0.064	0.105	-0.1414	0.2702
	0.7437	0.075	0.14	-0.1999	0.3494

Moderating Effects of the Domain of Need Satisfaction

The next set of hypotheses looks at the moderating effect of the domain in which a need satisfied. What this set of hypotheses seeks to accomplish is to a) validate that a domain moderating effect exist for both work and non-work domains and b) explore the strength of each moderating effect. Because of this hypotheses 5a and 6a are tested in the exact same manner as with hypotheses 3a and 4a I do not reevaluate each of these hypotheses here and instead focus on hypotheses 5b, 5c, 6b, and 6c.

Domain and Affective Job Attitudes

Hypothesis 5b and 5c specifically look at the domain moderating effects on affective attitudes. Hypothesis 5b predicted that the relationship between belongingness satisfaction and affective job attitudes is moderated by the degree to which the need for belongingness is satisfied in the non-work domain such that higher levels of satisfaction of belongingness in the non-work

domain will result in a stronger positive relationship between the satisfaction of belongingness satisfaction and affective job attitudes. Hypothesis 5c predicted that the moderating effect of the need for belongingness being satisfied in the work domain on the relationship between satisfaction of the need for belongingness and affective job attitudes will be greater than the moderating effect of the need for belongingness being satisfied in the non-work domain.

To evaluate hypothesis 5b I conducted four separate analyses. The first two analyses address belongingness satisfaction from individual and group sources on affective job satisfaction. The next two analyses address belongingness satisfaction from individual and group sources on affective commitment. The first analysis indicated that there is a significant interaction between belongingness satisfaction and the perception of group belongingness outside of work ($\Delta R^2 = .03$, $F(1,319)=10.48$, $p < .01$) (Table 33). However, upon probing this interaction the direction of the interaction is not in the hypothesized direction. Specifically, in the condition of a high level of group belongingness outside of work, there is no significant impact of belongingness satisfaction on affective job satisfaction ($\beta = .14$, $p = .25$). In the condition of low group belongingness outside of work, there is a significant impact of belongingness satisfaction on affective job satisfaction ($\beta = .59$, $p < .01$) (Table 34). Figure 13 provides a graphic overview of the conditional effects. This provides evidence that as perceptions of group belongingness outside of work decrease, the impact of belongingness satisfaction on affective job satisfaction increases.

Table 33. Summary Statistics for the Interaction between Belongingness Satisfaction and Group Belongingness Outside of Work on Affective Job Satisfaction.

Model	<i>R</i>	<i>R</i> ²	Change in <i>R</i> ²	<i>F</i> (<i>df</i>)
Entire model	0.475	0.226	--	9.32(10, 319)***
BS X GBOW	--	--	0.025	10.48(1, 319)**
Predictor	B	SE B	95% CI	
BS	.357***	0.07	0.214	0.5
GBOW	-0.04	0.04	-0.125	0.045
BS X GBOW	-.169**	0.05	-0.272	-0.066
Gender	-0.041	0.1	-0.232	0.15
Age	.083*	0.04	0.01	0.156
Education Level	0.086	0.07	-0.044	0.217
Family Status	0.044	0.05	-0.051	0.14
Working hours per week	-0.002	0.01	-0.013	0.008
Salary	0.018	0.02	-0.016	0.052
Need for Belongingness	0.009	0.07	-0.124	0.141

p* < .05; *p* < .01; ****p* < .001; BS = Belongingness Satisfaction; GBOW = Group Belongingness Outside of Work, N=329.

Table 34. Conditional Effects of Belongingness Satisfaction at Values of Group Belongingness Outside of Work on Affective Job Satisfaction

	B	SE B	95% CI	
Group Belongingness Outside of Work				
	-1.359	.587***	.432	.741
	.308	.305***	.147	.463
	1.308	.136	-.096	.368

p* < .05; *p* < .01; ****p* < .001

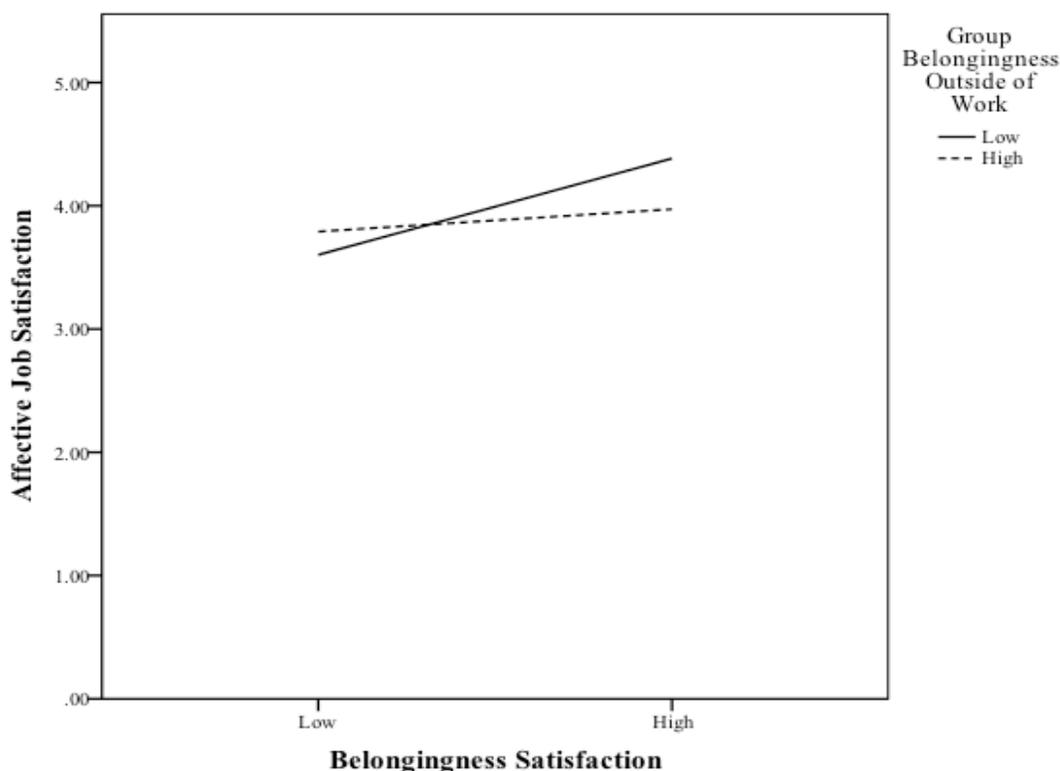


Figure 13. The Moderating Effects of Group Belongingness Outside of Work on the Relationship Between Belongingness Satisfaction and Affective Job Satisfaction.

The second analysis indicated that there is an interaction between individual distinctiveness outside of work and belongingness satisfaction on affective job satisfaction ($\Delta R^2 = .01$, $F(1,319)=4.73$, $p = .03$) (See Table 35). Further analysis of this interaction revealed that the impact of belongingness satisfaction was significant across the range of perceptions of similarity with others outside of work (Table 36 and Figure 14). The pattern of this interaction suggests that higher levels of perceived similarity to others outside of work result in a greater impact of belongingness satisfaction on affective job satisfaction. However, because each of bootstrapped confidence intervals of the conditional effects of satisfaction of the need for

belongingness at each level of the moderator (perception of similar to others outside of work) overlap, there is not enough evidence to provide support for this hypothesis.

Table 35. Summary Statistics for the interaction of Belongingness Satisfaction and Individual Distinctiveness Outside of Work on Affective Job Satisfaction

Model	R	R ²	Change in R ²	F(df)
Entire model	0.461	0.212	--	8.59(10, 319)***
BS X IDOW	--	--		0.012 4.73(1, 319)*
Predictor	B	SE B	95% CI	
BS	.422***	0.06	0.306	0.539
IDOW	-0.056	0.05	-0.146	0.035
BS X IDOW	-.116*	0.05	-0.221	-0.011
Gender	-0.091	0.1	-0.285	0.103
Age	.088*	0.04	0.014	0.161
Education Level	0.105	0.07	-0.028	0.237
Family Status	0.042	0.05	-0.055	0.138
Working hours per week	-0.004	0.01	-0.014	0.007
Salary	0.015	0.02	-0.019	0.049
Need for Belongingness	-0.002	0.07	-0.134	0.13

* $p < .05$; ** $p < .01$; *** $p < .001$; DS = Distinctiveness Satisfaction; IDOW = Individual Distinctiveness at Work. , N=329.

Table 36. Conditional effects of Belongingness Satisfaction at values of Individual Distinctiveness Satisfaction on Affective Job Satisfaction

	B	SE B	95% CI
Individual Distinctiveness Outside of Work			
	-.967	.535***	.077 .382 .687
	.033	.418***	.059 .302 .535
	1.033	.302***	.082 .141 .464

* $p < .05$; ** $p < .01$; *** $p < .001$

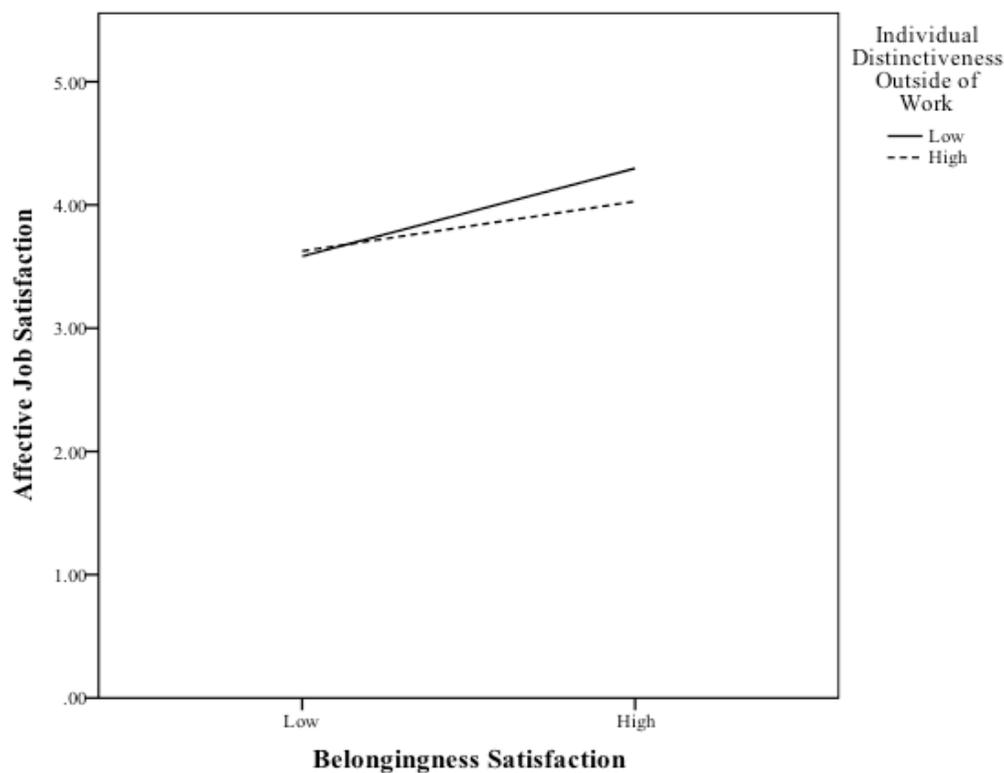


Figure 14. The Moderating effects of Individual Distinctiveness Outside of Work on the Relationship Between Belongingness Satisfaction and Affective Job Satisfaction.

The third and fourth analyses for hypothesis 5b evaluated the outcome of affective commitment. Both of these analyses indicated that there were no significant interactions between belongingness satisfaction and perceptions of group belongingness and individual distinctiveness outside of work (Table 37 and 38). These analyses do not provide evidence in support of hypothesis 5b. In sum, the data do not provide support for hypothesis 5b.

Table 37. Summary Statistics for the Interaction of Belongingness Satisfaction and Group Belongingness Outside of Work on Affective Commitment

Model	R	R²	Change in R²	F(df)	
Entire model		0.435	0.189 --	7.45(10, 319)***	
BS X GBOW	--	--		0.007	2.66(1, 319)
Predictor	B	SE B	95% CI		
BS	.438***	0.11	0.231	0.645	
GBOW	-0.042	0.06	-0.165	0.081	
BS X GBOW	-0.124	0.08	-0.273	0.025	
Gender	-0.134	0.14	-0.412	0.143	
Age	.184***	0.05	0.078	0.29	
Education Level	0.12	0.1	-0.07	0.309	
Family Status	0.03	0.07	-0.109	0.169	
Working hours per week	0.006	0.01	-0.009	0.021	
Salary	0.034	0.02	-0.015	0.082	
Need for Belongingness	.261**	0.1	0.069	0.453	

* $p < .05$; ** $p < .01$; *** $p < .001$; BS = Belongingness Satisfaction; GBOW = Group Belongingness Outside of Work, N=329.

Table 38. Summary Statistics for the Interaction of Belongingness Satisfaction and Individual Distinctiveness Outside of Work on Affective Commitment

Model	R	R²	Change in R²	F(df)	
Entire model		0.427	0.182 --	7.09(10, 319)***	
BS X IDOW	--	--		0	.08(1, 319)
Predictor	B	SE B	95% CI		
BS	.471***	0.09	0.303	0.639	
IDOW	0.023	0.07	-0.107	0.153	
BS X IDOW	-0.021	0.08	-0.173	0.131	
Gender	-0.149	0.14	-0.429	0.132	
Age	.188***	0.05	0.082	0.295	
Education Level	0.125	0.1	-0.066	0.315	
Family Status	0.03	0.07	-0.109	0.169	
Working hours per week	0.005	0.01	-0.01	0.02	
Salary	0.033	0.03	-0.016	0.082	
Need for Belongingness	.249*	0.1	0.059	0.44	

* $p < .05$; ** $p < .01$; *** $p < .001$; BS = Belongingness Satisfaction; IDOW = Individual Distinctiveness Outside of Work.

Hypothesis 5c predicted that the moderating effect of the need for belongingness being satisfied in the work domain on the relationship between satisfaction of the need for belongingness and affective job attitudes will be greater than the moderating effect of the need for belongingness being satisfied in the non-work domain. To test this hypothesis I conducted four separate analyses. The first two analyses compare the moderating effects of group belongingness (at work vs. outside of work) and individual distinctiveness (at work vs. outside of work) on belongingness satisfaction and affective job satisfaction. The next two analyses test these same relationships on the outcome of affective commitment.

To compare the moderation effects of the source of belongingness at work and outside of work I included both in the same model following the recommendations of Hayes (2013). By including both hypothesized moderators in the same model, it has the effect of evaluating their individual impact while holding the other constant. To be clear, this method does not model a 3-way interaction (these will be evaluated in supplemental analyses). Rather, it only provide evidence for the relative strength of the hypothesized interaction effects.

The first analysis indicated that when both group belongingness at work and outside of work are included in the model, group belongingness at work had a marginally significant interaction effect ($\Delta R^2 = .01$, $F(1,317) = 3.19$, $p = .08$) and group belongingness outside of work had a larger significant interaction effect ($\Delta R^2 = .02$, $F(1,317) = 9.11$, $p < .01$) on affective job satisfaction. This does not provide support for hypothesis 5c (See Table 39 & 40 and Figure 15). The second analysis indicated that when both perceptions of individual similarity at work and outside of work are included in the model, individual similarity at work had a significant interaction effect ($\Delta R^2 = .01$, $F(1,317) = 5.65$, $p = .02$) and individual similarity outside of work

did not have significant interaction effect ($\Delta R^2 = .00$, $F(1,317) = 1.93$, $p = .17$) on affective job satisfaction. This provides evidence in support of hypothesis 5c (See Table 39 & 40 and Figure 16).

Table 39. Conditional Effects of Belongingness Satisfaction at Levels of Group Belongingness at Work and Group Belongingness Outside of Work on Affective Job Satisfaction

Model	R	R²	Change in R²	F(df)
Entire model		0.583	0.34 --	13.61(12, 317)***
BS X GBW	--	--		0.007 3.19(1, 317)
BS X GBOW	--	--		0.019 9.11(1, 317)**
Predictor	B	SE B	95% CI	
BS	.165*	0.07	0.021	0.308
GBW	.308***	0.04	0.224	0.391
BS X GBW	-0.102	0.06	-0.215	0.01
GBOW	-0.073	0.04	-0.152	0.007
BS X GBOW	-.164**	0.05	-0.271	-0.057
Gender	-0.09	0.09	-0.268	0.087
Age	0.056	0.03	-0.013	0.124
Education Level	0.089	0.06	-0.032	0.21
Family Status	0.055	0.05	-0.033	0.144
Working hours per week	-0.004	0	-0.013	0.006
Salary	0.01	0.02	-0.021	0.041
Need for Belongingness	-0.009	0.06	-0.132	0.113

* $p < .05$; ** $p < .01$; *** $p < .001$; BS = Belongingness Satisfaction; GBW = Group Belongingness at Work; GBOW = Group Belongingness Outside of Work.

Table 40. Conditional Effects of Belongingness Satisfaction at values of Group Belongingness at Work and Group Belongingness Outside of Work

Moderator		B	SE B	95% CI	
Group Belongingness at Work	Group Belongingness Outside of Work				
-.948	-1.359	.484***	.074	.338	.631
	.308	.211*	.090	.033	.389
.053	1.308	.047	.133	-.214	.308
	-1.359	.382***	.091	.203	.561
1.053	.308	.109	.079	-.047	.265
	1.308	-.055	.114	-.279	.169
	-1.359	.280*	.132	.020	.541
	.308	.007	.105	-.199	.213
	1.308	-.157	.122	-.397	.083

* $p < .05$; ** $p < .01$; *** $p < .001$

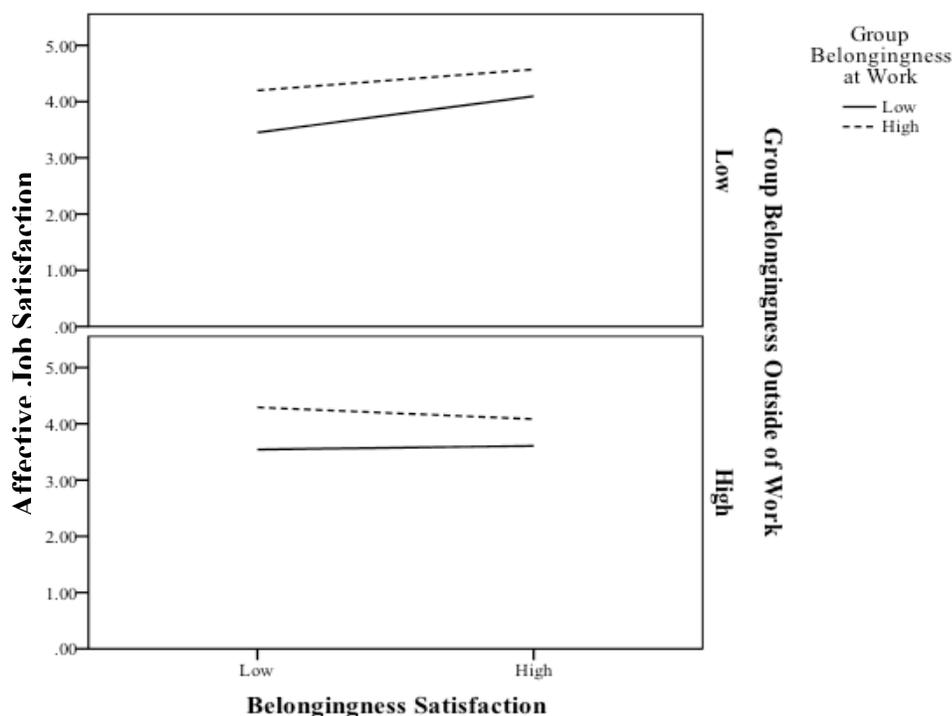


Figure 15. The Moderating effects of Group Belongingness Outside of Work and Group Belongingness at Work on the Relationship Between Belongingness Satisfaction and Affective Job Satisfaction.

Table 41. Conditional Effects of Belongingness Satisfaction at Levels of Individual Distinctiveness at Work and Individual Distinctiveness Outside of Work on Affective Job Satisfaction

Model	R	R²	Change in R²	F(df)	
Entire model		0.486	0.236	--	8.17(12, 317)***
BS X IDW	--	--		0.014	5.65(1, 317)*
BS X IDOW	--	--		0.005	1.93(1,317)
Predictor	B	SE B	95% CI		
BS	.370***	0.06	0.249	0.49	
IDW	0.098	0.06	-0.018	0.213	
BS X IDW	-.169*	0.07	-0.309	-0.029	
IDOW	-0.08	0.05	-0.181	0.021	
BS X IDOW	-0.079	0.06	-0.191	0.033	
Gender	-0.061	0.1	-0.254	0.131	
Age	.087*	0.04	0.014	0.16	
Education Level	0.104	0.07	-0.027	0.235	
Family Status	0.053	0.05	-0.043	0.148	
Working hours per week	-0.003	0.01	-0.013	0.008	
Salary	0.012	0.02	-0.022	0.046	
Need for Belongingness	0.02	0.07	-0.112	0.151	

* $p < .05$; ** $p < .01$; *** $p < .001$; BS = Belongingness Satisfaction; IDW = Individual Distinctiveness at Work; IDOW = Individual Distinctiveness Outside of Work.

Table 42. Conditional Effect of Belongingness Satisfaction at values of Individual Distinctiveness at Work and Individual Distinctiveness Outside of Work on Affective Job Satisfaction

Moderator		B	SE B	95% CI		
Individual Distinctiveness at Work	Individual Distinctiveness Outside of Work					
		-.967	.602***	.082	.441	.762
		-.921	.033	.523***	.077	.372
			1.033	.444***	.108	.232
			-.967	.433***	.087	.261
		.079	.033	.354***	.063	.230
			1.033	.275***	.082	.113
			-.967	.320**	.118	.088
		.746	.033	.241**	.091	.062
			1.033	.162	.095	-.026

* $p < .05$; ** $p < .01$; *** $p < .001$

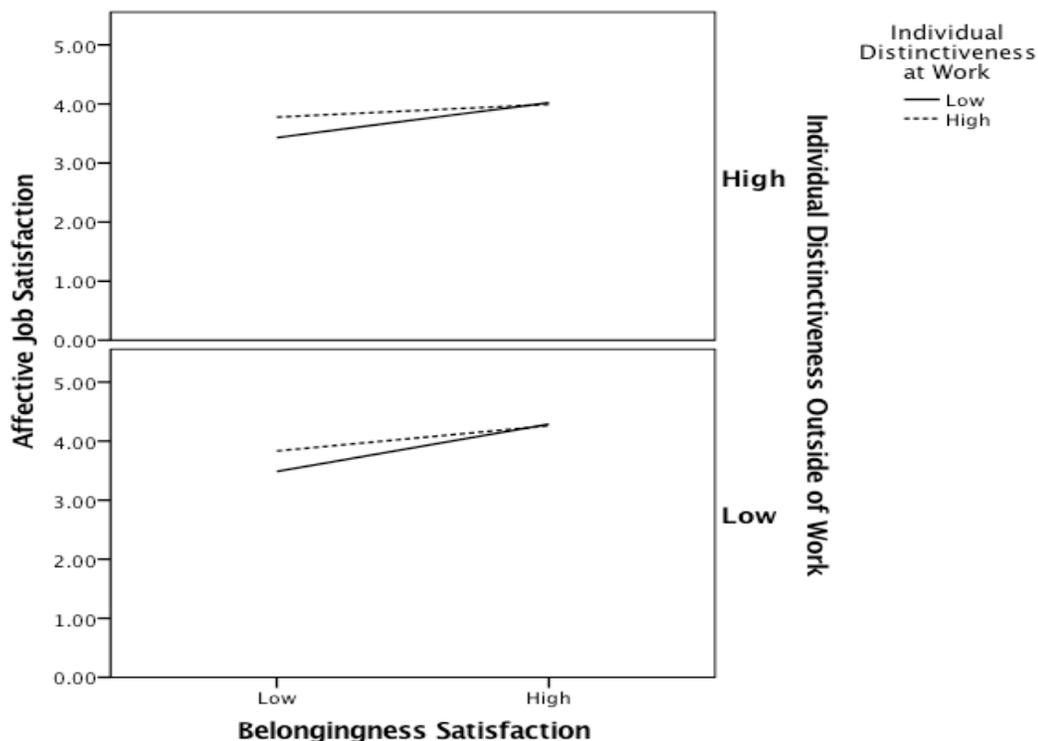


Figure 16. The Moderating Effects of Individual Distinctiveness Outside of Work and Individual Distinctiveness at Work on the Relationship Between Belongingness Satisfaction and Affective Job Satisfaction.

The next two analyses testing hypothesis 5c explore the outcome of affective commitment. When including both in the model, group belongingness at work did not have a significant moderating effect ($\Delta R^2 = .00$, $F(1,317)=.53$, $p = .47$) and group belongingness outside of work had a marginally significant moderating effect ($\Delta R^2 = .01$, $F(1,317)=3.71$, $p = .06$) (Table 43). This does not provide evidence in support of hypothesis 5c. The next analysis evaluating evaluated the moderating role of individual similarity at work and outside of work on affective commitment. Results indicated that neither variable had a significant moderating effect on the relationship between belongingness satisfaction on affective commitment (Table 44). This analysis does not provide support for hypothesis 5c. Overall, these four analyses do not provide

sufficient evidence in support of hypothesis 5c. In other words, the data do not support the notion that the moderating effect of the need for belongingness being satisfied in the work domain on the relationship between satisfaction of the need for belongingness and affective job attitudes will be greater than the moderating effect of the need for belongingness being satisfied in the non-work domain.

Table 43. Conditional Effects of Belongingness Satisfaction by Group Belongingness at Work and Group Belongingness Outside of Work on Affective Commitment

Model	R	R²	Change in R²		F(df)
Entire model		0.548	0.3	--	11.34(12, 317)***
BS X GBW	--	--			0.001 .53(1, 317)
BS X GBOW	--	--			0.008 3.71(1, 317)
Predictor	B	SE B	95% CI		
BS	0.187	0.11	-0.022 0.397		
GBW	.438***	0.06	0.316 0.56		
BS X GBW	-0.061	0.08	-0.225 0.104		
GBOW	-0.096	0.06	-0.212 0.021		
BS X GBOW	-0.153	0.08	-0.309 0.003		
Gender	-0.204	0.13	-0.464 0.055		
Age	.141**	0.05	0.041 0.241		
Education Level	0.126	0.09	-0.051 0.303		
Family Status	0.043	0.07	-0.086 0.173		
Working hours per week	0.004	0.01	-0.01 0.018		
Salary	0.023	0.02	-0.023 0.069		
Need for Belongingness	.234*	0.09	0.055 0.413		

* $p < .05$; ** $p < .01$; *** $p < .001$; BS = Belongingness Satisfaction; GBW = Group Belongingness at Work; GBOW = Group Belongingness Outside of Work, N=329.

Table 44. Conditional Effects of Belongingness Satisfaction by Individual Distinctiveness at Work and Individual Distinctiveness Outside of Work on Affective Commitment

Model	R	R ²	Change in R ²	F(df)
Entire model	0.449	0.202	--	6.66(12, 317)***
BS X IDW	--	--	0.004	1.53(1, 317)
BS X IDOW	--	--	0	.00(1,317)
Predictor	B	SE B	95% CI	
BS	.418***	0.09	0.244	0.593
IDW	.193*	0.09	0.025	0.361
BS X IDW	-0.128	0.1	-0.331	0.075
IDOW	-0.042	0.07	-0.188	0.105
BS X IDOW	-0.004	0.08	-0.167	0.158
Gender	-0.111	0.14	-0.39	0.168
Age	.181***	0.05	0.075	0.287
Education Level	0.131	0.1	-0.059	0.32
Family Status	0.045	0.07	-0.094	0.183
Working hours per week	0.004	0.01	-0.011	0.02
Salary	0.027	0.02	-0.022	0.076
Need for Belongingness	.270**	0.1	0.08	0.461

* $p < .05$; ** $p < .01$; *** $p < .001$; BS = Belongingness Satisfaction; IDW = Individual Distinctiveness at Work; IDOW = Individual Distinctiveness Outside of Work.

Domain and Cognitive Job Attitudes

Hypothesis 6b and 6c specifically look at the domain moderating effects on cognitive attitudes. Hypothesis 6b predicted that the relationship between distinctiveness satisfaction and cognitive job attitudes is moderated by the degree to which the need for distinctiveness is satisfied in the non-work domain such that higher levels of satisfaction of distinctiveness in the non-work domain will result in a stronger positive relationship between distinctiveness satisfaction and cognitive job attitudes. Hypothesis 6c predicted that the moderating effect of the need for distinctiveness being satisfied in the work domain on the relationship between

satisfaction of the need for distinctiveness and cognitive job attitudes will be greater than the moderating effect of the need for distinctiveness being satisfied in the non-work domain.

To evaluate hypothesis 6b I conducted four separate analyses. The first two analyses address distinctiveness satisfaction from individual and group sources on cognitive job satisfaction. The next two analyses address distinctiveness satisfaction from individual and group sources on continuance commitment. The first analysis indicated that there is not significant interaction between distinctiveness satisfaction and the perception of group distinctiveness outside of work ($\Delta R^2 = .00$, $F(1,319)=.45$, $p = .50$) (Table 45). The second analysis similarly indicated that there no interaction between perceptions of individual distinctiveness with others outside of work and distinctiveness satisfaction on cognitive job satisfaction ($\Delta R^2 = .00$, $F(1,319)=1.29$, $p = .26$) (Table 46).

Table 45. Summary Statistics for the Interaction of Distinctiveness Satisfaction and Group Distinctiveness Outside of Work on Cognitive Job Satisfaction

Model	R	R²	Change in R²	F(df)
Entire model	0.442	0.196	--	7.75(10, 319)***
DS X GDOW	--	--	0.001	.45(1, 319)
Predictor	B	SE B	95% CI	
DS	.359***	0.07	0.228	0.49
GDOW	0.027	0.05	-0.064	0.117
DS X GDOW	-0.039	0.06	-0.155	0.076
Gender	-0.103	0.09	-0.285	0.079
Age	-0.015	0.04	-0.084	0.055
Education Level	.151*	0.06	0.025	0.277
Family Status	0.012	0.05	-0.081	0.104
Working hours per week	-.011*	0.01	-0.021	-0.001
Salary	.048**	0.02	0.016	0.081
Need for Distinctiveness	-.231***	0.05	-0.337	-0.125

* $p < .05$; ** $p < .01$; *** $p < .001$; DS = Distinctiveness Satisfaction; GDOW = Group Distinctiveness at Work. , N=329.

Table 46. Summary Statistics for the Interaction of Distinctiveness Satisfaction and Individual Distinctiveness Outside of Work on Cognitive Job Satisfaction

Model	R	R²	Change in R²	F(df)
Entire model	0.446	0.199	--	7.92(10, 319)***
DS X IDOW	--	--	0.003	1.29(1, 319)
Predictor	B	SE B	95% CI	
DS	.364***	0.06	0.237	0.491
IDOW	0.055	0.05	-0.046	0.155
DS X IDOW	0.063	0.06	-0.046	0.173
Gender	-0.088	0.09	-0.27	0.095
Age	-0.017	0.04	-0.086	0.053
Education Level	.149*	0.06	0.023	0.274
Family Status	0.012	0.05	-0.08	0.103
Working hours per week	-.012*	0.01	-0.021	-0.002
Salary	.048**	0.02	0.016	0.08
Need for Distinctiveness	-.262***	0.06	-0.379	-0.146

* $p < .05$; ** $p < .01$; *** $p < .001$; DS = Distinctiveness Satisfaction; IDOW = Individual Distinctiveness at Work. , N=329.

The third and fourth analyses for hypothesis 6b evaluated the outcome of continuance commitment. The third analysis indicated that there is a significant interaction between satisfaction of the need for distinctiveness and perceived group distinctiveness outside of work on continuance commitment ($\Delta R^2 = .02$, $F(1,318)=6.16$, $p = .01$) (Table 47). However, upon probing this relationship the data indicate an increasingly negative effect of satisfaction of the need for distinctiveness on continuance commitment as perceived group distinctiveness outside of work increases (Table 48). This relationship is in the opposite direction than hypothesized (See Figure 17). The fourth analysis revealed no significant moderation effect of the perception of individual distinctiveness outside of work (Table 49). In sum, the data do not provide support for hypothesis 6b.

Table 47. Summary Statistics for the Interaction of Distinctiveness Satisfaction and Group Distinctiveness at Work on Continuance Commitment

Model	R	R²	Change in R²	F(df)
Entire model	0.234	0.055	--	1.84(10, 318)
DS X GDOW	--	--	0.018	6.16(1, 318)*
Predictor	B	SE B	95% CI	
DS	-.167*	0.08	-0.331	-0.002
GDOW	-0.029	0.06	-0.142	0.085
DS X GDOW	-.183*	0.07	-0.328	-0.038
Gender	0.156	0.12	-0.073	0.385
Age	0.055	0.04	-0.033	0.143
Education Level	0.056	0.08	-0.102	0.214
Family Status	0.006	0.06	-0.111	0.122
Working hours per week	0.01	0.01	-0.003	0.022
Salary	-0.014	0.02	-0.055	0.027
Need for Distinctiveness	.172*	0.07	0.038	0.305

* $p < .05$; ** $p < .01$; *** $p < .001$; DS = Distinctiveness Satisfaction; GDOW = Group Distinctiveness Outside of Work.

Table 48. Conditional Effects of Belongingness Satisfaction on Continuance Commitment at Levels of Group Distinctiveness Outside of Work

	B	SE B	95% CI	
Group Distinctiveness Outside of Work				
Low	-.892	-.004	.095	-.190 .183
High	.108	-.186*	.086	-.355 -.018
Interaction	1.108	-.369**	.128	-.622 -.117

* $p < .05$; ** $p < .01$; *** $p < .001$

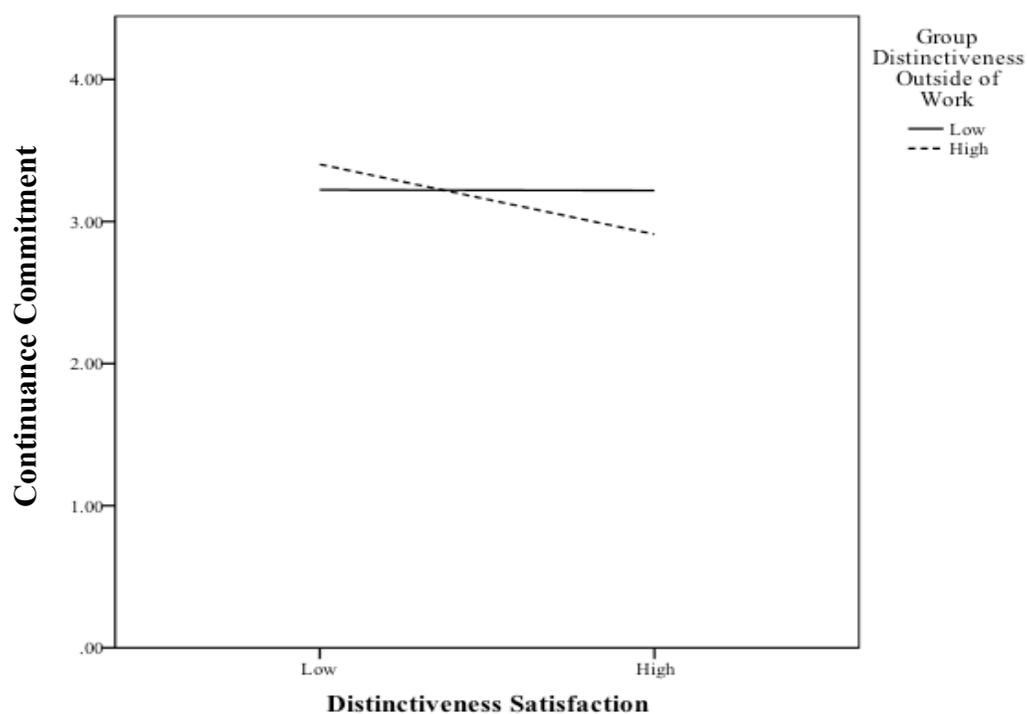


Figure 17. The Moderating Effects of Group Distinctiveness Outside of Work on the Relationship Between Distinctiveness Satisfaction and Continuance Commitment.

Table 49. Summary Statistics for the Interaction of Distinctiveness Satisfaction and Individual Distinctiveness Outside of Work on Continuance Commitment

Model	R	R²	Change in R²	F(df)
Entire model	0.227	0.051	--	1.72(10, 318)
DS X IDOW	--	--	0.002	.64(1, 318)
Predictor	B	SE B	95% CI	
DS	-0.101	0.08	-0.261	0.059
IDOW	-.131*	0.06	-0.258	-0.004
DS X IDOW	0.056	0.07	-0.082	0.194
Gender	0.143	0.12	-0.088	0.374
Age	0.06	0.04	-0.028	0.148
Education Level	0.091	0.08	-0.068	0.249
Family Status	-0.008	0.06	-0.123	0.108
Working hours per week	0.008	0.01	-0.005	0.02
Salary	-0.014	0.02	-0.055	0.027
Need for Distinctiveness	.211**	0.07	0.064	0.358

* $p < .05$; ** $p < .01$; *** $p < .001$; DS = Distinctiveness Satisfaction; IDOW = Individual Distinctiveness at Work. , N=329.

To compare the moderation effects of the source of distinctiveness at work and outside of work I included both moderators in the same model. Again, to be clear, this method does not model a 3-way interaction (these will be evaluated in supplemental analyses). Rather, it only provide evidence for the relative strength of the hypothesized interaction effects.

The first analysis indicated that when both group distinctiveness at work and outside of work are included in the model, neither group distinctiveness at work or outside of work had a significant moderating effect on cognitive job satisfaction (Table 50). This does not provide support for hypothesis 6c. The second analysis indicated similarly indicated that when both individual distinctiveness at work and outside of work are included in the model there are no moderating effects on cognitive job satisfaction (Table 51).

Table 50. Summary Statistics for the Conditional Effect of Distinctiveness Satisfaction by Group Distinctiveness at Work and Group Distinctiveness Outside of Work on Cognitive Job Satisfaction

Model	R	R²	Change in R²	F(df)
Entire model	0.47	0.221	--	7.45(12, 315)***
DS X GDW	--	--	0.004	1.47(1, 315)
DS X GDOW	--	--	0.002	.70(1,315)
Predictor	B	SE B	95% CI	
DS	.342***	0.07	0.211	0.474
GDW	.102*	0.04	0.018	0.186
DS X GDW	0.074	0.06	-0.046	0.194
GDOW	0.027	0.05	-0.063	0.117
GS X GDOW	-0.051	0.06	-0.172	0.069
Gender	-0.12	0.09	-0.301	0.06
Age	-0.014	0.04	-0.083	0.055
Education Level	.156*	0.06	0.031	0.281
Family Status	0.012	0.05	-0.08	0.103
Working hours per week	-.013**	0.01	-0.023	-0.004
Salary	.045**	0.02	0.013	0.078
Need for Distinctiveness	-.259***	0.05	-0.365	-0.152

* $p < .05$; ** $p < .01$; *** $p < .001$; DS = Distinctiveness Satisfaction; GDW = Group Distinctiveness at Work; GDOW = Group Distinctiveness Outside of Work

Table 51. Summary Statistics for the Conditional Effect of Distinctiveness Satisfaction by Individual Distinctiveness at Work and Individual Distinctiveness Outside of Work on Cognitive Job Satisfaction

Model	R	R²	Change in R²	F(df)
Entire model	0.455	0.207	--	6.90(12, 317)***
DS X IDW	--	--	0	.06(1, 317)
DS X IDOW	--	--	0.003	1.03(1,317)
Predictor	B	SE B	95% CI	
DS	.339***	0.07	0.204	0.475
IDW	0.099	0.06	-0.016	0.214
DS X IDW	-0.016	0.06	-0.142	0.111
IDOW	0.028	0.06	-0.081	0.136
DS X IDOW	0.057	0.06	-0.054	0.168
Gender	-0.072	0.09	-0.255	0.111
Age	-0.023	0.04	-0.093	0.047
Education Level	.153*	0.06	0.027	0.278
Family Status	0.016	0.05	-0.076	0.108
Working hours per week	-.012*	0.01	-0.022	-0.002
Salary	.045**	0.02	0.012	0.077
Need for Distinctiveness	-.276***	0.06	-0.393	-0.159

* $p < .05$; ** $p < .01$; *** $p < .001$; DS = Distinctiveness Satisfaction; IDW = Individual Distinctiveness at Work; IDOW = Individual Distinctiveness Outside of Work

The next two analyses testing hypothesis 6c explore the outcome of continuance commitment. When including both in the model, group distinctiveness at work had a significant moderating effect ($\Delta R^2 = .02$, $F(1,314)=8.25$, $p < .01$) and group distinctiveness outside of work did not have a significant moderating effect ($\Delta R^2 = .01$, $F(1,314)=2.45$, $p = .12$) (Table 52). This provides some evidence in support of hypothesis 5c. However, the direction of the significant moderating effect is in the opposite direction hypothesized (Table 53; Figure 18). The next analysis evaluated the moderating role of individual similarity at work and outside of work on continuance commitment. Results indicated that only perceptions of individual distinctiveness at work had a significant moderating effect on the relationship between distinctiveness satisfaction on continuance commitment ($\Delta R^2 = .03$, $F(1,316)=9.04$, $p < .01$)

(Table 54). However, the pattern of this significant relationship is in the opposite direction than hypothesized (Table 55 and Figure 19). Overall, these four analyses do not provide sufficient evidence in support of hypothesis 6c. In other words, the data do not support the notion that the moderating effect of the need for distinctiveness being satisfied in the work domain on the relationship between satisfaction of the need for distinctiveness and cognitive job attitudes will be greater than the moderating effect of the need for distinctiveness being satisfied in the non-work domain.

Table 52. Summary Statistics for the Conditional Effect of Distinctiveness Satisfaction by Group Distinctiveness at Work and Group Distinctiveness Outside of Work on Continuance Commitment

Model	R	R²	Change in R²	F(df)
Entire model	0.313	0.098	--	2.84(12, 314)**
DS X GDW	--	--	0.024	8.25(1, 314)**
DS X GDOW	--	--	0.007	2.45(1,314)
Predictor	B	SE B	95% CI	
DS	-0.145	0.08	-0.308	0.019
GDW	-.138**	0.05	-0.243	-0.034
DS X GDW	-.218**	0.08	-0.368	-0.069
GDOW	-0.03	0.06	-0.142	0.082
DS X GDOW	-0.12	0.08	-0.27	0.031
Gender	0.197	0.11	-0.029	0.423
Age	0.052	0.04	-0.034	0.139
Education Level	0.082	0.08	-0.074	0.238
Family Status	0.012	0.06	-0.102	0.126
Working hours per week	0.011	0.01	-0.001	0.024
Salary	-0.009	0.02	-0.049	0.032
Need for Distinctiveness	.212**	0.07	0.08	0.345

* $p < .05$; ** $p < .01$; *** $p < .001$; DS = Distinctiveness Satisfaction; GDW = Group Distinctiveness at Work; GDOW = Group Distinctiveness Outside of Work N=326.

Table 53. Conditional Effects of Distinctiveness Satisfaction at Levels of Group Distinctiveness at Work and Group Distinctiveness Outside of Work on Continuance Commitment

Moderator		B	SE B	95% CI	
Group Distinctiveness at Work	Group Distinctiveness Outside of Work				
	-0.894	.158	.103	-.045	.360
-0.896	.106	.038	.107	-.173	.249
	1.106	.082	.155	-.387	.224
	-0.894	-.060	.101	-.258	.138
.104	.106	-.180*	.085	-.348	-.012
	1.106	-.300*	.127	-.550	-.050
	-0.894	-.279	.146	-.565	.008
1.104	.106	-.398**	.121	-.636	-.161
	1.106	-.518***	.140	-.794	-.242

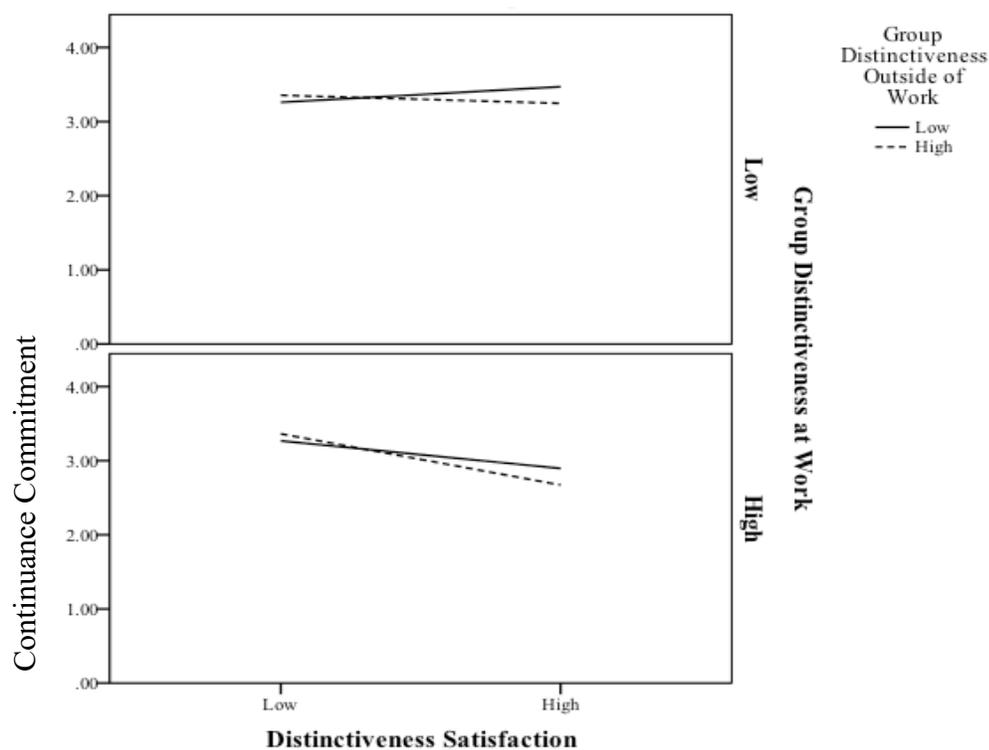


Figure 18. The Moderating Effects of Group Distinctiveness at Work and Outside of Work on the Relationship Between Distinctiveness Satisfaction and Continuance Commitment.

Table 54. Summary Statistics for the Conditional Effect of Distinctiveness Satisfaction by Individual Distinctiveness at Work and Individual Distinctiveness Outside of Work on Continuance Commitment

Model	R	R²	Change in R²	F(df)
Entire model	0.279	0.078	--	2.23(12, 316)*
DS X IDW	--	--	0.026	9.05(1, 316)**
DS X IDOW	--	--	0.005	1.54(1,316)
Predictor	B	SE B	95% CI	
DS	-.178*	0.09	-0.347	-0.009
IDW	-0.071	0.07	-0.214	0.073
DS X IDW	-.242**	0.08	-0.4	-0.084
IDOW	-0.077	0.07	-0.212	0.059
DS X IDOW	0.087	0.07	-0.051	0.225
Gender	0.165	0.12	-0.065	0.394
Age	0.069	0.04	-0.018	0.157
Education Level	0.074	0.08	-0.083	0.231
Family Status	0.004	0.06	-0.111	0.119
Working hours per week	0.012	0.01	-0.001	0.025
Salary	-0.012	0.02	-0.053	0.029
Need for Distinctiveness	.220**	0.07	0.074	0.367

Note. * $p < .05$; ** $p < .01$; *** $p < .001$; DS = Distinctiveness Satisfaction; IDW = Individual Distinctiveness at Work; IDOW = Individual Distinctiveness Outside of Work, N=328.

Table 55. Conditional Effects of Distinctiveness Satisfaction at Values of Individual Distinctiveness at Work and Individual Distinctiveness Outside of Work on Continuance Commitment

Moderator		B	SE B	95% CI	
Individual Distinctiveness at Work	Individual Distinctiveness Outside of Work				
-0.9207	-0.958	-0.0418	0.1125	-0.2633	0.1796
	0.0417	0.0527	0.0946	-0.1334	0.2388
	1.0417	0.1472	0.1238	-0.0965	0.3908
0.0793	-0.958	-0.289*	0.115	-0.5149	-0.0625
	0.0417	-0.194*	0.0882	-0.3677	-0.0207
	1.0417	-0.0997	0.1115	-0.3192	0.1198
0.7459	-0.958	-.453**	0.1444	-0.7373	-0.1692
	0.0417	-.359**	0.1194	-0.5936	-0.1239
	1.0417	-.264*	0.1333	-0.5265	-0.002

* $p < .05$; ** $p < .01$; *** $p < .001$

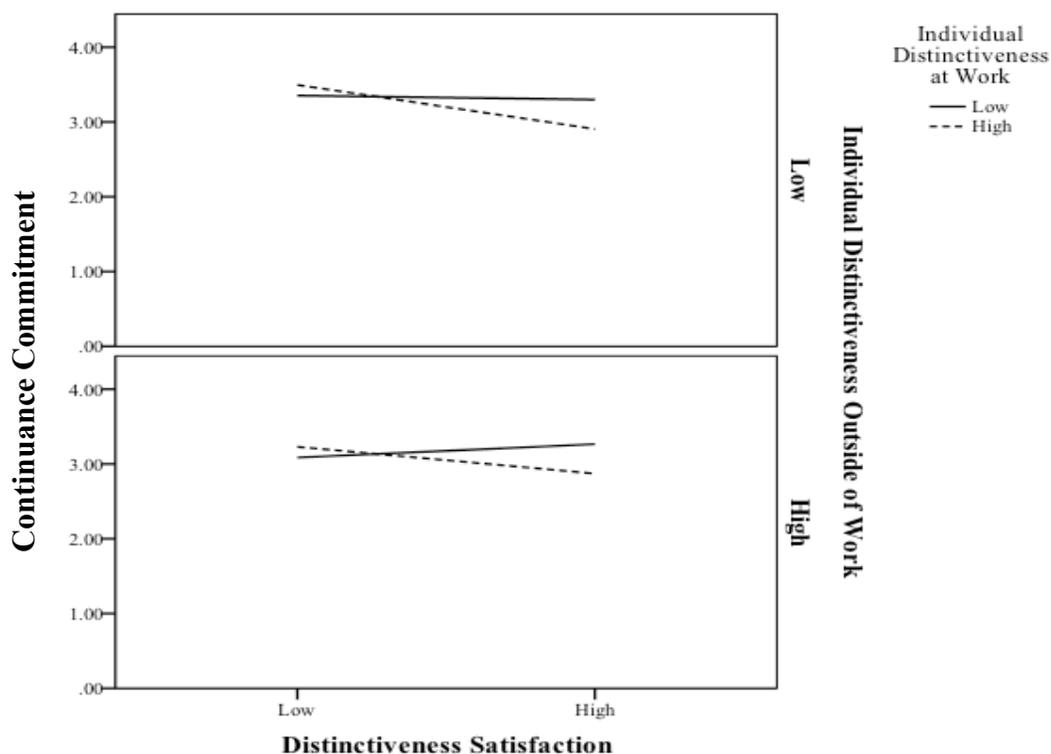


Figure 19. The Moderating Effects of Individual Distinctiveness Outside of Work and at Work on the Relationship Between Distinctiveness Satisfaction and Continuance Commitment.

Supplemental Analyses

As noted earlier, I conducted various post-hoc three-way interaction analyses. Selected results are presented in this section. For a brief overview see Table 30.

The interaction of belongingness satisfaction by group belongingness at work by group belongingness outside of work significantly moderated both affective job satisfaction (Table 56 & 57, Figure 20) and affective commitment (Table 58 & 59, Figure 21). Exploring the pattern of moderation reveals that belongingness satisfaction is a significant predictor of affective job satisfaction only in the condition of low group belongingness outside of work when group belongingness at work was either average or low. This suggests that only high levels of group belongingness at work are able to compensate for a lack of group belongingness outside of work. Whereas, belongingness satisfaction is only a significant predictor of affective commitment in the condition of low group belongingness outside of work and low group belongingness at work. This means that average (or higher) levels of group belongingness in either domain reduces the salience of belongingness satisfaction as a predictor of affective commitment. Practically, this suggests that perceptions of group belongingness whether at work or outside of work are important considerations for organizations looking to improve affective job attitudes.

Table 56. Summary Statistics for the Conditional Effects of Belongingness Satisfaction by Group Belongingness at Work by Group Belongingness Outside of Work on Affective Job Satisfaction

Model	R	R²	Change in R²	F(df)
Entire model	0.6102	0.3723	--	13.30(14,314)***
BS X GBW X GBOW	--	--	0.0306	15.29(1,314)***
Predictor	B	SE B	95% CI	
BS	0.158*	0.0747	0.0106	0.3045
GBW	0.2311***	0.0454	0.1417	0.3205
BS X GBW	-0.0085	0.0687	-0.1436	0.1266
GBOW	-0.1061**	0.0423	-0.1894	-0.0228
BS X GBOW	-0.0711	0.0612	-0.1916	0.0493
GBW X GBOW	0.017	0.0418	-0.0651	0.0992
BS X GBW X GBOW	0.1762***	0.0451	0.0876	0.2659
Gender	-0.1226	0.0901	-0.2999	0.0547
Age	0.0507	0.034	-0.0163	0.1176
Education Level	0.1118	0.0605	-0.0071	0.2308
Family Status	0.0627	0.0442	-0.0242	0.1496
Working hours per week	-0.0011	0.0048	-0.0104	0.0083
Salary	0.0059	0.0157	-0.0249	0.0367
Need for Belongingness	0.001	0.062	-0.1211	0.123

* $p < .05$; ** $p < .01$; *** $p < .001$; BS = Belongingness Satisfaction; GBW = Group Belongingness at Work; GBOW = Group Belongingness Outside of Work, N=328.

Table 57. Moderating Effect of Belongingness Satisfaction at Values of Group Belongingness at Work and Group Belongingness Outside of Work on Affective Job Satisfaction

Moderator		B	SE B	95% CI	
Group Belongingness at Work	Group Belongingness Outside of Work	.484***	0.077	0.336	0.6388
		0.0915	0.0945	-0.0945	0.2775
		-0.1461	0.1397	-0.4209	0.1288
-0.0557	-1.3456	.2402*	0.0965	0.0502	0.4301
	0.3121	0.138	0.0834	-0.0262	0.3021
	1.3121	0.0766	0.1262	-0.1716	0.3249
1.057	-1.3456	-0.0071	0.1492	-0.3006	0.2865
	0.3121	0.1844	0.1285	-0.0684	0.4372
	1.3121	0.2993	0.1894	-0.0733	0.6719

*p < .05; **p < .01; ***p < .001

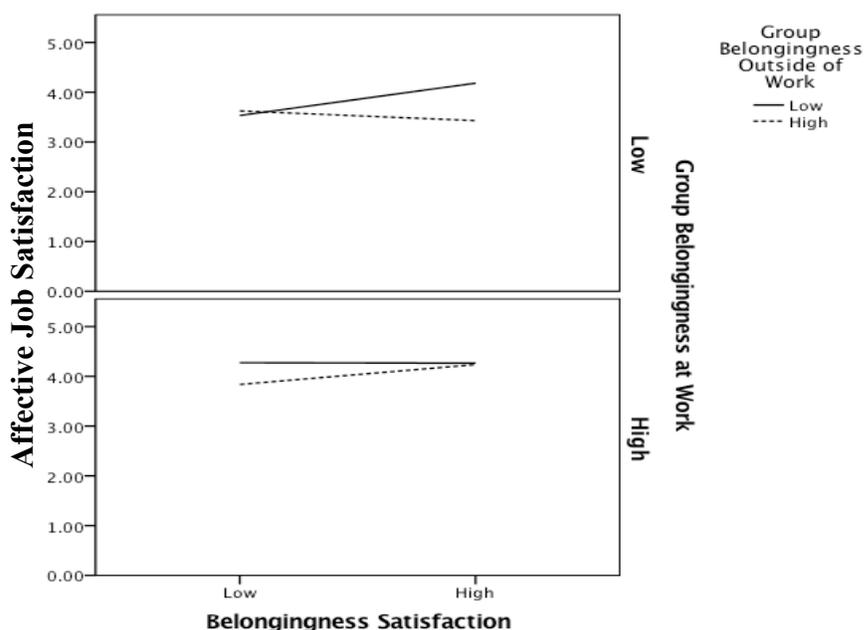


Figure 20. The Three-way Interaction of Belongingness Satisfaction by Group Belongingness at Work by Group Belongingness Outside of Work on Affective Job Satisfaction

Table 58. Summary Statistics for Conditional Effect of Belongingness Satisfaction by Group Belongingness at Work by Group Belongingness Outside of Work on Affective Commitment

Model	R	R²	Change in R²	F(df)
Entire model	0.5681	0.3228	--	10.69(14,314)***
BS X GBW X GBOW	--	--	0.0162	7.52(1,314)**
Predictor	B	SE B	95% CI	
BS	0.138	0.1101	-0.0787	0.3547
GBW	.3563***	0.067	0.2245	0.4881
BS X GBW	-0.0059	0.1012	-0.2051	0.1933
GBOW	-0.111	0.0624	-0.2339	0.0188
BS X GBOW	-0.0821	0.0903	-0.2597	0.0955
GBW X GBOW	0.079	0.0616	-0.0422	0.2001
BS X GBW X GBOW	.182**	0.0664	0.0514	0.3129
Gender	-0.2166	0.1329	-0.4781	0.0448
Age	.137**	0.0502	0.0382	0.2355
Education Level	0.151	0.0891	-0.0244	0.3264
Family Status	0.0513	0.0651	-0.0769	0.1794
Working hours per week	0.0069	0.007	-0.0069	0.0207
Salary	0.0217	0.0231	-0.0237	0.0672
Need for Belongingness	.224*	0.0915	0.044	0.04

* $p < .05$; ** $p < .01$; *** $p < .001$; BS = Belongingness Satisfaction; GBW = Group Belongingness at Work; GBOW = Group Belongingness Outside of Work, N=328.

Table 59. Conditional Effects of Belongingness Satisfaction at Values of Group Belongingness at Work by Group Belongingness Outside of Work on Affective Commitment

Moderator		B	SE B	95% CI	
Group Belongingness at Work	Group Belongingness Outside of Work				
-0.944	-1.3456	.488***	0.1134	0.2646	0.7109
	0.3121	0.0643	0.1394	-0.2099	0.3385
	1.3121	-0.1898	0.2059	-0.595	0.2154
-0.0557	-1.3456	0.235	0.1423	-0.045	0.5151
	0.3121	0.1152	0.1230	-0.1269	0.3573
	1.3121	0.0433	0.1860	-0.3227	0.4093
1.057	-1.3456	-0.0177	0.2200	-0.4505	0.4152
	0.3121	0.1661	0.1894	-0.2066	0.5389
	1.3121	0.2764	0.2792	-0.2729	0.8257

*p < .05; **p < .01; ***p < .001

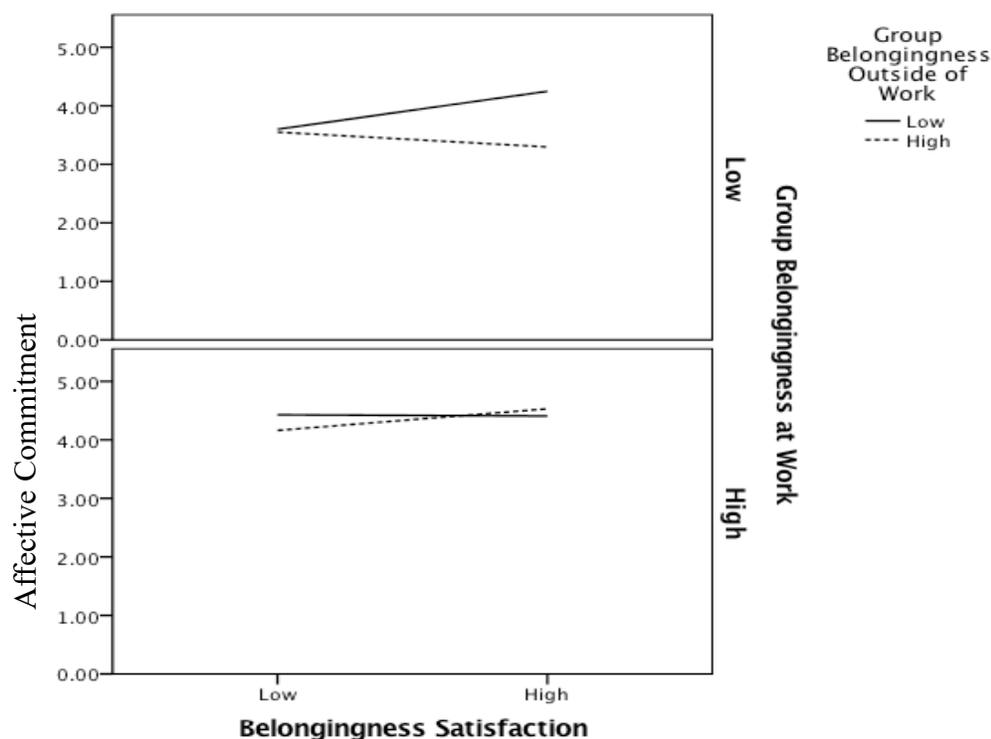


Figure 21. The Three-way Interaction of Belongingness Satisfaction by Group Belongingness at Work by Group Belongingness Outside of Work on Affective Commitment

Three-Way Interaction of Virtuality by Domain

Hypotheses 7 and 8 consider the potential three-way interactions of worker virtuality by domain of need satisfaction on the relationship between psychological need satisfaction and affective/cognitive attitudes. These hypotheses were tested using Hayes conditional process analysis (2013). Because these hypotheses propose a three-way interaction Hayes model #3 was used to test both Hypothesis 7 and 8. Hypothesis 7 specifically argues that as virtualness increases it will result in a weaker moderating effect of the degree to which the need for belongingness is satisfied in the work domain on the relationship between belongingness satisfaction and affective job attitudes. Hypothesis 8 argues that as virtualness increases it will result in a weaker moderating effect of the degree to which the need for distinctiveness is satisfied in the work domain on the relationship between distinctiveness satisfaction and cognitive job attitudes. To test each of these hypotheses I conducted a number of separate analyses.

Four individual analyses were conducted to evaluate Hypothesis 7. The first evaluated the interaction of group belongingness at work by virtuality on the relationship between belongingness satisfaction and affective job satisfaction. Results indicated no significant three way interaction ($F(1,96)=2.13, p = .147$) (Table 60). This did not provide evidence in favor of Hypothesis 7.

Table 60. Summary Statistics for the Three-way Interaction Between Belongingness Satisfaction, Group Belongingness at Work, and Virtuality on Affective Job Satisfaction

Model	R	R²	Change in R²	F(df)
Entire model	0.682	0.464	--	5.95(14, 96)***
BS X GBW X Virtuality	--	--	0.012	2.13(1, 96)

Note. * $p < .05$; ** $p < .01$; *** $p < .001$; BS = Belongingness Satisfaction; GBW = Group Belongingness at Work.

The second analysis evaluated the interaction of individual distinctiveness at work by virtuality on the relationship between belongingness satisfaction and affective job satisfaction. Results indicated a significant three-way interaction among belongingness satisfaction by individual distinctiveness by virtuality on affective commitment ($\Delta R^2 = .03$, $F(1,96)=5.02$, $p < .05$) (Table 61 & 62). Further analysis indicated that the moderating effect of individual distinctiveness/similarity was only significant at high levels of virtuality ($\beta = -.413$, $F(1,96)7.876$, $p < .01$). Probing the interaction effect revealed that belongingness satisfaction had no impact on affective job satisfaction at high levels of individual distinctiveness (low levels of similarity) and high virtuality (Figure 22). This provides some evidence in support of Hypothesis 7.

Table 61. Summary Statistics for the Three-way Interaction of Belongingness Satisfaction by Individual Distinctiveness at Work by Virtuality on Affective Job Satisfaction

Model	R	R²	Change in R²	F(df)
Entire model	0.622	0.387	--	4.34(14, 96)***
BS X IDW X Virtuality	--	--	0.03	5.02 (1, 96)*
Predictor	B	SE B	95% CI	
BS	..587	0.11	0.37	0.8027
IDW	.034***	0.09	-0.137	0.206
BS X IDW	-0.109	0.1	-0.316	0.097
Virtuality	0.016	0.016	-0.016	0.048
BS X Virtuality	0.033	0.02	-0.077	0.011
IDW X Virtuality	.040*	0.02	0.005	0.076
BS X IDW X Virtuality	-.057*	0.03	-0.107	-0.007
Gender	-0.24	0.17	-0.57	0.09
Age	0.084	0.06	-0.039	0.206
Education Level	0.052	0.12	-0.188	0.292
Family Status	-0.038	0.08	-0.203	0.128
Working hours per week	-0.016	0.01	-0.035	0.003
Salary	0.025	0.03	-0.029	0.078
Need for Belongingness	0.033	0.12	-0.206	0.273

Note. * $p < .05$; ** $p < .01$; *** $p < .001$; BS = Belongingness Satisfaction; IDW = Individual Distinctiveness at Work.

Table 62. Conditional Effect of Belongingness Satisfaction on Affective Job Satisfaction at Values of Individual Distinctiveness at Work and Virtuality

Moderator		B	SE B	95% CI	
Individual Distinctiveness at Work	Virtuality				
	-3.516	.628***	.103	.369	.887
-0.820	-1.386	.657***	.107	.438	.876
	5.355	.749***	.155	.339	1.160
	-3.516	.688***	.101	.419	.957
-0.153	-1.386	.637***	.085	.415	.858
	5.355	.474**	.127	.178	.771
	-3.516	.778**	.146	.292	1.264
.847	-1.386	.606**	.121	.228	.984
	5.355	.061	.140	-.268	.391

* $p < .05$; ** $p < .01$; *** $p < .001$

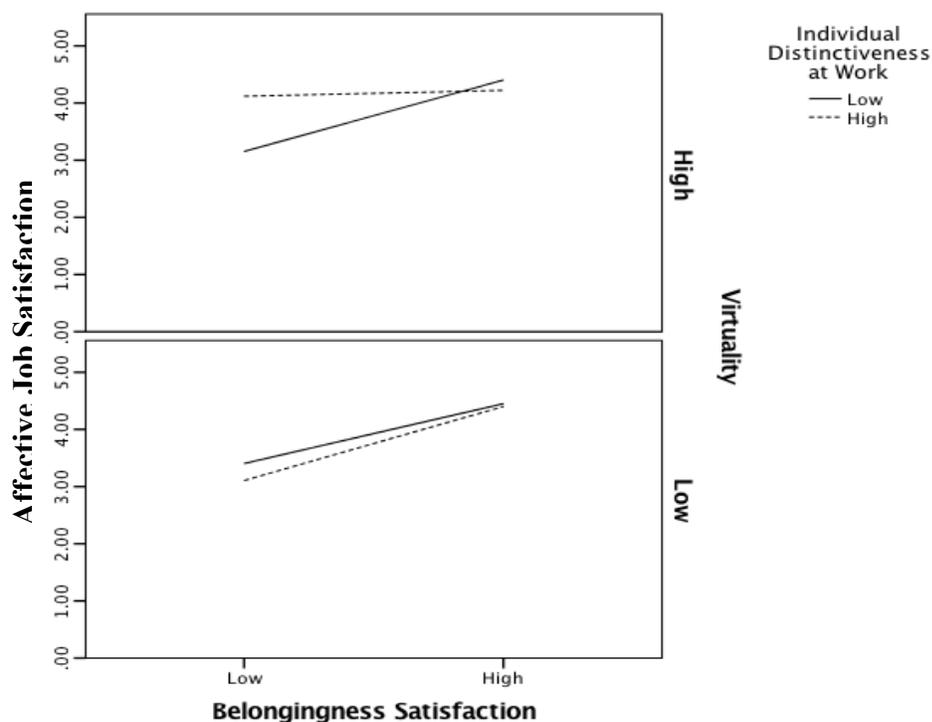


Figure 22. The Moderating Effects of Individual Distinctiveness at Work and Virtuality on the Relationship Between Belongingness Satisfaction and Affective Job Satisfaction.

The third analyses testing Hypothesis 7 evaluated the interaction of group belongingness at work by virtuality on the relationship between belongingness satisfaction and affective commitment. Results indicated no significant three way interaction ($F(1,96)=1.597, p = .210$) (Table 63) This did not provide evidence in favor of Hypothesis 7.

Table 63. Summary Statistics for the Three-way Interaction of Belongingness Satisfaction by Group Belongingness at Work by Virtuality on Affective Commitment

Model	R	R²	Change in R²	F(df)
Entire model	0.633	0.401	--	4.58(14, 96)***
BS X GBW X Virtuality	--	--	0.01	1.597(1, 96)

Note. * $p < .05$; ** $p < .01$; *** $p < .001$; BS = Belongingness Satisfaction; GBW = Group Belongingness at Work.

The fourth analysis for Hypothesis 7 evaluated the interaction of individual distinctiveness/similarity at work by virtuality on the relationship between belongingness satisfaction and affective commitment. Results indicated no significant three way interaction ($F(1,96)=.475, p = .492$) (Table 64). Overall, while the analysis indicated one significant three way interaction, the data do not provide sufficient evidence to support Hypothesis 7.

Table 64. Summary Statistics for the Three-way Interaction of Belongingness Satisfaction by Individual Distinctiveness at Work by Virtuality on Affective Commitment

Model	R	R²	Change in R²	F(df)
Entire model	0.496	0.246	--	2.24 (14, 96)**
BS X IDW X Virtuality	--	--	0	.475 (1, 96)

Note. * $p < .05$; ** $p < .01$; *** $p < .001$; BS = Belongingness Satisfaction; IDW = Individual Distinctiveness at Work.

Four individual analyses were conducted to evaluate Hypothesis 8. The first evaluated the interaction of group belongingness at work by virtuality on the relationship between distinctiveness satisfaction and cognitive job satisfaction. Results indicated a significant three way interaction ($F(1,96)=4.243, p < .05$) (Table 65). A test of conditional effects of

distinctiveness satisfaction by group distinctiveness at work approaches significance at high levels of virtuality ($F(1,96)=3.523, p=.06$) (Table 66, Figure 23). Further probing of the interaction revealed a significant effect of distinctiveness satisfaction on cognitive job satisfaction only in the condition of low group distinctiveness at work with low virtuality and the condition of high group distinctiveness at work and high virtuality. This mixed result, while interesting, does not provide support for Hypothesis 8.

Table 65. Summary Statistics for the Three-way Interaction of Belongingness Satisfaction by Group Distinctiveness at Work by Virtuality on Cognitive Job Satisfaction

Model	R	R²	Change in R²	F(df)
Entire model	0.678	0.46	--	5.84(14, 96)***
DS X GDW X Virtuality	--	--	0.02	4.24 (1, 96)*
Predictor	B	SE B	95% CI	
DS	0.451	0.1	0.267	0.655
GDW	.042***	7	-0.102	0.187
DS X GDW	0.069	0.09	-0.117	0.255
Virtuality	.035*	0.014	0.007	0.062
DS X Virtuality	-0.007	0.02	-0.055	0.04
GDW X Virtuality	-0.024	0.02	-0.061	0.013
DS X GDW X Virtuality	.058*	0.03	0.002	0.114
Gender	-.314*	0.15	-0.604	-0.024
Age	-0.038	0.06	-0.148	0.071
Education Level	0.015	0.11	-0.203	0.233
Family Status	-0.02	0.07	-0.168	0.127
Working hours per week	-.019*	0.01	-0.036	-0.002
Salary	0.046	0.02	-0.002	0.095
Need for Distinctiveness	-.273**	0.08	-0.437	-0.11

Note. * $p < .05$; ** $p < .01$; *** $p < .001$; DS = Distinctiveness Satisfaction; GDW = Group Distinctiveness at Work.

Table 66. Conditional Effect of Belongingness Satisfaction at Values of Group Distinctiveness at Work and Virtuality on Cognitive Job Satisfaction

Moderator		B	SE B	95% CI	
Group Distinctiveness at Work	Virtuality				
	High	-3.516	.590***	.292	.888
	Low	-1.386	.470***	.244	.697
	High	5.355	.093	-.366	.553
	Low	-3.516	.499***	.243	.756
	High	-1.386	.463***	.256	.670
	Low	5.355	.347*	.011	.683
	High	-3.516	.319	-.067	.706
	Low	1.165	-1.386	.448**	.166
	High	5.355	.855**	.297	.2648

* $p < .05$; ** $p < .01$; *** $p < .001$

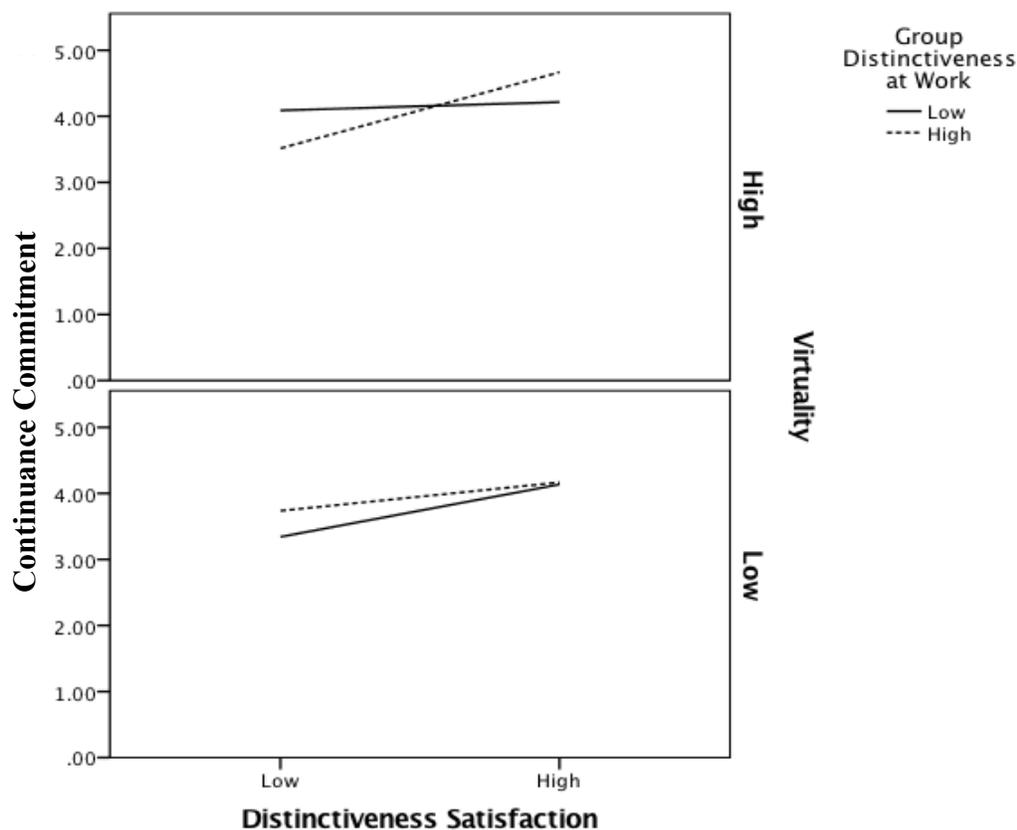


Figure 23. The Moderating Effects of Individual Distinctiveness at Work and Virtuality on the Relationship Between Distinctiveness Satisfaction and Continuance Commitment.

The next analysis evaluated the interaction of individual distinctiveness/similarity at work by virtuality on the relationship between distinctiveness satisfaction and cognitive job satisfaction. Results indicated no significant three way interaction ($F(1,96)=.2.209, p = .140$) (Table 67).

Table 67. Summary Statistics for the Three-way Interaction of Distinctiveness Satisfaction by Individual Distinctiveness at Work by Virtuality on Cognitive Job Satisfaction

Model	R	R²	Change in R²	F(df)
Entire model	.655	.428	--	5.14(14, 96)***
DS X IDW X Virtuality	--	--	.01	2.20 (1, 96)

Note. * $p < .05$; ** $p < .01$; *** $p < .001$; DS = Distinctiveness Satisfaction; IDW = Individual Distinctiveness at Work.

The third analysis evaluating Hypothesis 8 tested the interaction of group distinctiveness at work by virtuality on the relationship between distinctiveness satisfaction and continuance commitment. Results indicated no significant three way interaction ($F(1,96)=.285, p = .594$) (Table 68).

Table 68. Summary Statistics for the Three-way interaction of Distinctiveness Satisfaction by Individual Distinctiveness at Work by Virtuality on Continuance Commitment

Model	R	R²	Change in R²	F(df)
Entire model	.375	.141	--	1.12(14, 96)
DS X IDW X Virtuality	--	--	.00	.29 (1, 96)

Note. * $p < .05$; ** $p < .01$; *** $p < .001$; DS = Distinctiveness Satisfaction; GDW = Group Distinctiveness at Work.

The fourth analysis for Hypothesis 8 evaluated the interaction of individual distinctiveness/similarity at work by virtuality on the relationship between distinctiveness satisfaction and continuance commitment. Results indicated no significant three way interaction

($F(1,96)=.172, p = .680$) (Table 69). Taken together these four analyses indicate that the data do not support Hypothesis 8.

Table 69. Summary Statistics for the Three-way Interaction of Distinctiveness Satisfaction by Individual Distinctiveness at Work by Virtuality

Model	<i>R</i>	<i>R</i>²	Change in <i>R</i>²	<i>F</i>(<i>df</i>)
Entire model	.318	.101	--	.77(14, 96)
DS X IDW X Virtuality	--	--	.01	.17 (1, 96)

Note. * $p < .05$; ** $p < .01$; *** $p < .001$; DS = Distinctiveness Satisfaction; IDW = Individual Distinctiveness at Work.

CHAPTER FIVE: DISCUSSION

This research examines the relationships between the satisfaction of psychological needs on affective and cognitive outcomes with an emphasis on identifying key differential and moderating effects. Satisfying the needs for belongingness and distinctiveness, whether through source (individual vs. group) or by domain (work vs. non-work), have a positive impact on job attitudes. However, the results for the moderating and differential effects along with post-hoc analyses provides additional insights. Because the satisfaction of psychological needs suggests some threshold at which a need is satisfied, it stands to reason that satisfaction beyond this threshold might not be important for an individual. In fact, individual's job attitudes might not improve beyond the point at which their psychological need is satisfied. Yet, the lack of need satisfaction has the potential to detrimentally affect an individual's job attitudes. Additional analyses should address the possibility of curvilinear effects of need satisfaction on affective and cognitive attitudes.

The results from this study have theoretical implications for both psychological needs theories and resource theory. In the rest of this chapter I discuss the theoretical implications for psychological needs theories and extend the perspective of psychological needs as nutriment. I also address the theoretical implications from a resource perspective and explain results of domain effects from the lens of the Job-Demands Resources model. Next, I consider overall implications in light of the changing nature of employer-employee relationships. Finally, I address the limitations in this study and offer suggestions for future research.

Overall, I found that the satisfaction of psychological needs have important direct effects on affective and cognitive job attitudes. I found that the source of need satisfaction (individual and group) and the domain in which a need is satisfied moderate the relationship between

psychological need satisfaction and specific cognitive and affective job attitudes. In many circumstances, the moderating effect was not as expected. Specifically, significant moderating effects were in the opposite direction hypothesized. Additionally, the context of virtuality had a significant impact on only a few relationships. Post-hoc analyses showed that the relationship among the variables in this study are more complex than hypothesized. Despite the lack of support for many of the hypotheses, this study offers theoretical insights for both scholars and practitioners on our understanding of psychological needs as nutriments, psychological needs as resources, and the context of virtuality.

Psychological Needs as Nutriments

Deci and Ryan argue that psychological needs are nutriments required for “healthy, full functioning” individuals (2008). Just as plants need water, sun, and soil, they argue that humans require satisfaction of specific psychological needs. Some scholars have taken a more-is-better approach suggesting that increasing the degree of need satisfaction will provide greater returns (e.g. Baumeister & Leary, 1995; Snyder & Fromkin, 1980). Whereas other scholars have theorized that certain psychological needs operate in tension with one another. Results from this study have theoretical implications for both perspectives and suggest that a more nuanced view may be needed.

Analysis indicated that the effect of belongingness satisfaction on affective job satisfaction was greatest at low levels of group belongingness and was not significant at high levels of group belongingness. While this was not hypothesized, it fits with Deci and Ryan’s notion of psychological needs as “nutriments”. Both overall belongingness satisfaction and group belongingness at work may be two distinct psychological nutriments. Individually, each may have an important effect on affective job satisfaction. Only when an individual’s group

belongingness at work is low does overall belongingness satisfaction statistically emerge as an important need. In other words, only when an individual's need for group belongingness at work is not satisfied does their focus shift to overall belongingness.

The data offers some preliminary and limited empirical support for treating overall belongingness satisfaction and group belongingness as separate needs. Both belongingness satisfaction and group belongingness at work are significant predictors of affective job satisfaction. The conditional effect of belongingness satisfaction when individuals do not feel connected to others is larger than the main effect. Thus, feeling connected with others at work is an important factor for affective job satisfaction. This suggests that the absence of group belongingness satisfaction results in individual's relying more heavily on the nutriment of overall belongingness satisfaction.

Theoretically, this may extend the analogy of psychological needs as water, sun and soil. In the early spring, many gardeners start seeds indoors under artificial light. Both the sun and a 100 watt bulb provide the underlying nutriment of light. In the absence of the sun a light bulb is sufficient. In the absence of a light bulb the sun is sufficient. However, when both of these are provided at the same time, the underlying need is fully satisfied and thus both are not needed. In fact, when a gardener takes their spring seedlings to the garden they remove the light bulb knowing that the sun has the ability to meet the need for light. Continuing to use a lightbulb, while not damaging, has no additional effect on the plant's health.

Belongingness satisfaction may be the underlying psychological nutriment. Yet, satisfaction of the need may come from different sources. The presence of belongingness satisfaction from multiple sources does not have an additional positive effect on overall functioning. It is only the overall lack of belongingness satisfaction that inhibits thriving. This

implication suggests that the theoretical understanding of needs as “nutriments” could be refined. Future research should address the possibility that specific needs simply need a minimum level of satisfaction.

In the same vein, this study calls into question the “more-is-better” approach when considering distinctiveness satisfaction. The overall pattern of relationships for the analyses looking at the moderating effects of source of need satisfaction on the relationship between distinctiveness satisfaction and cognitive attitudes found significant effects but in the opposite direction compared to the findings exploring affective attitudes. There were a number of significant moderating effects but in the opposite direction predicted. Perceived group and individual distinctiveness did not moderate the relationship between distinctiveness satisfaction and cognitive job satisfaction. However, perceptions of both individual and group distinctiveness at work had significant main effects on cognitive job satisfaction.

Conversely perceived group and individual distinctiveness independently each moderated the relationship between distinctiveness satisfaction and *continuance commitment*. However, the effect was not in the hypothesized direction. Probing each of these results found a significant negative effect at high levels of group and individual distinctiveness at work. High levels of group and individual satisfaction at work result in an aversive response for individuals whose need for distinctiveness is satisfied in a more global way. Indeed, too much distinctiveness, irrespective of the source, results in individuals reporting less continuance commitment.

Additionally, this finding differs from the moderating effects of the source of belongingness on affective attitudes in an important way. None of the models I tested showed a negative moderation effect on affective attitudes. Whereas, the models do show a potential negative effect on cognitive attitudes. While these results were not hypothesized, they offer some

empirical evidence that “too much” distinctiveness satisfaction is detrimental to cognitive attitudes. Whereas, in the situation of “too much” belongingness satisfaction there is seemingly no detrimental effects to affective attitudes.

Extending the psychological needs as nutriment analogy, the gardener also takes care to water their seedlings. The gardener know that too little water and the seed will not germinate while too much water may drown it. The gardener understands that as the plant grows the amount of water it needs will increase as well. The gardener will recognize when a grown plant is wilting from lack of water or when the roots are rotting from a flood. The entire time, the gardener checking these signs and trying to adjust as necessary.

This has theoretical implications for optimal distinctiveness theory. Optimal distinctiveness theory conceptualizes similarity (belongingness) and distinctiveness along a spectrum where individuals seek to find their optimal level (Brewer, 1991). Optimal distinctiveness theory argues that too much similarity *and* too much distinctiveness are aversive. While the present study conceptualizes similarity (belongingness) and distinctiveness as separate constructs consistent with other theorists, the results imply that the nature of optimal distinctiveness may operate differently on the extremes. To be clear, the present study does not contradict the core tenet of optimal distinctiveness theory. Rather, it implies that the aversive nature of too much distinctiveness may differ from the aversive nature of too much similarity (belongingness).

While not hypothesized, supplemental analyses revealed a significant three-way interaction among belongingness satisfaction, group belongingness, and individual belongingness/distinctiveness on affective job satisfaction. Extending the analogy, this is akin to exploring the joint effects of light and water. The pattern of the conditional effects reveal that

belongingness satisfaction is only a significant predictor of affective job satisfaction at average to high levels of individual belongingness at work and low to average group belongingness at work. This means that when an individual perceives themselves as similar to others in their work group but perceives only low to moderate connection with them, the individual's overall belongingness satisfaction becomes important for their affective job satisfaction. Next, this means that when an individual perceives themselves as distinct from others in their work group, irrespective of their level of connection with others in their work group, the individual's overall belongingness satisfaction is not an important predictor of affective job satisfaction.

This means that the unique combination of the source of psychological needs is an important consideration on the needs satisfaction–job satisfaction relationship. Theoretically, this implies that the specific way in which needs are satisfied is an important consideration. Because belongingness/distinctiveness satisfaction from the individual source is conceptualized as a spectrum it is impossible for one to have both high individual belongingness and high individual distinctiveness. Theoretically, these supplemental results indicate that individuals may have a preference for belongingness and distinctiveness satisfaction from a specific source. Future research should explore the potential effect of individual preferences on the sources of need satisfaction.

Overall, this study provides some evidence that individuals are like seedlings. The source of need satisfaction may not be important provided that the underlying need itself is satisfied. The light can come from a bulb or the sun. Only the absence of both will harm the plant as either satisfy the underlying need. Belongingness may also operate in this way. The absence of this needs will be detrimental to the full functioning of the individual but the satisfaction of this need from different sources and/or domains is not detrimental. Just like water, the absence of

distinctiveness will result in a lack of functioning but the presence of too much distinctiveness may cause a lack of full functioning. It may be important to find the right degree of distinctiveness from the right source/domain.

Psychological Needs as Resources

A key focus of this dissertation is the evaluation of the moderating effects of the domain in which psychological needs are satisfied. Results indicate that in the condition of a high level of group belongingness outside of work, there is no significant impact of belongingness satisfaction on affective job satisfaction. Whereas, low group belongingness outside of work moderates the relationship between belongingness satisfaction and affective job satisfaction. As perceptions of group belongingness outside of work decrease, the impact of belongingness satisfaction on affective job satisfaction increases. Taken as a whole, this suggests that the lack of group belongingness in either domain results in the increased importance of belongingness satisfaction. The lack of group belongingness in the non-work domain suggests that the underlying need for belongingness becomes more salient for affective job satisfaction. In other words, group belongingness at work and outside of work are potentially important considerations for organizations.

The job-demands resource (JDR) (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001; Schaufeli & Bakker, 2004) theory may help to explain some of the results evaluating the domain of need satisfaction. The JDR proposes that specific characteristics in the workplace affect the overall well-being of employees (Hakanen, Bakker, & Schaufeli, 2006). The JDR categorizes the characteristics of the work environment as either demands or resources (Demerouti et al., 2001). Job demands are characteristics of the job that require sustained effort and have negative psychological or physical costs. Job resources are conceptualized as organizational

characteristics that promote optimal functioning (Xanthopoulou, Bakker, Demerouti, & Schaufeli, 2007). The JDR also recognizes the concept of personal resources (aspects of the individual employee) and the effect personal resources have on various work attitudes (Xanthopoulou et al. 2007).

The present study may augment the JDR concept of personal resources. The satisfaction of psychological needs may operate as a personal resource. This study suggests that the satisfaction of psychological needs in the non-work domain may alter the nature of the relationship of psychological need satisfaction in the work domain. This would imply that organizations may not necessarily need to focus on helping employees satisfy various psychological needs in the work domain if they are provided opportunity for need satisfaction outside of work. Alternatively, organizations may need to consider various ways to contribute to the satisfaction of needs in the non-work domain.

Results also indicated that the effect of distinctiveness satisfaction on cognitive job satisfaction is not moderated by group or individual distinctiveness outside of work. However, when modeling continuance commitment there is an interesting finding. Group distinctiveness outside of work moderates the relationship between distinctiveness satisfaction and continuance commitment such that higher levels of group distinctiveness outside of work indicate lower levels of continuance commitment. This may be explained through the lens of the JDR.

A high level of group distinctiveness outside of work might result in an individual seeing their non-work group as a personal resource on which they can rely in times of need. A practical example of this might be the perceived distinctiveness of a religious community. A member of a particular religious community might view their specific group as highly distinct from others, and as a result of their membership in this group, they feel that they can rely on others in the

group in the case of a job change. In this situation, the distinctiveness of the group would be a valuable personal resource allowing the individual the psychological freedom to be less committed to their job.

Interestingly, individual distinctiveness at work (but not outside of work) also moderated the relationship between distinctiveness satisfaction and continuance commitment. As an employee's perception of individual distinctiveness at work increases, their overall distinctiveness satisfaction predicts lower levels of continuance commitment. While this was not the hypothesized direction of the moderation effect, the JDR can also be used to explain this result. When individuals perceive themselves as distinct from others in the workplace they may view this as an organizationally provided resource. For example, in hiring a distinct individual the organization may be signaling that the individual possess a uniquely valuable characteristic or expertise. However, this organizationally provided resource may result in the belief that they are more marketable if they decide to look for a new job. For example, they may possess a distinct skill or characteristic that sets them apart from their colleagues. The employee might see their distinctiveness at work as a resource improving potential job prospects which allows them to be less reliant on their employer and thus decreases their continuance commitment to the organization.

Virtuality as Context

The relationship between belongingness satisfaction and affective job satisfaction was moderated by the combination of individual belongingness and virtuality. The conditional effects of individual belongingness were significant at high levels of virtuality such that higher levels of belongingness satisfaction are important for individuals with low levels of individual

belongingness at work (high levels of individual distinctiveness) in the condition of high virtuality.

This finding is interesting in that it suggests that an individual's overall belongingness satisfaction only predicts affective job satisfaction when they view themselves as similar to others at work and operate in a highly virtual context. This suggests that individuals in a highly virtual context rely on other mechanisms beyond their perception of similarity to other coworkers.

The three-way effect of distinctiveness satisfaction, perception of group distinctiveness at work and virtuality on cognitive job satisfaction mirrored the previous findings. The conditional effects of group distinctiveness were significant at high levels of virtuality such that higher levels of distinctiveness satisfaction are important for cognitive job satisfaction. One key takeaway from this finding is that organizations interested in improving affective job satisfaction might need to focus on other ways to satisfy the need needs beyond helping employees find points of similarity.

The implication of this result is interesting as it suggests that despite an individual perceiving a high degree of group distinctiveness in a virtual work context, their overall belongingness satisfaction is still an important predictor of cognitive job satisfaction. Thus, if an organization is interested in improving cognitive job satisfaction for this group of employees they might need to focus on different mechanisms by which the need for distinctiveness might be satisfied.

Taken together both of these results provide valuable insight for organizations. Specifically, an organization should not assume that when, for individuals in a virtual context, perceived differences from their coworkers and perceived group distinctiveness are high, further

satisfying the overall psychological need for distinctiveness could improve job satisfaction. Continuing to add more individual distinctiveness or more group distinctiveness is likely to provide continued improvement in job satisfaction. Yet, because belongingness satisfaction is seemingly already satisfied through one of these mechanisms, an organization might see a greater improvement in job satisfaction by focusing their efforts in areas where psychological needs are not satisfied.

In the past, organizations have actively worked to create non-work social settings for their employees. One example of this is the Hershey Corporation. In addition to building chocolate factories, Milton Hershey built a model town for his employees that included a “trolley system, houses, schools, and even a zoo” and ultimately an amusement park (Hershey). This created both work and non-work settings in which employees needs were satisfied. The present study implies that the work domain may not be sufficient for the full satisfaction of employee psychological needs. As organizations consider steps to improve affective and cognitive job attitudes it would be beneficial to consider the ways in which an organization may contribute to psychological need satisfaction in the non-work domain.

Limitations and Future Research

Caution is warranted in interpreting the findings from this study given a number of important limitations discussed below.

Measurement. It is important to recognize limitations with the study’s measures. The measurement of the following focal variables represents significant measurement issues: overall belongingness satisfaction, overall distinctiveness satisfaction, group belongingness at work, group belongingness outside of work, group distinctiveness at work, group distinctiveness outside of work, individual distinctiveness at work, individual distinctiveness outside of work.

The independent variables (belongingness and distinctiveness satisfaction) are measured by individual responses to items designed to capture a global sense of overall belongingness/distinctiveness satisfaction. These constructs do not specify the domain in which belongingness/distinctiveness is satisfied. This is problematic in that the moderating variables assess overlapping constructs. Specifically, the moderating variables of group belongingness at work, group belongingness outside of work, group distinctiveness at work, group distinctiveness outside of work, individual distinctiveness at work, and individual distinctiveness outside of work, ask participants to first think about their experience with coworkers in the work domain and answer questions relating to that group (e.g., “How different is your group from other groups at work?”). Once participants completed each of the measures relating to the work domain, participants were asked to think about a meaningful group outside of work of which they are a part (e.g. a family group, church group, sports group, etc.) then answer questions relating to that non-work group (e.g., “How different is your group from other groups outside of work?”). While each of variables are measured with a unique scale, they are assessing a very similar construct. Theoretically, an individual’s belongingness or distinctiveness at work is also represented by their overall belongingness/distinctiveness. This means that the overlapping nature of the constructs means that these constructs may not be sufficiently theoretically independent despite being measured with distinct items. Consequently, each of the significant moderating effects using should be interpreted cautiously.

Because of the similarity of the measures and items among the moderators and independent variables it is possible that the results are confounded. Although there is some factor-analytic evidence that the items measuring the moderating constructs of individual distinctiveness at work, individual distinctiveness outside of work, and independent variable of

distinctiveness satisfaction are distinct (see Table 2), it is possible that the moderators and independent variables are confounded with one another as a result of their construct overlap. Thus, the analyses conducted in this dissertation are potentially using a theoretically overlapping portion of the independent construct as a simultaneous moderating variable. This limitation severely limits the interpretation of the results due to the potential theoretical confounding.

Additionally, construct validity is also a limitation as the variables of group distinctiveness at work, group distinctiveness outside of work, group belongingness at work, group belongingness outside of work, individual distinctiveness at work, and individual distinctiveness outside of work used only three items each (Sheldon & Bettencourt, 2002). This is problematic as it may not fully capture the scope of the constructs. Reliabilities for each of the measures ranged from $\alpha = .75 - .96$ somewhat mitigates this concern. However, the original three item scales (i.e. group belongingness, group distinctiveness, individual distinctiveness) included a generic referent at the end of each scale item (e.g. “How much do you feel you stand out within *‘this group’*?”) (Sheldon & Bettencourt, 2002). This generic referent was replaced with “at work” and “outside of work” to create each of the six scales. This approach has been used when creating items for work-family conflict scales (see: Carlson, Kacmar, Williams, 2000; Nettemeyer, Boles, McMurrian, 1996). However, in the case of the work-family conflict measures, the scales also include slightly different items between work and family domains. This is important in that a simple referent shift does not fully capture the same concept in different domains. As a result, these measures may not exhaustively capture the full nature of the construct in each domain. Additional research should can focus on validation of these constructs. This would help to ensure that the items used to measure the constructs fully capture all aspects.

A related measurement issue with this dissertation is the lack of discriminant validity of the dependent variables. Each of the dependent variables (affective job satisfaction, affective commitment, cognitive job satisfaction, continuance commitment) have been validated in previous studies. A four-factor CFA indicted sup-par fit despite fitting better than a single and dual factor models. While a four-factor model is the best fit, the objectively sub-par fit (TLI = .73; CFI = .75; RMSEA = .087; SRMR = .099) suggests that the dependent variables may not be sufficiently distinct from one-another. This lack of discriminant validity may be the result of common method bias or simply that the dependent variables are measuring the same or similar constructs. This is a significant limitation of the study that calls into question the findings. Because of the lack of strong support for a four factor CFA model for each of the dependent variables, this study is unable to provide strong support for differences among each outcome. Future research should address this issue and potentially refine the measures for affective and cognitive job attitudes.

Design. This study is limited due to the cross-sectional, single source, single method nature of the design. The lack of multi-source, and time-separated data raises the possibility of common method bias. There is some debate as to the actual effects of common method bias. Some well-respected researchers have called common method bias “an exaggeration and oversimplification” of the issue resulting in an “urban legend” (Spector, 2006, p 230). Yet, others note that common method bias ‘is often a problem and researchers need to do whatever they can to control for it’ (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003, p. 900). Still other researchers argue that the effect of common method bias exists but the effect differs depending on the nature of the “rater, item, construct, and/or context” (Richardson, Simmering, Sturman, 2009, p 766). Regardless of the exact nature of common method bias, scholars have suggested

testing for the existence of common method bias using post-hoc tests (Fuller, Simmering, Atinc, Atinc, & Babin, 2015; Podsakoff, MacKenzie, Podsakoff, 2012; Podsakoff et al., 2003)

Podsakoff and colleagues provide recommendations for the most appropriate use of post-hoc analyses to detect common method bias depending on the nature of the data (2003). When the predictor and criterion variables cannot be obtained from different sources or measured in different contexts and the source of the method bias cannot be identified or validly measured, the Harman single-factor test is the most appropriate (Podsakoff et al., 2003; Fuller, 2015). Given the personal and psychological nature of the constructs in this study, it difficult to collect data using a source other than the focal participants. Additionally, the present study did not collect data in different contexts or include a specific marker variable to assist in determining the source of common method bias. Consequently, I conducted a Harman single-factor test to evaluate potential effects of common method bias per the recommendation of Podsakoff et al. (2003).

The Harman single-factor test conducts an EFA that includes all focal variables and forces them to load on a single factor (Podsakoff & Organ 1986). If the resulting structure indicates that a single factor accounts for a large portion of the variance, typically 50% or greater, common method bias may be strongly affecting the results (Podsakoff et al. 2003; Podsakoff & Organ, 1986). All of variables, except those used as controls, were included in an EFA using principal axis factoring and forced to load on a single factor per the recommended procedure (Podsakoff et al. 2003). Results indicated a single factor structure accounts for 22% of the overall variance (see Table 70). Although 22% percent is a large portion of variance, it falls below the generally accepted threshold of 50% suggesting that common method bias is not a significant threat (Fuller, 2015). To be clear, this does not rule out the possibility that common

method bias is present in this study. Rather, this simply suggests that the effect of common method bias may not be exceedingly strong.

Table 70. Results of the Harman Single-Factor EFA test

Factor	Initial Eigenvalues			Extraction of Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.734	26.67	26.673	3.064	21.888	21.888
2	2.247	16.05	42.721			
3	1.377	9.836	52.557			
4	1.098	7.841	60.398			
5	1.007	7.19	67.588			
6	0.759	5.423	73.011			
7	0.725	5.179	78.19			
8	0.695	4.961	83.151			
9	0.531	3.796	86.946			
10	0.47	3.358	90.304			
11	0.416	2.969	93.274			
12	0.361	2.581	95.854			
13	0.304	2.169	98.023			
14	0.277	1.977	100			

Extraction Method: Principal Axis Factoring.

If common method bias is indeed strong in the present study, despite the indication from the Harman single-factor test, this would strengthen the confidence in the significance of the interaction effects. The presence of common method bias indicates that the relationship between variables is due to the presence of some common factor and has the impact artificially inflating the relationship (Podsakoff et al., 2003). However, common method bias cannot fully account for interaction effects (Fuller, 2015; Siemsen, Roth, & Olivera, 2010; Spector, 2006). Research published in *Organizational Research Methods* notes that “empirical researchers should not be criticized for common method bias if the main purpose of their study is to establish interaction effects” as the presence of common method bias will only attenuate the observed strength of the

moderation effects (Siemsen et al., 2010). Consequently, the potential presence of common method bias is a limitation on the findings for main effects but provides more confidence in the presence of interaction effects. Despite this fact, future research can offset the potential effects of common method bias by separating constructs in time.

Sample. This study is further limited by the sample. Although the sample is normally distributed with regard to age, gender, and salary, all participants were drawn from the alumni base of a single university. It is possible that the shared experience of attending the same university biases the results and does not accurately reflect the larger population of working adults. By gathering additional data from other universities and other settings (e.g., diverse work organizations), the results would be more generalizable, increasing external validity. Future research should seek to validate the results of this study across multiple, diverse samples.

Additionally, the response rate of the sample was low. This presents an additional significant limitation to this study. Only 336 individuals out of the overall recipients (9720) completed the entire survey. It is possible that there is some systematic bias in the response and non-response patterns of survey recipients. For example, because the survey was completed online, more technologically savvy individuals may have chosen to complete the survey. This could introduce bias and affect the results as technologically savvy individuals may be more likely to be connected to others through electronic media which would provide a more meaningful group against which to evaluate the satisfaction of their psychological needs. Ideally, analysis would have been conducted to evaluate, at the very least, demographic similarities and differences across the respondents and non-respondents. Unfortunately, information about non-respondents was unavailable. However, the gender breakdown of the sample mirrored the historical population of the university. Future research could address this issue by collecting data

using both electronic and paper survey formats. Additionally, future research should explore ways to increase participation rates such as offering additional incentives for completion and sending multiple reminders.

Alternate Explanations. Overall, this study does not provide strong causal inference. It is possible that alternative explanatory variables are the cause of the significant relationships. There are a number of additional personality and trait variables that could be causing the relationships. Specifically, this study did not collect data related to participants personalities. Personality traits, such as extraversion/introversion, may provide greater explanatory power than the satisfaction of psychological needs. The limited scope of variables gathered severely limit the value of this study's results. Future research should empirically test the likely presence of alternative explanatory variables.

Future research should look to improve on some of the weaknesses of the present study. Additional studies should look to validating these findings using improved measures while gathering data from multiple sources. Additionally, future studies should move beyond job attitudes and include behavioral outcomes. The present body of literature would benefit from either laboratory or field experiments aimed at improving need satisfaction across both source and domain. The rise of the 'gig economy' is an emergent contextual factor likely to affect an organization's ability to satisfy the psychological needs of employees. The 'gig economy' is comprised of mostly short-term freelance workers often employed as independent contractors (e.g., Cook, 2015; Kessler, 2014; Scheiber, 2014; Warner, 2015). Future research should look into ways the changing nature of the relationship between organizations and employees in the 'gig economy' affects psychological need satisfaction. With a work relationship that is more focused on short term economic exchanges there are likely to be differences in individual's

seeking need satisfaction from their employer. This could signal a potential shift in the employer-employee relationship back to a greater reliance on organizations similar to the Hershey corporation example above and/or a continual decrease in the expectation of employees looking to their employer for psychological need satisfaction.

This dissertation draws upon the notion that psychological needs satisfaction may be an important antecedent of affective and cognitive job attitudes. Further, this study explores the moderating effects of the source and domain in which the needs for belongingness are satisfied and evaluates the important contextual effects of virtuality. Results from this study suggest that belongingness and distinctiveness satisfaction are indeed, important predictors of affective and cognitive aspects of job satisfaction and commitment. Additionally, findings from this study suggest that the relationship between needs satisfaction and job attitudes is affected by both the source and domain in which needs are satisfied but in ways that were not anticipated. Further, while the effect of worker virtuality on these relationships was not as predicted, analyses suggest that virtuality has a more nuanced effect on specific aspects of the hypothesized relationships. Taken as a whole, results from this study have important theoretical implications and suggest future research is needed to fully explore the nuanced effects of domain, source, and virtuality on the relationship between psychological needs satisfaction and job attitudes.

Conclusion

The satisfaction of psychological needs is a complex process that involves both the source and domain in which needs are satisfied. Job attitudes seem to be an important outcome of psychological need satisfaction. However, we should not expect the satisfaction of psychological needs from a single source or domain to produce a positive linear relationship with job attitudes. Psychological need satisfaction should be seen as a condition for optimal employee

functioning. In light of the limitations of this study that call into question the deductive results, there may be a benefit to taking an inductive approach to the data. Research in the broad field of organizational behavior have largely operated from a functionalist perspective relying on a primarily deductive approach (Gioia, & Pitre, 1990). This has resulted in the development of important theoretical and practical insights and continues to be the dominant paradigm in organizational research for good reason. However, others have called for the inclusion of more inductive approaches to theory building (Locke, 2007).

There are many influential theories that have been developed from an inductive approach. Two of these theories relevant to the broad management and organizational behavior literature are Social-Cognitive theory (Bandura, 1986; 1997) and Goal Setting theory (Locke & Latham, 1990; 2005). Both of these theories began with observation followed by empirical testing of the assumptions. The following chapter attempts to redeem some theoretical value from the data collected as a part of this dissertation. As a result the next chapter tries to provide an incremental insight into the relationship among psychological needs strength, psychological needs satisfaction, and the attitudes of commitment and job satisfaction.

CHAPTER SIX: INDUCTIVE THEORY BUILDING

Introduction

All jobs present demands on employees. Whether it is facing a tight deadline, dealing with a frustrating coworker, or monotonous work, these demands can lead to lack of engagement and burnout (Bakker & Demerouti, 2007). However, employees can utilize both work and personal resources to help cope with these demands. The Job-Demands Resource (JDR) model has been particularly useful to scholars seeking to understand the direct and indirect effects of both demands and resources on job attitudes (Bakker, Hakanen, Demerouti, & Xanthopoulou, 2007; Bakker & Demerouti, 2007; Demerouti, Bakker, Nachreiner, & Shaufli, 2001; Hakanen, Bakker, & Demerouti, 2005). However, despite an important theoretical role for *personal demands and personal resources* in the JDR, research to date has focused on the effects of *job-related demands and resources*. Thus, key tenets of JDR remain untested. This is surprising given personal needs (i.e., demands) for such things as belongingness and distinctiveness and the satisfaction of these needs (i.e., resources) play such a pivotal role in understanding a person's well-being (Baumeister & Leary, 1995; Lynn & Harris, 1997; Snyder & Fromkin, 1980), and consequently, likely have an effect on people's attitudes. The purpose of this chapter is to argue for the importance of personal demands and resources in understanding job attitudes. More specifically, this study examines the interactive effects of psychological need satisfaction (i.e., conceptualized as a personal resource) and psychological need strength (i.e., conceptualized as a personal demand) on job attitudes (i.e., job satisfaction and organizational commitment).

The JDR framework separates job characteristics into two categories: demands and resources, which can be derived from the job or the person (Bakker & Demerouti, 2001; 2017). Job demands (e.g., high-pressure situations, workload, dangerous workplace) are considered

stressors and are associated with undesirable work outcomes (e.g. low motivation, burnout, and health concerns) when an employee lacks the resources needed to meet the demands (Bakker & Demerouti, 2007). Job resources (e.g., supervisor support, schedule control, workload control) are beneficial to employees as they can mitigate the effects of job demands (Bakker & Demerouti, 2007).

Additionally, the JDR proposes that *personal* resources and demands also have direct and interactive effects on job attitudes (Bakker & Demerouti, 2001; 2017). Personal resources are defined as “aspects of the self that are generally linked to resiliency and refer to an individuals’ sense of their ability to control and impact their environment successfully” (Xanthopoulou et al., 2007 p. 124). Personal demands are defined as “the requirements that individuals set for their own performance and behavior that force them to invest effort in their work and are therefore associated with physical and psychological costs” (Barbier, Hansez, Chmiel, & Demerouti, 2013, p. 751). I argue that psychological needs of belongingness and distinctiveness should be viewed as personal demands, and the satisfaction of these needs should be viewed as personal resources.

Understanding the role of both the need for and satisfaction of belongingness and distinctiveness as personal demands and resources is an important contribution of this study. The original concept of the JDR noted that autonomy and relatedness operate as job specific resources (Bakker & Demerouti, 2001; 2017). Autonomy and relatedness are important job related needs that can be satisfied by supervisor or organizational characteristics such as social support, control over working hours, etc. The need for belongingness and distinctiveness represent important personal demands that may be satisfied at work or outside of work. This suggests that individuals may be able to generate personal resources from interactions both at work and outside of work that contribute to their commitment and satisfaction. This is important

as the JDR has focused on resources influenced primarily by the organization or supervisor. The present study extends the literature by considering the effects of the personal demands of belongingness and distinctiveness need strength and the resources of belongingness and distinctiveness satisfaction within the JDR framework.

The need for belongingness is defined as “the need to maintain or enhance feelings of closeness to, or acceptance by, other people” (Vignoles et al. 2008, p. 479). (Bakker & Demerouti, 2007; 2017). The need for distinctiveness is defined as meaningful, personally ascribed differentiation from others (Lynn & Harris, 1997; Snyder & Fromkin, 1980). Both of these needs represent personal demands, and as I will argue, satisfaction of these needs represent personal resources.

Satisfaction of a need can act as a *personal resource*, whereas the strength of the need can act as a *personal demand*. Analogically, a sapling has a need for water as a basic nutriment. The sapling puts energy into growing its roots to satisfy this need. As the need is satisfied, the sapling shifts its effort into growing leaves to capture a different resource, the sun’s rays. When a psychological need is satisfied an individual is able to invest in the acquisition of other needs (Hobfoll, 2002). This is consistent with the JDR definition of a personal need that once satisfied fosters one’s ability to act upon their environment (Baker & Demerouti, 2017); thus, the satisfaction of a need becomes a resource. Extending the analog, different types of saplings will have different requirements for water. A Joshua tree growing in the desert will need less water than an oak tree. When psychological needs are not satisfied it creates a dysphoric state (Deci & Ryan, 2000; Holt-Lunstad, Smith, & Layton, 2010). This is consistent with the JDR definition of a personal demand as the dysphoric state is associated with psychological costs and drives effort toward finding a remedy (Bakker & Demerouti, 2001; 2017). For example, Verhagen et al. found

that psychological need strength for belongingness is an important predictor of depression and self-esteem (Verhagen, Lodder, Baumeister, 2018). Because the need for belongingness and distinctiveness differ in strength between individuals (Baumeister & Leary, 1995), it is important to consider both the strength and satisfaction of the needs for belongingness and distinctiveness as individual constructs.

In the present study this is manifest in two personal demand constructs and two personal resource constructs, each with unique hypothesized effects: Demands include belongingness need strength (BNStr) and distinctiveness need strength (DNStr); Resources include satisfaction of the need for belongingness (SatNB), satisfaction of the need for distinctiveness (SatND). Separating the belongingness and distinctiveness by strength and satisfaction is important in the context of the JDR as the strength of the need is likely to operate as a demand and the satisfaction of the need is likely to operate as a resource. Figure 24 provides a graphical depiction of the overall model.

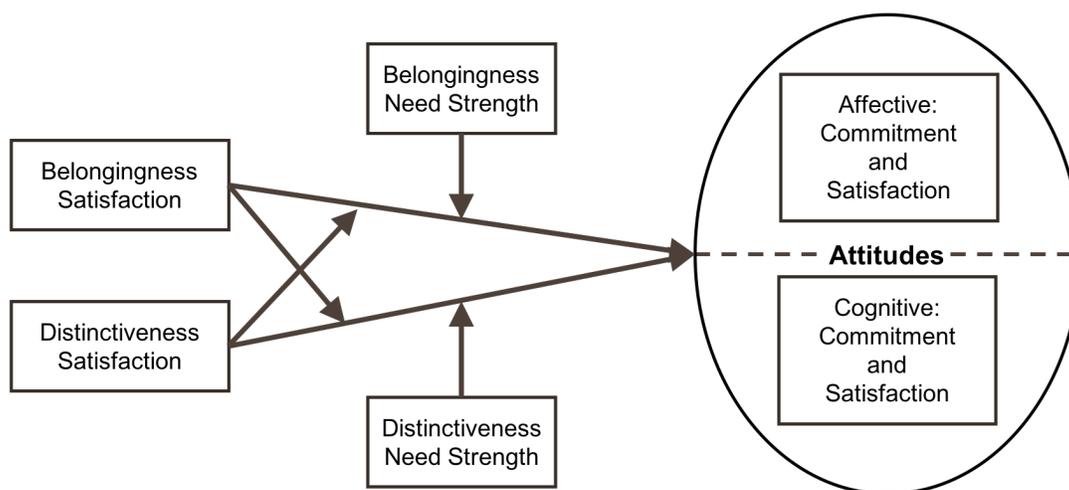


Figure 24. Overall Theoretical Model for Inductive Theory Building

Overall, this study contributes to the literature on the JDR by 1) integrating and evaluating psychological need satisfaction as a potentially important personal resource, 2)

empirically testing the moderating effects of the personal demands of psychological need strength and 3) evaluating how high satisfaction of one psychological need compensates for low satisfaction of another need. To be clear, this study considers psychological need strength and satisfaction as related but distinct constructs. Need strength and need satisfaction are measured independently from each other. Need strength is conceptualized as a personal demand. Need satisfaction is conceptualized as a personal resource.

Hypothesis Development

Belonginess and Distinctiveness

Scholars have long been fascinated with identifying basic psychological needs (e.g., Murray, 1938; Maslow, 1943, Sheldon, Elliott, Kim, & Kasser, 2001). As noted earlier psychological needs are critical for an individual's continued "growth, integrity, and well-being" (p 229, Deci & Ryan, 2000). Although, the study of psychological needs largely fell out of favor when empirical research failed to confirm a needs hierarchy as famously proposed by Abraham Maslow (Wahbah & Bridwell, 1976; Sheldon & Bettencourt, 2002). More recently, however, scholars have again called on the psychological need constructs as a valuable way to understand human behavior (e.g. Brewer, 1991; Baumeister & Leary, 1995; Antonides, 2015; Sheldon et al., 2001; Ryan & Deci, 2017). This is not surprising as psychological needs are useful predictors of behavior and attitudes (Baard, Deci, & Ryan, 2004; Sheldon & Elliott, 1999; Baumeister & Leary, 1995).

The need for belongingness addresses the affective bond and connection one has with others and can occur within and across domains (Baumeister & Leary, 1995). Distinctiveness refers to one's need to differentiate from others and can also be satisfied across domains (Vignoles et al. 2006). These needs are important for three reasons. First, both of these needs are

not bound to a single domain. This means that they are present at work and outside of work. Consequently, the satisfaction of these needs may be satisfied within and across life domains (Baumeister & Leary, 1995; Snyder & Fromkin, 1985). This is important from the perspective of the JDR in that the need (i.e. demand) is personal rather than exclusively work related. As noted earlier this represents an important extension of the JDR beyond job demands.

Second, belongingness and distinctiveness satisfaction, irrespective of the domain, initiate a cognitive and affective process resulting in a positive self-concept (Avey, Luthans, Youssef, 2010). An increasingly satisfied need for distinctiveness or belongingness should result in a more crystalized sense of self. As one's self-concept improves, so should their resiliency, generating a belief that one can control and impact their environment. This an important hallmark of a personal resource (Xanthopoulos et al., 2007. p 124).

Third, once the need for belongingness and distinctiveness are understood, organizations can create targeted ways to improve the satisfaction of these needs. Because belongingness and distinctiveness are related to ones' overall self-concept, an organization could develop ways to improve specific attitudes much the same way that targeting the organic needs of plants can improve thriving (Deci & Ryan 2000; Deci, Olafsen, & Ryan, 2017; Jungert, Van den Broeck, Schruers, Osterman, 2018; Sheldon, Elliot, Kim & Kasser, 2001; Van den Broeck et al., 2016;). For example, an organization might sponsor a softball team to provide ways to satisfy the need for belongingness. Ultimately, these needs are present to some degree across the entire population and the satisfaction of these needs can be specifically targeted.

Additionally, psychological needs are global constructs in that they may be satisfied in a wide variety of domains. More specifically, the need for belongingness may be satisfied as a result of one's relationships with their family while the need for distinctiveness may be satisfied

as a result of one's differentiation from others at work. This is important as it draws on a long history of cross domain enrichment theories. Specifically, Greenhaus and Powell note that experiences at work and home can beneficially impact one another (2008). For example, one study found that positive events the non-work domain had a beneficial impact in the work domain (Ilies, Keeney, Scott, 2011). Further, because life domains are not independent (e.g. Baumann, & Wilson, 2014; Ilies, Wilson, Wagner, 2009; Wilson & Baumann, 2015) understanding the role of psychological needs strength and satisfaction within the framework of the JDR is important in that it offers a further point of integration with the work/non-work literature. Thus, I focus on the needs of belongingness and distinctiveness.

Need Satisfaction and Need Strength

I conceptualize psychological needs as the personal equivalent of job demands. Baumeister and Leary note that a psychological need will “have affective consequences, direct cognitive processing, affect behaviors and produce adverse impacts if not satisfied” (1995). The JDR notes that job resources and demands combine to trigger two separate psychological processes: a motivational process and a health impairment process (e.g. burnout) that each in turn affects behaviors (Albrecht 2008; Bakker & Demerouti, 2001; 2007; 2017). These processes operate simultaneously and are identical to the processes stemming from psychological needs in two ways. First, the JDR notes that a job demand is motivational in that, the strength of the demand generates affective responses (van Den Broeck & De Cuyper, 2010). More specifically, the JDR theorizes that an unsatisfied need results in a health impairment process (Bakker & Demerouti, 2001). For example, Crawford, Lepine, and Rich found through a meta-analysis that satisfied job demands are associated with lower levels of burnout (2010). Additionally, Schaufli, Bakker, and Van Rhenen found that increased job demands are associated with higher levels of

burnout for telecom manager (2009). This process is identical to that which occurs when a psychological need is not satisfied. In fact, previous research has shown that psychological need satisfaction is associated with lower levels of burnout from athletes (Curran, Appleton, Hill, & Hall, 2013; Hodge, Longsdale, & Ng, 2008) to office workers (Hakanan, Schaufli, Ahola, 2008; van Den Broeck et al., 2008), to teachers (Skaalvik & Skaalvik, 2010). Second, job demands from a JDR perspective direct cognitive processing. Van de Ven, Vlerick, and de Jong found that job demands are associated with lower levels of cognitive well-being (2008). This provides evidence for the link between job demands and the cognitive processing that occurs when demands are not satisfied. Specifically, this suggests that job demands activate a cognitive process that affects well-being. This process is mirrored by psychological needs. Psychological needs and job demands are so similar in fact that Salanova, Peiró, and Schaufli conceptualized that the psychological need of self-efficacy as an explicit job demand and found that it is similarly associated with cognitive attitudes (2002). This provides further evidence that psychological needs are most appropriately conceptualized as a demand.

While a psychological need operates similarly to a demand, I conceptualize the satisfaction of a psychological need as a resource. The JDR notes that a job resource buffers the effects of job demands (Bakker & Demerouti, 2001). Psychological need satisfaction is conceptualized as the personal equivalent of job resources. In fact, in a study looking specifically at the role of psychological needs within the JDR, Van den Broeck and colleagues found that psychological need satisfaction fully accounted for the relationship between job resources and exhaustion (2008). This suggests that, while psychological need satisfaction is a distinct concept from job resources, it operates on the same underlying psychological mechanisms. Another study by De Cooman and colleagues found that high levels of psychological need satisfaction are

associated with high levels of autonomous motivation and effort (2013). This mirrors the motivational and behavioral outcomes associated with job resources. This is important in that it demonstrates that psychological need satisfaction and job resources operate on the basis of the same underlying psychological processes. Consequently, as other scholars have noted, it is important to consider psychological needs strength and satisfaction as important personal demands and resources within the context of the JDR (Van den Broeck et al., 2008).

It is important to look at the discrete effects of resources and demands from the perspective of the JDR. The strength of a given need is likely to operate as an important personal demand within the context of the JDR. Past research has traditionally viewed psychological need strength as the importance people place on fulfilling a need (e.g. Chen et al., 2014; Heine et al. 1999; Schwartz & Bardi 2001). The pain and discomfort (e.g. depressive symptoms; Holt-Lunstad et al., 2010) associated with increasing need strength drives effort to satisfy the need in some way (Breakwell, 2015; Van den Broeck et al. 2017). The satisfaction of these needs likely impact both affective and cognitive components of job attitudes (Van den Broeck et al, 2017). This is in line with the JDR concept of demands, as Bakker and Demerouti note, “demands basically cost effort and consume energetic resources” (2014). As the strength of a need increases, it creates an increasing demand on the individual to seek out ways to satisfy the need³. Consequently, this study considers psychological need strength as an important personal demand in line with the JDR.

³ The specific behaviors in which an individual may engage to satisfy a need is outside the scope of this study. However, other scholars have noted that individuals will frequently change a referent other to which they make comparisons (e.g. Breakwell, 2015), or modify their behavior (Branscome, Ellemers, Spears, & Doosje, 1999).

The satisfaction of these needs (i.e., demands) is conceptualized here as a “resource”. Personal resources are an important but understudied aspect of the JDR and these resources enable one to exert control over his or her environment (Bakker & Demerouti, 2017; Hobfoll, Johnson, Ennis, & Jackson, 2003). From this perspective, other scholars have conceptualized personal resources as inclusive of psychological need satisfaction within the JDR framework (Xanthopoulou et al., 2013; Bakker & Sanz-Vergel, 2013). Deci and Ryan note that the satisfaction of psychological needs is “essential for ongoing psychological growth, integrity, and well-being” (2000, p. 229). As psychological needs are increasingly satisfied, an individual experiences increased motivation providing the individual the ability to exert control over their environment (Deci, Olafsen, & Ryan, 2017; Deci & Ryan, 2001; Ryan & Deci, 2017). The effect of personal resources has a similar positive effect to job resources on attitudes (Xanthopoulou, Bakker, Fischbac, 2013; Van den Broeck et al., 2008).

The JDR makes it clear that resources can be personal or job related (Barbier et al. 2012; Lorente Prieto et al. 2008; Xanthopoulou et al. 2007). Personal resources are aspects of an individual that foster a sense of resiliency and personal control (Xanthopoulou et al., 2007). Both SatNB and SatND operate as personal resources in that they initiate affective and cognitive processes and provide individuals with a greater sense of psychological connectedness and autonomy. As noted earlier, the satisfaction of psychological needs for belongingness and distinctiveness are basic nutriments that allow “thriving” (Deci & Ryan, 2000). Thus, as these needs are increasingly satisfied, they should generate an increased sense of one’s ability to control their environment. This, in turn, should have a positive impact on both affective and cognitive dimensions of job satisfaction and commitment.

The relationship of need satisfaction and job attitudes is likely to be stronger (i.e., more positive) when demands are high, as is the case when needs are strong. As with stressors which provide hindrance or a challenge (Tadic, Bakker, Oerlemans, 2015), job and personal demands are not necessarily detrimental (Bakker & Demerouti, 2017; Van Den Broeck, Vansteenkiste, De Witte, & Lens, 2008). Demands are only predicted to have negative consequences when an individual lacks the resources to meet these demands (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001; Bakker & Demerouti, 2017; Tadic et al. 2015; Van Den Broeck et al. 2008). For example, Tadic et al. found that hindrance job demands are negatively related to well-being and that job resources mitigate (i.e., buffer) this relationship; conversely they found that challenge demands are positively related to well-being and that job resources boost this relationship (2015). This suggests that the unique combination of demands and resources are likely to differentially predict various work related attitudinal outcomes.

In this study I propose that the unique combination of need strength and need satisfaction result in a boosting effect on job satisfaction and commitment under certain conditions. The boosting hypothesis proposed by the JDR builds on the notion that resources are important irrespective of the demands faced by individual employees and that these resources are more salient when faced with high demands (Bakker & Demerouti, 2017; Hobfoll, 2002). Previous research has provided evidence for the boosting effect (e.g. Tadic et al. 2015). In addition to the boosting effects found by Tadic et al. (2015), Bakker et al. found that the job resource of autonomy was more strongly related to organizational commitment when workload and emotional demands were high (vs. low) (2010). An additional example is research by Kühnel, Sonnentag, and Bledow showing that the condition of higher job control (resource) moderated

the relationship between time pressure and engagement such that the positive relationship was boosted (2012).

While each of these studies have provided evidence for the potential boosting effects of job resources in the face of job demands on attitudinal outcomes, none of these studies have addressed the role of personal resources and personal demands. This is surprising as resources and demands in one domain have the potential to positively and negatively affect outcomes in another domain. For example, Wayne, Casper, Matthews, and Allen (2013) found that individuals who perceived greater levels of the job resource of support at work had lower levels of work–family conflict, which resulted in higher levels of organizational commitment. More recently, Leavitt, Barnes, Watkins, and Wagner (2019) found that engaging in sex at home positively predicts job satisfaction and work engagement suggesting that satisfaction of belongingness impacts outcomes in the work domain. The present study seeks to provide new insight into the potential boosting effects of personal resources in the face of personal demands. As noted previously, the JDR specifically theorizes the importance of personal demands and resources (Bakker & Demerouti 2017; Demerouti et al. 2001). In fact, JDR theorists have recently called for research to address the role both personal demands and personal resources play in the JDR (Bakker & Demerouti, 2017).

Not all job demands are negatively related to attitudinal outcomes. For example, challenge stressors are positively related to job outcomes while hindrance stressors are negatively related to job outcomes such as engagement and burnout (Cavanaugh, Boswell, Roehling, & Boudreau, 2000; Lepine, Podsakoff, Lepine, 2005; Tadic, Bakker, Oerlemans, 2015). This is important as it indicates that the exact nature of the relationship between demands and attitudes depends on the nature of the demand. In fact, past JDR research has provided

evidence that job resources boost the positive relationship between challenge stressors and work engagement, and that job resources buffer the relationship between hindrance stressors and engagement (Tadic et al. 2015). However, the nature of personal demands and particularly needs strength may not be as straightforward.

The need for belongingness and the need for distinctiveness are personal demands that have the potential to influence the attitudes of job satisfaction and commitment. Conversely, the satisfaction of these needs operates as a resource that is positively related to the attitudes of job satisfaction and commitment. The unique combination of these personal demand and personal resources is likely to result in a boosting effect similar to those hypothesized by Bakker et al. (2010), Kühnel et al. (2012), and Tadic et al. (2015). However, the nature of relationship differs somewhat from the traditional boost hypotheses.

The satisfaction of a psychological need will theoretically always be associated with positive outcomes (Deci & Ryan, 2000). However, the relationship between the personal demand of need strength and attitudes is not as easily categorized as positively or negatively valenced as with the challenge/hindrance model. More specifically, the nature of the relationship between personal demands of need strength is likely to shift as a function of the satisfaction of the need. In other words, when needs are high and satisfaction is low, an individual should theoretically lack the resource needed to meet this demand creating discomfort and leaves the individual focused on satisfying the need rather than impacting their environment. Conversely, when a psychological need is high, and satisfaction of that need is high an individual has the exact resource to address the need. Based on the JDR logic, this should result in an improved self-concept and a belief that one can positively impact their environment (Bakker & Demerouti, 2001; 2017).

Because of the interconnected relationship between the demands and resources of psychological needs, it is more appropriate to view the personal demand of psychological need strength as a moderator of the relationship between need satisfaction and attitudinal outcomes rather than the traditional “boost & buffer” hypotheses that position the demand as the independent variable (Figures 25 - 26). Thus, the personal resource of need satisfaction is hypothesized to moderate the relationship between the personal demand of need strength and both job satisfaction and commitment (Figures 25 – 26).

H1: BNStr moderates the positive relationship between SatNB and a) affective job satisfaction, b) cognitive job satisfaction, c) affective commitment and d) continuance commitment. Specifically, the relationship between SatNB and a) affective job satisfaction, b) cognitive job satisfaction, c) affective commitment and d) continuance commitment is stronger for individuals with high (vs. low) levels of BNStr.

H2: DNStr moderates the relationship between SatND and a) affective job satisfaction, b) cognitive job satisfaction, c) affective commitment and d) continuance commitment. Specifically, the relationship between SatND and a) affective job satisfaction, b) cognitive job satisfaction, c) affective commitment and d) continuance commitment is stronger for individuals with high (vs. low) levels of DNStr.

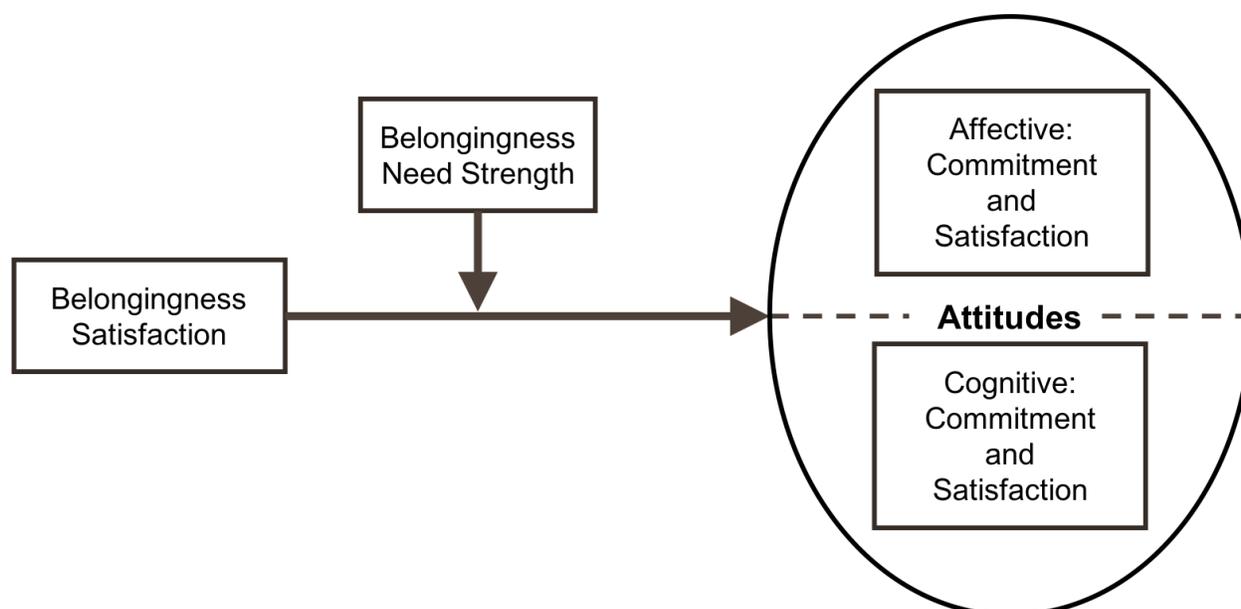


Figure 25. Hypothesized Interaction of BNStr and SatNB on Job Attitudes

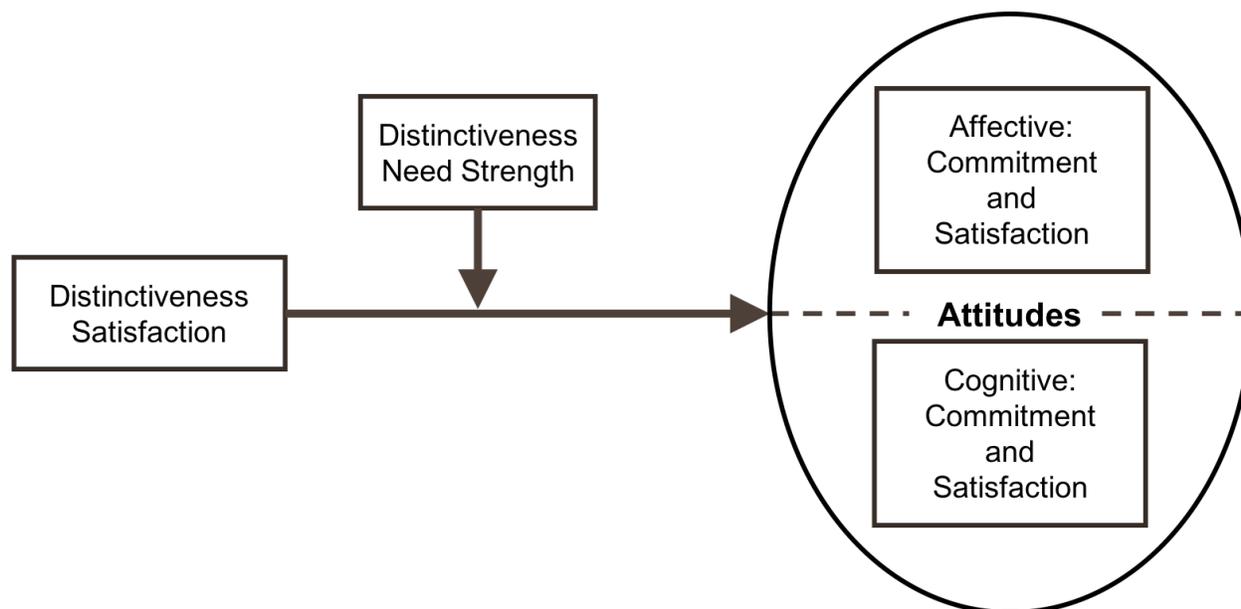


Figure 26. Hypothesized Interaction of DNStr and SatND on Job Attitudes

Compensating Effects of Psychological Need Satisfaction

One concern with the boost hypotheses within the JDR framework is that they do not adequately address the compensating role of additional resources. The JDR framework partially addresses this concern by the general “buffering” hypothesis. The JDR buffer hypothesis notes that certain job demands are negatively related to attitudinal and motivational outcomes and that the presence of certain resources can reduce this negative relationship (Bakker & Demerouti, 2017; Tadic et al. 2014). However, not all demands are negatively related to attitudinal and motivational outcomes. For example, challenge stressors present positively valenced demands whereas hindrance stressors present negatively valenced demands (Albrecht, 2015; Podsakoff, Lepine & Lepine, 2007; Van den Broeck & De Cuyper, 2010). It is not theorized that personal demands are inherently negatively or positively related to motivational and attitudinal outcomes (Bakker & Demerouti, 2017; Xanthopoulou et al., 2007). Given the individual nature of psychological need strength, it is possible that need strength may be positively valenced for some

individuals where other individuals experience the personal demand of need strength as negatively valanced. In the present study, given the multitude of competing factors, I do not hypothesize a main directional effect of psychological need strength on commitment and satisfaction.

If personal demands are not negatively related to motivational and attitudinal outcomes, personal resources will have nothing to buffer. However, a basic tenet of the JDR is that resources are positively associated with beneficial outcomes. As no studies have considered the personal resources of SatNB and SatND, it is important to understand the way in which these two resources may interact and compensate for one another. Consequently, I offer an extension to JDR, by proposing a compensatory effect of need satisfaction wherein I predict that the satisfaction of one need can offset or compensate for an unsatisfied need. I turn the focus to developing a compensating hypothesis.

Psychological needs theories note that individuals are driven to satisfy both the need for belongingness and distinctiveness (Baumeister & Leary, 1995; Deci & Ryan, 2000; Leary et al. 2005, 2013; Snyder & Fromkin, 1980). As noted earlier, individuals differ with regard to the strength of the need for belongingness and distinctiveness. As the strength of a need increases, it follows necessarily, that the personal demand one experiences becomes stronger.

The satisfaction of the need itself is considered a personal resource from a JDR perspective. As I have argued, the satisfaction of a need will operate as a personal resource. This is particularly important when SatNB is high and SatND is low or SatND is low and SatNB is high. An individual may feel a great deal of connection with others at work while at the same time feeling very little distinction from their colleagues. For example, an employee in a factory setting may be connected to their colleagues and have a great deal of belongingness. That

employee may work on a factory line and do the same exact job functions as many of their colleagues resulting in a very low level of distinctiveness. Alternatively, an individual working in an office setting, such as a graphic designer could feel very disconnected from their colleagues and have very little SatNB. At the same time, that individual may be the only graphic designer in their organization and have a high degree of SatND.

Previous scholars have demonstrated that the particular balance of need satisfaction is a potentially important consideration (Dysvik, Kuvaas, Gagne, 2013; Milyavskaya et al. 2009; Sheldon & Niemiec, 2006). Balance refers to an equivalent degree of need satisfaction for two or more needs. This research has largely considered the imbalance of psychological needs (i.e. (when one need is high and another need is low) as a focal predictor of various outcomes without addressing the direction of imbalance. However, it may be more instructive to look at the specific combination of need satisfaction. Previous research suggests that in the absence of a specific resource, individuals will rely on another resource to compensate for the deficiency (Hobfoll, Freedy, Lane & Geller 1990). For example, consider a blind individual, the lack of the resource of sight induces greater reliance on sound. The same is likely to be true of psychological needs. When the satisfaction of one need is low, a high degree of need satisfaction for a different need will likely have compensatory effects. From the perspective of the JDR, the presence of one personal resource should compensate for the lack of a different personal resource while controlling for the need strength (see Figure 27).

H3: Satisfaction of the need for distinctiveness compensates for a low level of belongingness satisfaction such that the relationship between satisfaction of the need for distinctiveness and a) affective job satisfaction and b) affective commitment is strongest for individuals with low (vs. high) levels of satisfaction of the need for belongingness.

H4: Satisfaction of the need for belongingness compensates for the low level of distinctiveness satisfaction such that the relationship between satisfaction of the need for

belongingness and a) cognitive job satisfaction and b) cognitive commitment is strongest for individuals with low (vs. high) levels of satisfaction of the need for distinctiveness.

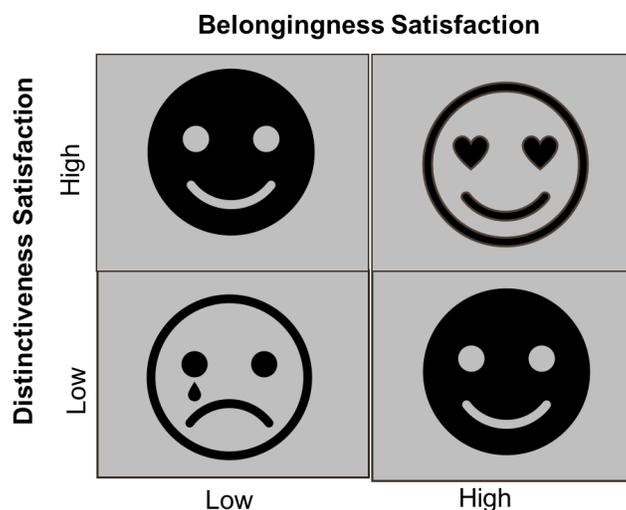


Figure 27. Hypothesized Interaction of SatND and SatNB on Job Attitudes

Methods and Results

In this section I provide an explanation of the methods and results used to evaluate the hypotheses.

Sample & Measures

The sample and variables used to evaluate the hypotheses presented in Chapter 6 are the same as those used in the previous study. As a brief summary, data were collected from a survey of alumni through the year of 2017 from a regional college in the mid-Atlantic United States. Overall 472 (19% response rate) completed at least a portion of the survey and 336 (13% response rate) completed the entire survey. The average respondent was employed (84%) married (68%) females (67%) between 35 and 44 years old with average salary between \$60,000 - \$70,000 per year.

Belongingness need strength was measured using a previously validated scale (sample items: *I have a strong need to belong, I need to feel that there are people I can turn to in times of need*) (Leary, Kelly, Cottrell, & Schreindorfer, 2005). Distinctiveness need strength was measured using a measure from Lynn & Harris (sample items: *I have a need for uniqueness; Being distinctive is important to me*) (1995). Belongingness satisfaction was measured the general belongingness scale (sample items: *I am satisfied with my overall sense of belonging; I am satisfied with how connected I feel to other people in my life*) (Malone et al., 2012). Distinctiveness satisfaction was measured using scale from Simcek and Yalencetin (sample items: *Overall in my life I am satisfied with how unique I feel; I am satisfied with how distinct I am from other people in my life*) (2010).

Dependent variables were similarly measured using previously validated scales. Affective job satisfaction and cognitive job satisfaction was measured using scale from Schleicher et al. (sample items: affective - *I feel that I am happier in my work than most people; cognitive - I am satisfied with my pay and the amount of work I do*) (2004). Affective commitment and continuance commitment were measured using a scale from Allen & Meyer (sample items: affective – *This organization has a great deal of personal meaning for me; continuance – It would be very hard for me to leave my organization right now, even if I wanted to*) (1990). Alphas for all measures ranged from .80 (continuance commitment) and .93 (affective job satisfaction). A correlation table for all variables used in this study can be found in Table 72. Please see Chapter Four and Appendix A for more detailed information regarding the measures.

To verify the nature of the independent variables I conducted a series of four confirmatory factor analyses (CFA) to ensure that a four factor model (BNStr, DNStr, SatNB, SatND) best fit the data. I fit the models using lavaan version 0.5-23 (Rosseel, 2012) in R version

3.3.1 using maximum likelihood estimation, with full information maximum likelihood for the missing data. The latent factors were standardized. The first model evaluated a single factor structure collapsing all indicators across each of the four independent variables. The second model collapsed indicators into need satisfaction and need strength factors. Satisfaction indicators included each item for SatND and SatNB; Need strength indicators included each item for DNStr and BNStr. The third model collapsed indicators into belongingness and distinctiveness factors. Belongingness indicators included each item for SatNB and BNStr; distinctiveness indicators included each item for SatND and DNStr. The final CFA model I tested was a full four factor model. The model fit was poor for each of the first three models. However, the full four factor model was a significant improvement over the three other models and provided a good fit to the data. Additionally, the lack of overlapping 90% confidence intervals for the four factor model and each of the other models provides additional evidence that the four factor structure is the most appropriate measurement model for the data. For a comparison of the model fit statistics see Table 71.

Table 71. Summary CFA Fit Statistics

Model	χ^2	<i>df</i>	RMSEA 90% CI		SRMR	CFI	TLI
			LL	UL			
Single factor	3530.65***	299.00	0.16	0.17	0.16	0.40	0.35
Satisfaction vs. Strength	2716.05***	298.00	0.14	0.15	0.13	0.55	0.51
Belongingness vs. Distinctiveness	2580.65***	298.00	0.13	0.14	0.15	0.58	0.54
Four Factor Model	918.69***	293.00	0.07	0.08	0.07	0.88	0.87

*Note. *** $p < .001$.

Table 72. Correlation Table for Chapter 6 Theory Building

Variables	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Belongingness Need Strength	3.31	0.63	1												
2. Belongingness Satisfaction	4.15	0.72	-0.086	1											
3. Distinctiveness Need Strength	2.55	0.76	-0.047	-.030	1										
4. Distinctiveness Satisfaction	4.12	0.67	-.167**	.496**	.254**	1									
5. Affective Job Satisfaction	3.87	0.83	-.126**	.339**	-.134	.276**	1								
6. Affective Commitment	3.98	1.17	.000	.306**	-.082	.272**	.691**	1							
7. Cognitive Job Satisfaction	3.91	0.78	.002	.295**	-.188**	.216**	.700**	.655**	1						
8. Continuance Commitment	3.16	0.9	.047	-.147**	.115*	-.043	-.187**	-.088	-.136*	1					
9. Gender	1.67	0.48	.281**	.008	-.059	.023	-.103	-.108*	-.105	.070	1				
10. Age	3.90	1.3	-.254**	.073	-.127*	-.017	.208**	.230**	.077	.025	-.182**	1			
11. Education Level	5.54	0.66	-.030	.142**	.020	.091	.143**	.154**	.157**	.062	-.100	.181**	1		
12. Family Status	2.43	0.933	-.084	.090	-.120*	-.018	.169**	.141**	.103	-.043	-.186**	.339**	.128*	1	
13. Weekly work hours	42.57	12.08	-.097	.057	.095	.083	.002	.086	-.012	.087	-.165**	.040	.255*	-.130*	1
14. Salary	6.37	2.89	-.273**	.120*	-.071	.095	.159**	.192**	.226**	-.030	-.397**	.276**	.241**	.119*	.342**

Note. N ranges from 337-340. ** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed).

Results

The analytic technique used to evaluate these hypotheses is consistent with the approach used for the moderation hypotheses described in Chapter Four. To test each hypothesis I ran hierarchical regression. The tables below reflect the full model, plus report the R^2 change of adding interaction terms in final step. Hypothesis one predicted that the relationship between SatNB with a) affective job satisfaction, b) cognitive job satisfaction, c) affective commitment and d) continuance commitment is strongest for individuals with high (vs. low) BNStr. Results indicated that BNStr does not moderate the relationship between SatNB and affective job satisfaction ($R^2 = .00$, $F(1,317)=1.35$, $p = .25$), cognitive job satisfaction ($R^2 = .00$, $F(1,317)=.28$, $p = .60$) or affective commitment ($R^2 = .00$, $F(1,317)=.98$, $p = .32$). However, results indicated a significant moderation effect of BNStr between SatNB and continuance commitment ($R^2 = .03$, $F(1,316)=8.76$, $p < .01$). Probed results indicated that the effect of belongingness satisfaction on continuance commitment was significant at average to low BNStr (Figure 28). Despite the significant moderation the direction of the effect was not as predicted. Overall, hypothesis one was not supported. Full results for hypothesis one are provided in Tables 73 – 76.

Table 73. Regression Results for the Interaction of SatNB and BNStr on Affective Job Satisfaction.

Predictor	B	SE B	95% CI	
SatNB	0.29***	0.07	0.16	0.42
BNStr	0.04	0.07	-0.10	0.17
SatNB X BNStr	0.09	0.07	-0.06	0.23
Gender	-0.13	0.10	-0.32	0.06
Age	0.08*	0.04	0.01	0.15
Education Level	0.10	0.07	0.00	0.23
Family Status	0.05	0.05	-0.04	0.15
Working hours	0.00	0.01	-0.01	0.01
Salary	0.01	0.02	-0.03	0.04
SatND	0.29***	0.08	0.14	0.44
DNStr	-0.17**	0.05	-0.27	-0.06
Model	<i>R</i>	<i>Change in R²</i>		<i>F(df)</i>
Entire model	0.50	0.25		9.67(11,317)***
SatNB X BNStr	--	0.00		1.35(1,317)

Note. ^a $p \leq .10$; * $p < .05$; ** $p < .01$; *** $p < .001$; SatNB = Belongingness Satisfaction; SatND = Distinctiveness Satisfaction; DNStr= Distinctiveness Need Strength; BNStr = Belongingness Need Strength; N=328.

Table 74. Regression Results for the Interaction of SatNB and BNStr on Cognitive Job Satisfaction.

Predictor	B	SE B	95% CI	
SatNB	0.25***	0.06	0.13	0.38
BNStr	0.15*	0.06	0.02	0.27
SatNB X BNStr	-0.04	0.07	-0.18	0.10
Gender	-0.15	0.09	-0.33	0.04
Age	0.00	0.03	-0.07	0.07
Education Level	0.12 ^a	0.06	-0.00	0.24
Family Status	-0.01	0.05	-0.10	0.08
Working hours	-0.01*	0.00	-0.02	-0.01
Salary	0.05**	0.02	0.02	0.08
SatND	0.26***	0.07	0.12	0.40
DNStr	-0.20***	0.05	-0.30	-0.09
Model	<i>R</i>	<i>Change in R²</i>		<i>F(df)</i>
Entire model	0.49	0.24		9.32(11,317)***
SatNB X BNStr	--	0.00		.28(1,317)

Note. ^a $p \leq .10$; * $p < .05$; ** $p < .01$; *** $p < .001$; SatNB = Belongingness Satisfaction; SatND = Distinctiveness Satisfaction; DNStr= Distinctiveness Need Strength; BNStr = Belongingness Need Strength; N=328.

Table 75. Regression Results for the Interaction of SatNB and BNStr on Affective Commitment.

Predictor	B	SE B	95% CI	
SatNB	0.28*	0.10	0.10	0.47
BNStr	0.30**	0.10	0.11	0.49
SatNB X BNStr	0.11	0.11	-0.11	0.32
Gender	-0.20	0.14	-0.48	0.08
Age	0.18***	0.05	0.08	0.29
Education Level	0.13	0.10	-0.06	0.32
Family Status	0.04	0.07	-0.10	0.18
Working hours	0.01	0.01	-0.01	0.02
Salary	0.03	0.02	-0.02	0.08
SatND	0.42***	0.11	0.20	0.63
DNStr	-0.15 ^a	0.08	-0.31	0.00
Model	<i>R</i>	<i>Change in R²</i>		<i>F(df)</i>
Entire model	0.4721	0.22		8.26(11,317)***
SatNB X BNStr	--	0.00		.98(1,317)

Note. ^a $p \leq .10$; * $p < .05$; ** $p < .01$; *** $p < .001$; SatNB = Belongingness Satisfaction; SatND = Distinctiveness Satisfaction; DNStr= Distinctiveness Need Strength; BNStr = Belongingness Need Strength; N=328.

Table 76. Regression Results for the Interaction of SatNB and BNStr on Continuance Commitment.

Predictor	B	SE B	95% CI	
SatNB	-0.22**	0.0804	-0.38	-0.06
BNStr	0.02	0.0813	-0.14	0.18
SatNB X BNStr	0.27**	0.0909	0.09	0.45
Gender	0.17	0.1195	-0.06	0.41
Age	0.05	0.0448	-0.04	0.14
Education Level	0.11	0.0803	-0.05	0.27
Family Status	0.02	0.059	-0.10	0.14
Working hours	0.01	0.0062	0.00	0.02
Salary	-0.01	0.0209	-0.05	0.03
SatND	-0.03	0.0912	-0.21	0.15
DNStr	0.11	0.0656	-0.01	0.24
Model	<i>R</i>	<i>Change in R²</i>	<i>F(df)</i>	
Entire model	0.28	0.08	2.43(11,316)**	
SatNB X BNStr	--	0.03	8.76(1,316)**	

Note. ^a p<=.10; *p < .05; **p < .01; ***p < .001; SatNB = Belongingness Satisfaction; SatND = Distinctiveness Satisfaction; DNStr= Distinctiveness Need Strength; BNStr = Belongingness Need Strength; N=327.

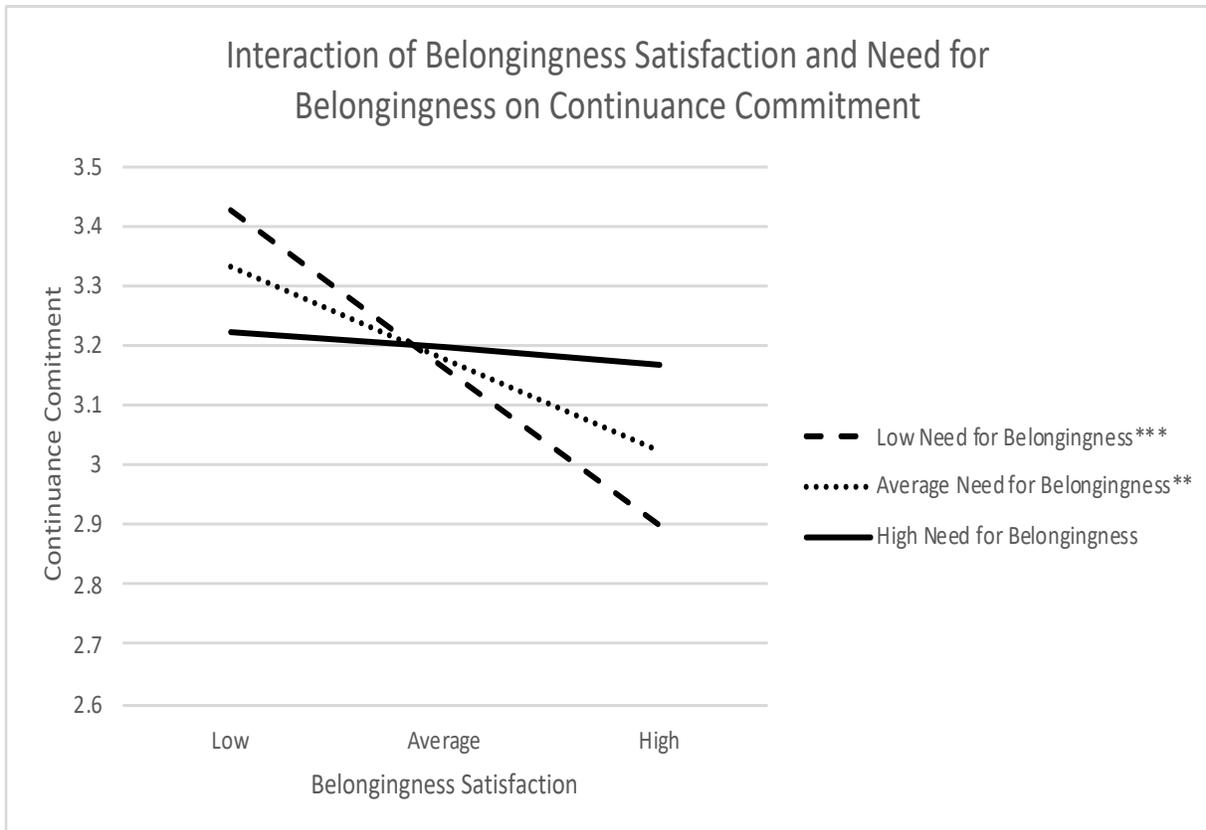


Figure 28. Interaction of SatNB and BNStr on Continuance Commitment

Hypothesis two predicted similarly that the relationship between SatND with a) affective job satisfaction, b) cognitive job satisfaction, c) affective commitment and d) continuance commitment is strongest for individuals with high (vs. low) DNStr. There was no significant moderating effect for affective job satisfaction ($R^2 = .00$, $F(1,317)=1.79$, $p = .18$) (Table 77). Results indicated that DNStr has a marginally significant moderation effect on the relationship between SatND and cognitive job satisfaction ($R^2 = .01$, $F(1,316)=2.81$, $p < .1$) (Table 78). Results for this interaction were probed and found that the effect of SatND was significant and positive at low, average, and high levels of DNStr (Figure 29). Further analysis revealed that despite the significant moderation effect, the 95% confidence intervals for SatND overlapped at high and low levels of DNStr. This suggests that while there is a significant interaction effect, the

effect SatND on cognitive job satisfaction is likely only meaningfully distinct between those with the very highest and very lowest levels of DNStr. Overall, this provides partial support for hypothesis two b.

Table 77. Regression Results for the Interaction of SatND and DNStr on Affective Job Satisfaction

Predictor	B	SE B	95% CI	
SatND	0.32***	0.08	0.17	0.47
DNStr	-0.18**	0.05	-0.29	-0.07
SatND X DNStr	0.11	0.08	-0.05	0.27
Gender	-0.13	0.10	-0.32	0.07
Age	0.08*	0.04	0.01	0.15
Education Level	0.10	0.07	-0.03	0.23
Family Status	0.04	0.05	-0.05	0.14
Working hours	0.00	0.01	-0.01	0.01
Salary	0.01	0.02	-0.03	0.04
SatND	0.29***	0.07	0.16	0.42
DNStr	0.03	0.067	-0.10	0.17
Model	<i>R</i>	<i>Change in R²</i>		<i>F(df)</i>
Entire model	0.50	0.25		9.73(11,317) ***
SatND X DNStr	--	0.00		1.79(1,317)

Note. ^a $p \leq .10$; * $p < .05$; ** $p < .01$; *** $p < .001$; SatNB = Belongingness Satisfaction; SatND = Distinctiveness Satisfaction; DNStr= Distinctiveness Need Strength; BNStr = Belongingness Need Strength; N=328.

Table 78. Regression Results for the Interaction of SatND and DNStr on Cognitive Job Satisfaction.

Predictor	B	SE B	95% CI	
SatND	0.29***	0.07	0.15	0.43
DNStr	-0.21***	0.05	-0.32	-0.11
SatND X DNStr	0.13 ^a	0.08	-0.02	0.28
Gender	-0.15	0.09	-0.33	0.04
Age	0.00	0.03	-0.07	0.06
Education Level	0.13*	0.06	0.01	0.25
Family Status	-0.01	0.05	-0.10	0.08
Working hours	-0.01*	0.00	-0.02	0.00
Salary	0.05**	0.02	0.02	0.08
SatND	0.24***	0.06	0.11	0.36
DNStr	0.15*	0.06	0.03	0.28
Model	<i>R</i>	<i>Change in R²</i>		<i>F(df)</i>
Entire model	0.50	0.25		9.62(11,317)***
SatND X DNStr	--	0.01		2.81(1,316) ^a

Note. ^a $p \leq .10$; * $p < .05$; ** $p < .01$; *** $p < .001$; SatNB = Belongingness Satisfaction; SatND = Distinctiveness Satisfaction; DNStr= Distinctiveness Need Strength; BNStr = Belongingness Need Strength; N=328.

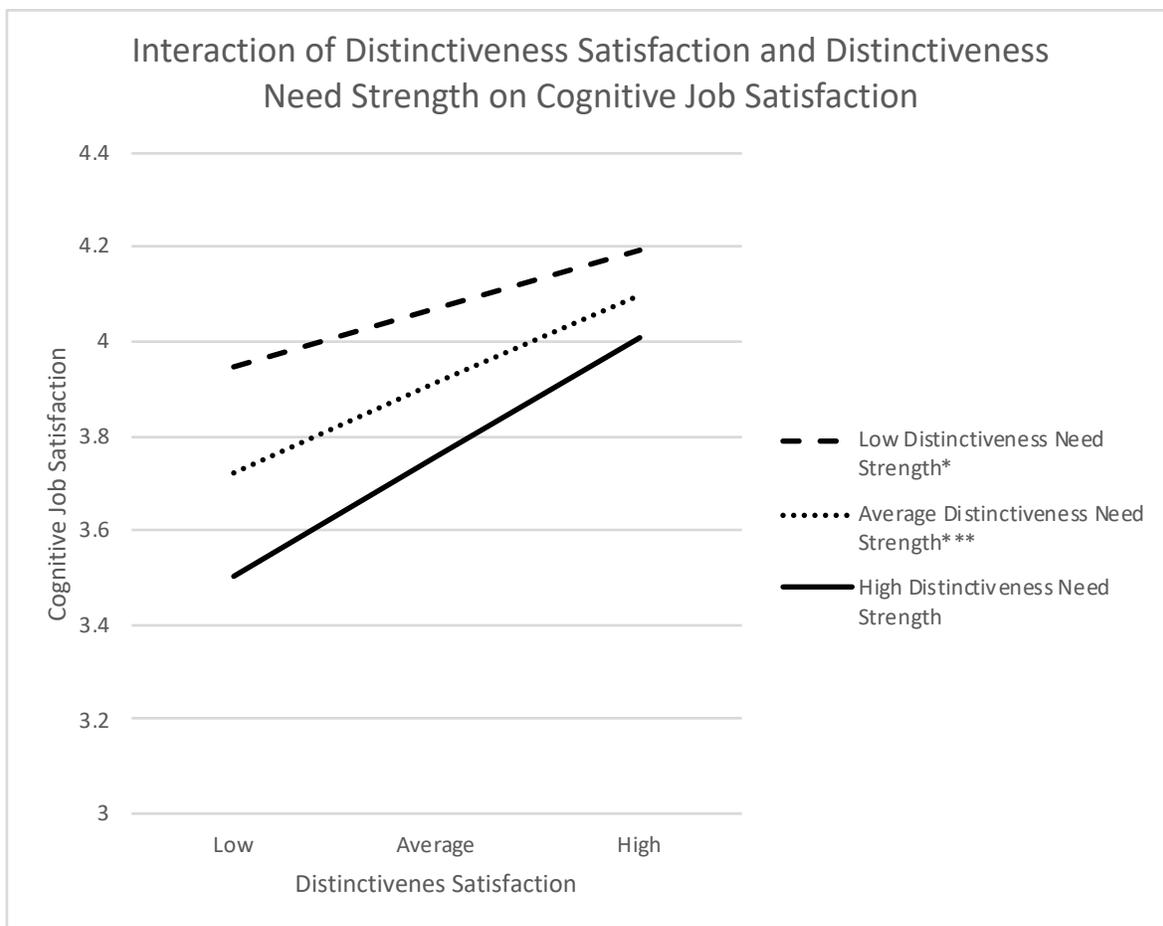


Figure 29. Interaction of SatND and DNStr on Cognitive Job Satisfaction.

Results also indicated a significant interaction effect between DNStr and SatND on affective job satisfaction ($R^2 = .01$, $F(1,316)=3.91$, $p < .05$) (Table 79). Probing these results found that the moderation effect was significant, however overlapping confidence intervals suggest that meaningful differences are likely only evident at very high and very low levels of DNStr (see Figure 30). Overall this provides partial support for two c. Further analysis indicated no significant moderation effect of DNStr on the relationship between SatND and continuance commitment ($R^2 = .00$, $F(1,316)=.390$, $p = .37$) (Table 80). This does not provide support for hypothesis two d.

Table 79. Regression Results for the Interaction of SatND and DNStr on Affective Commitment.

Predictor	B	SE B	95% CI	
SatND	0.47***	0.11	0.25	0.69
DNStr	-0.18*	0.08	-0.34	-0.03
SatND X DNStr	0.23***	0.12	0.00	0.46
Gender	-0.20	0.14	-0.47	0.08
Age	0.18***	0.05	0.07	0.28
Education Level	0.13	0.09	-0.06	0.31
Family Status	0.03	0.07	-0.11	0.17
Working hours	0.01	0.01	-0.01	0.020
Salary	0.03	0.02	-0.02	0.075
SatND	0.28**	0.10	0.09	0.46
DNStr	0.30**	0.10	0.11	0.49
Model	<i>R</i>	<i>Change in R²</i>	<i>F(df)</i>	
Entire model	0.48	0.23	8.60(11,317)***	
SatND X DNStr	--	0.01	3.91(1,316)*	

Note. ^a p<=.10; *p < .05; **p < .01; ***p < .001; SatNB = Belongingness Satisfaction; SatND = Distinctiveness Satisfaction; DNStr= Distinctiveness Need Strength; BNStr = Belongingness Need Strength; N=328.

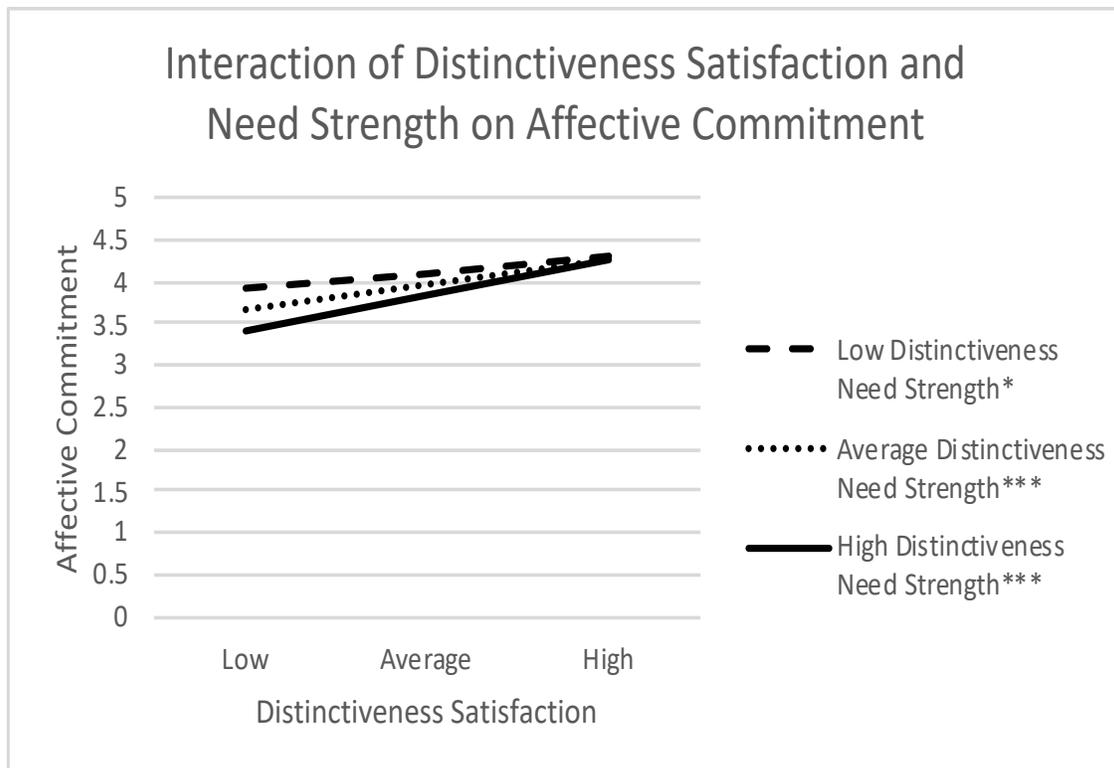


Figure 30. Interaction of SatND and DNStr on Affective Commitment.

Table 80. Regression Results for the Interaction of SatND and DNStr on Continuance Commitment.

Predictor	B	SE B	95% CI	
SatND	-0.0	0.09	-0.23	0.14
DNStr	0.13 ^a	0.07	0.00	0.27
SatND X DNStr	-0.09	0.10	-0.28	0.11
Gender	0.17	0.12	-0.07	0.41
Age	0.06	0.05	-0.03	0.15
Education Level	0.08	0.08	-0.08	0.24
Family Status	0.00	0.06	-0.12	0.11
Working hours	0.01	0.01	0.00	0.02
Salary	-0.01	0.02	-0.05	0.03
SatND	-0.18 [*]	0.08	-0.34	-0.02
DNStr	0.01	0.08	-0.15	0.17
Model	<i>R</i>	<i>Change in R²</i>	<i>F(df)</i>	
Entire model	0.23	0.05	1.67(11,316) ^a	
SatND X DNStr	--	0.00	.37(1,316)	

Note. ^a $p \leq .10$; * $p < .05$; ** $p < .01$; *** $p < .001$; SatNB = Belongingness Satisfaction; SatND = Distinctiveness Satisfaction; DNStr= Distinctiveness Need Strength; BNStr = Belongingness Need Strength; N=328.

Hypothesis three predicted that SatND compensates for a low level of SatNB on a) affective job satisfaction and b) affective commitment. Results indicated a significant interaction effect between SatND and SatNB on both affective job satisfaction ($R^2 = .04$, $F(1,317)=16.45$, $p < .001$) and affective commitment ($R^2 = .02$, $F(1,317)=7.66$, $p < .01$) (Table 81 – 82). Probing these results found that the effect of SatND was positive and significant at high, but not low, levels of SatNB for both affective job satisfaction and affective commitment (see Figures 31 -

32). This suggests that SatND compensates for low levels of SatNB on affective job satisfaction and commitment providing support for hypothesis three.

Table 81. Regression Results for the Interaction of SatNB and SatND on Affective Job Satisfaction.

Predictor	B	SE B	95% CI	
SatNB	0.21**	0.07	0.08	0.34
SatND	0.27***	0.07	0.13	0.42
SatNB X SatND	-0.27***	0.07	-0.41	-0.14
Gender	-0.12	0.10	-0.31	0.06
Age	0.08*	0.04	0.01	0.15
Education Level	0.11	0.06	-0.02	0.23
Family Status	0.05	0.05	-0.04	0.14
Working hours	0.00	0.01	-0.01	0.01
Salary	0.00	0.02	-0.03	0.04
DNStr	0.04	0.07	-0.09	0.17
BNStr	-0.17**	0.05	-0.27	-0.07
Model	<i>R</i>	<i>Change in R²</i>		<i>F(df)</i>
Entire model	0.53	0.29		11.50 (11, 317)***
SatNB X SatND	--	0.04		16.45(1, 318)*

Note. ^a p<=.10; *p < .05; **p < .01; ***p < .001; SatNB = Belongingness Satisfaction; SatND = Distinctiveness Satisfaction; DNStr= Distinctiveness Need Strength; BNStr = Belongingness Need Strength; N=328.

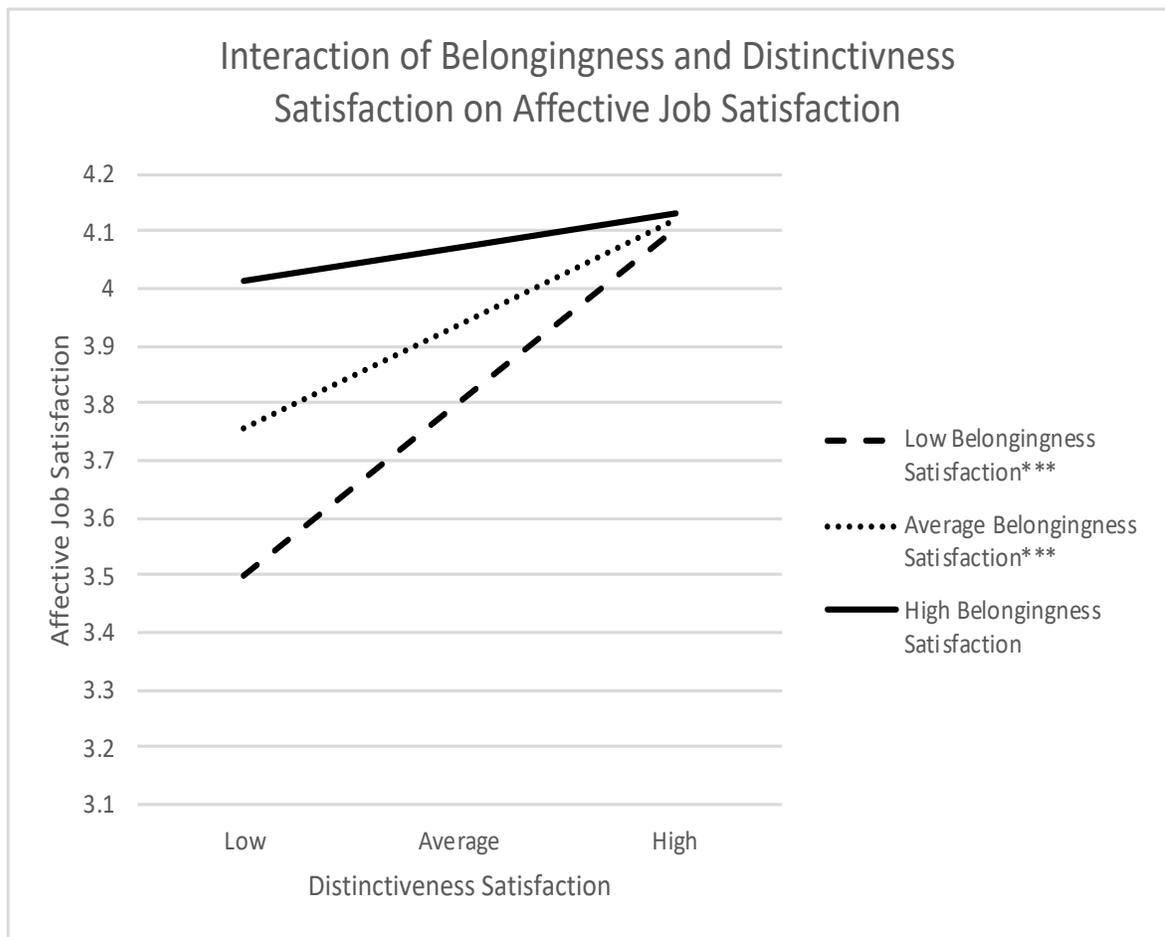


Figure 31. Interaction of SatNB and SatND on Affective Job Satisfaction.

Table 82. Regression Results for the Interaction of SatNB and SatND on Affective Commitment.

Predictor	B	SE B	95% CI	
SatNB	0.21*	0.10	0.01	0.40
SatND	0.40***	0.11	0.19	0.61
SatNB X SatND	-0.27**	0.10	-0.47	-0.08
Gender	-0.20	0.14	-0.47	0.08
Age	0.18***	0.05	0.07	0.28
Education Level	0.13	0.09	-0.05	0.31
Family Status	0.04	0.07	-0.10	0.17
Working hours	0.01	0.01	-0.01	0.02
Salary	0.02	0.02	-0.03	0.07
DNStr	0.30**	0.10	0.11	0.49
BNStr	-0.16*	0.08	-0.31	0.00
Model	<i>R</i>	<i>Change in R²</i>	<i>F(df)</i>	
Entire model	0.49	0.24	9.04(11,317)***	
SatNB X SatND	--	0.02	7.67(1,317)**	

Note. ^a p<=.10; *p < .05; **p < .01; ***p < .001; SatNB = Belongingness Satisfaction; SatND = Distinctiveness Satisfaction; DNStr= Distinctiveness Need Strength; BNStr = Belongingness Need Strength; N=328.

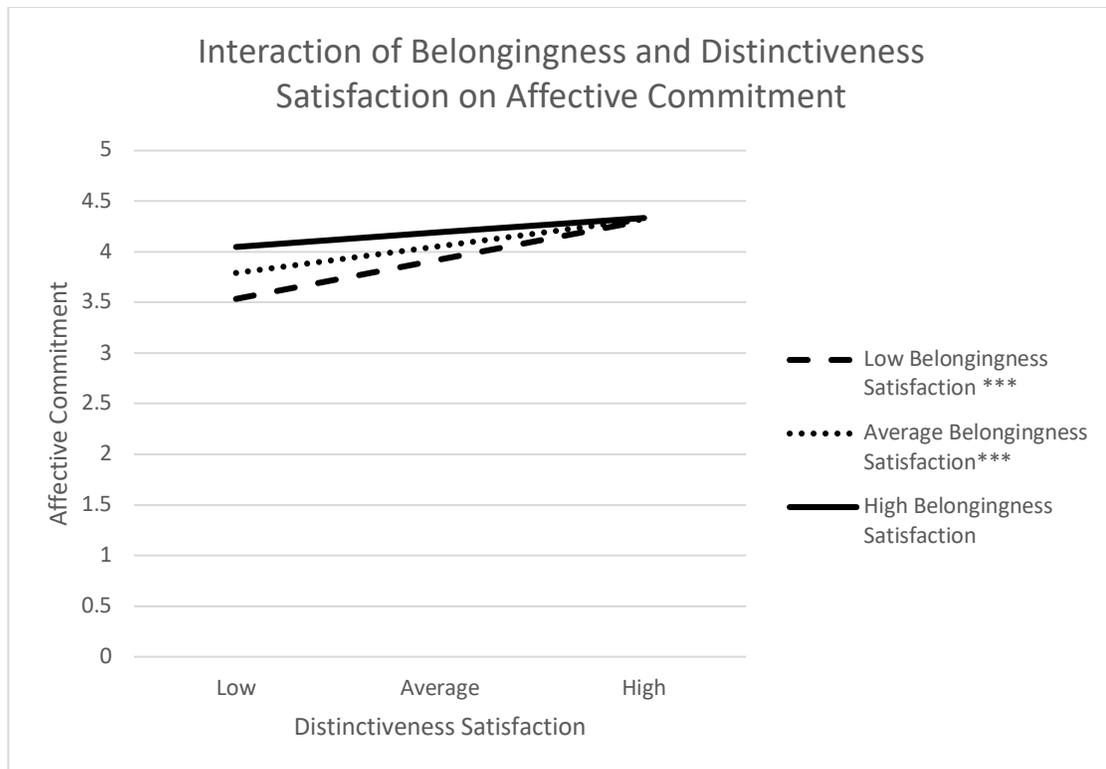


Figure 32. Interaction of SatNB and SatND on Affective Commitment

Hypothesis four predicted that SatNB compensates for low levels of SatND on a) cognitive job satisfaction and b) continuance commitment. Results were significant for interaction effects between SatNB and SatND on cognitive job satisfaction ($R^2 = .01$, $F(1,317)=4.63$, $p < .05$) (Table 83). Probing these results showed that the effect of SatNB on cognitive job satisfaction was positive and significant at low (but not high) levels of SatND (Figure 33). Results also indicated a marginally significant interaction between SatNB and SatND on continuance commitment ($R^2 = .01$, $F(1,316)=2.75$, $p < .10$) (Table 84). However, probing this result found that the effect of SatNB was significant and negative at high levels of SatND but not significant at low levels of SatND (Figure 34). Both the direction and moderating effect were not as expected. Overall results provide partial support for hypothesis four.

Table 83. Regression Results for the Interaction of SatNB and SatND on Cognitive Job Satisfaction.

Predictor	B	SE B	95% CI	
SatNB	0.20**	0.07	0.07	0.33
SatND	0.25***	0.07	0.11	0.39
SatNB X SatND	-0.14*	0.07	-0.27	-0.01
Gender	-0.15	0.09	-0.33	0.04
Age	0.00	0.03	-0.07	0.06
Education Level	0.13*	0.06	0.01	0.25
Family Status	0.00	0.05	-0.09	0.09
Working hours	-0.01*	0.00	-0.02	0.00
Salary	0.05**	0.02	0.02	0.08
DNStr	0.15*	0.06	0.03	0.28
BNStr	-0.20***	0.05	-0.30	-0.10
Model	<i>R</i>	<i>Change in R²</i>		<i>F(df)</i>
Entire model	0.50	0.25		9.84 (11, 317)***
SatNB X SatND	--	0.01		4.63(1,317)**

Note. ^a $p \leq .10$; * $p < .05$; ** $p < .01$; *** $p < .001$; SatNB = Belongingness Satisfaction; SatND = Distinctiveness Satisfaction; DNStr= Distinctiveness Need Strength; BNStr = Belongingness Need Strength; N=328.

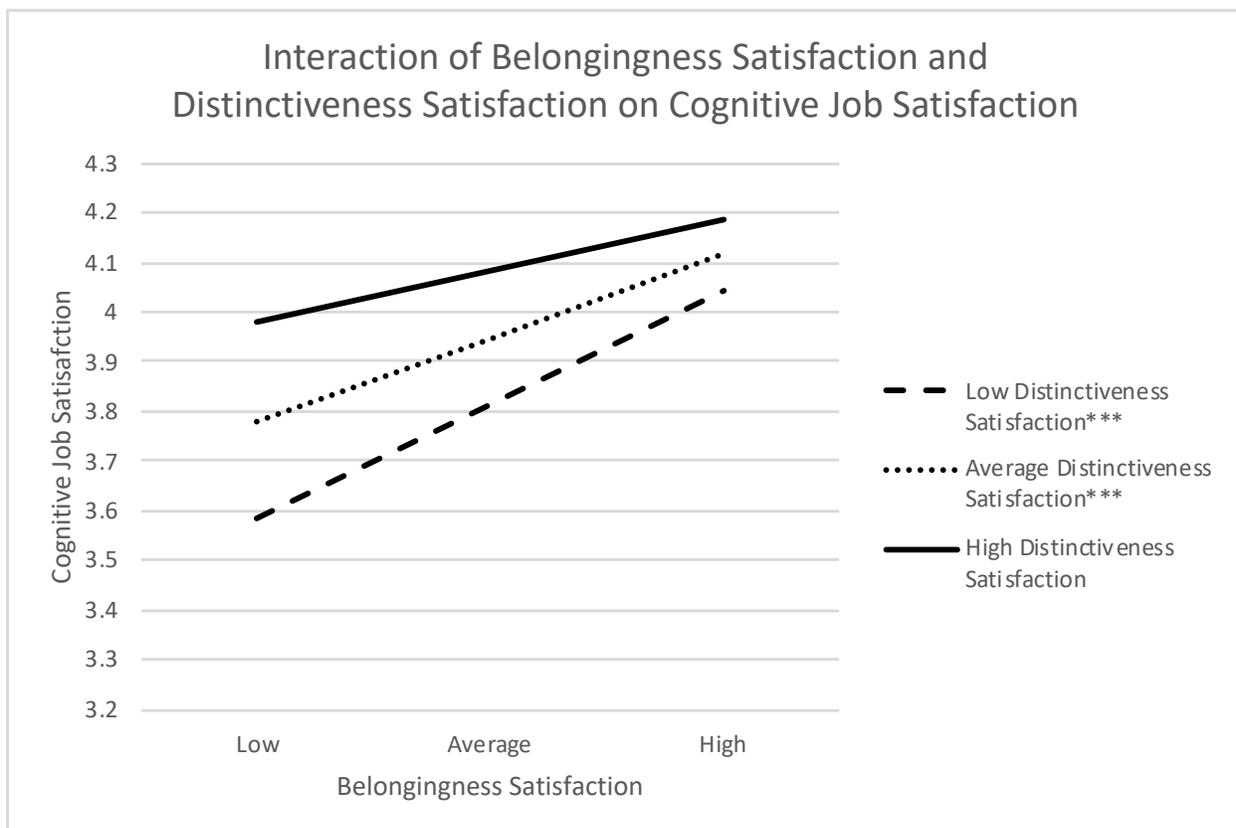


Figure 33. Interaction of Belongingness Satisfaction and Distinctiveness Satisfaction on Cognitive Job Satisfaction.

Table 84. Regression Results for the Interaction of Belongingness Satisfaction and Distinctiveness Satisfaction on Continuance Commitment.

Predictor	B	SE B	95% CI	
SatNB	-0.24**	0.09	-0.40	-0.07
SatND	-0.03	0.09	-0.22	0.15
SatNB X SatND	-0.14 ^a	0.09	-0.31	0.03
Gender	0.17	0.12	-0.06	0.41
Age	0.05	0.05	-0.03	0.14
Education Level	0.09	0.08	-0.07	0.25
Family Status	0.00	0.06	-0.11	0.12
Working hours	0.01	0.01	0.00	0.02
Salary	-0.01	0.02	-0.05	0.03
DNStr	0.02	0.08	-0.15	0.18
BNStr	0.12 ^a	0.07	-0.01	0.25
Model	<i>R</i>	<i>Change in R²</i>	<i>F(df)</i>	
Entire model	0.25	0.06	1.85(11,316)*	
SatNB X SatND	--	0.01	2.75(1,316) ^a	

Note. ^a $p \leq .10$; * $p < .05$; ** $p < .01$; *** $p < .001$; SatNB = Belongingness Satisfaction; SatND = Distinctiveness Satisfaction; DNStr= Distinctiveness Need Strength; BNStr = Belongingness Need Strength; N=328.

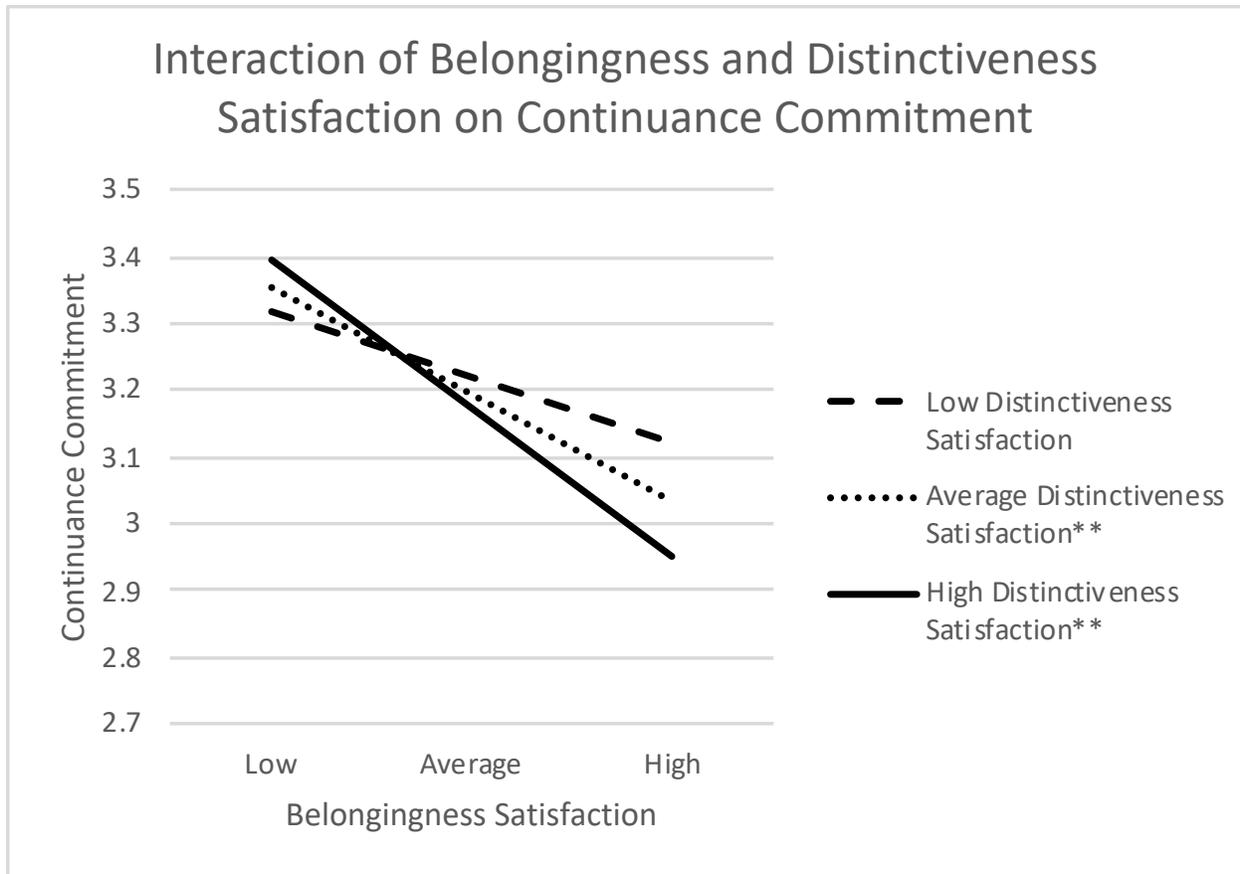


Figure 34. Interaction of Belongingness Satisfaction and Distinctiveness Satisfaction on Continuance Commitment.

While the focus of the present study addresses the individual moderating relationships, it is beneficial to estimate the entire model simultaneously. As a final test of all of the hypotheses simultaneously, I conducted a fully saturated structural equation model. For a graphic depiction of the overall model tested see Figure 35. To construct the interaction terms I used the procedure outlined by Hensler & Chin (2010). I first mean centered the indicators for each of the latent constructs. Next, the residuals of each of these indicators were interacted with each indicator of the hypothesized moderating variable. In the case where there are an unequal number of indicators for interacted latent variables, the highest loading indicators for the latent variable with a greater number of indicators are retained. For example, the latent BNStr has 10 indicators whereas the latent SatNB has 6 indicators. To model the interaction between BNStr and SatNB

uses only the 6 highest loading indicators for BNStr (the remaining 4 indicators are not used in calculating the interaction). Each of residuals for each of these 6 indicators are multiplied by the residuals of the 6 SatNB indicators. These new indicators are used as the indicators for the latent interaction term. While this approach reduces the number of indicators used in the overall model, it provides a more parsimonious interaction term and is fairly robust compared to alternative methods when sample sizes are larger than 200 (Hensler & Chin, 2010).

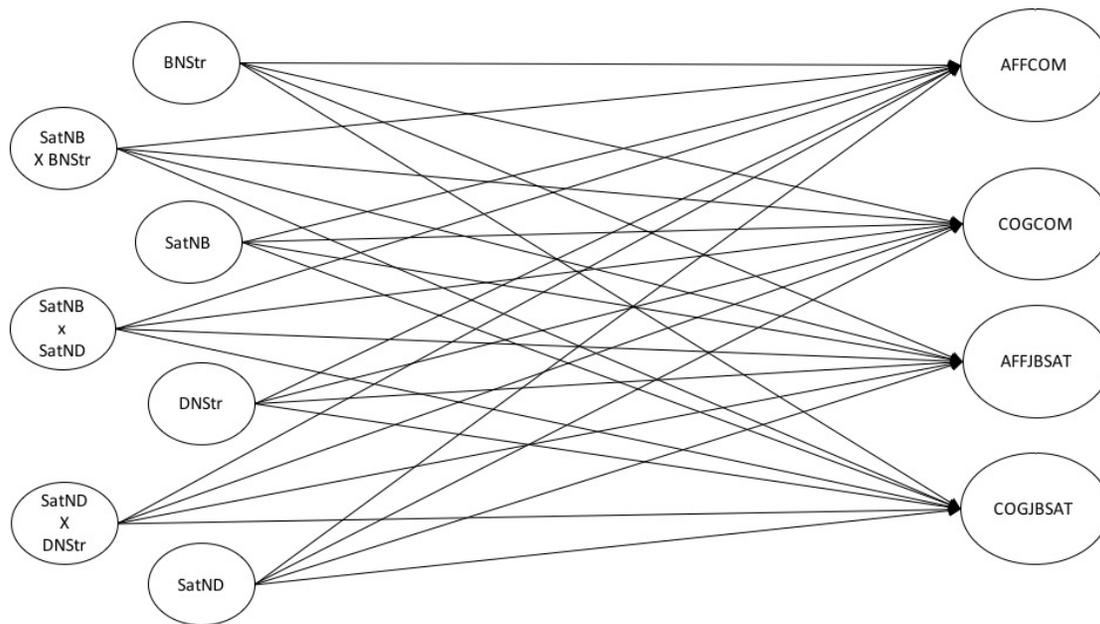


Figure 35. Fully Saturated Structural Model

The resulting structural model provided adequate fit ($\chi^2(3388, n=184) = 10849.02; p < .001$; RMSEA = .07 (90% CI: .06, .07)). However, when modeling the entire structural equation, the effect of DNStr and SatND were not significant for any of the attitudinal outcomes.

Additionally, the interactive effects of SatND and DNStr on cognitive job satisfaction and affective commitment were not significant in the overall structural model. Figure 36 provides a graphic overview of the significant paths ($p < .10$) in the overall structural model. Exogenous

latent constructs were specified as correlated, but for parsimony, they are not shown in Figure 36.

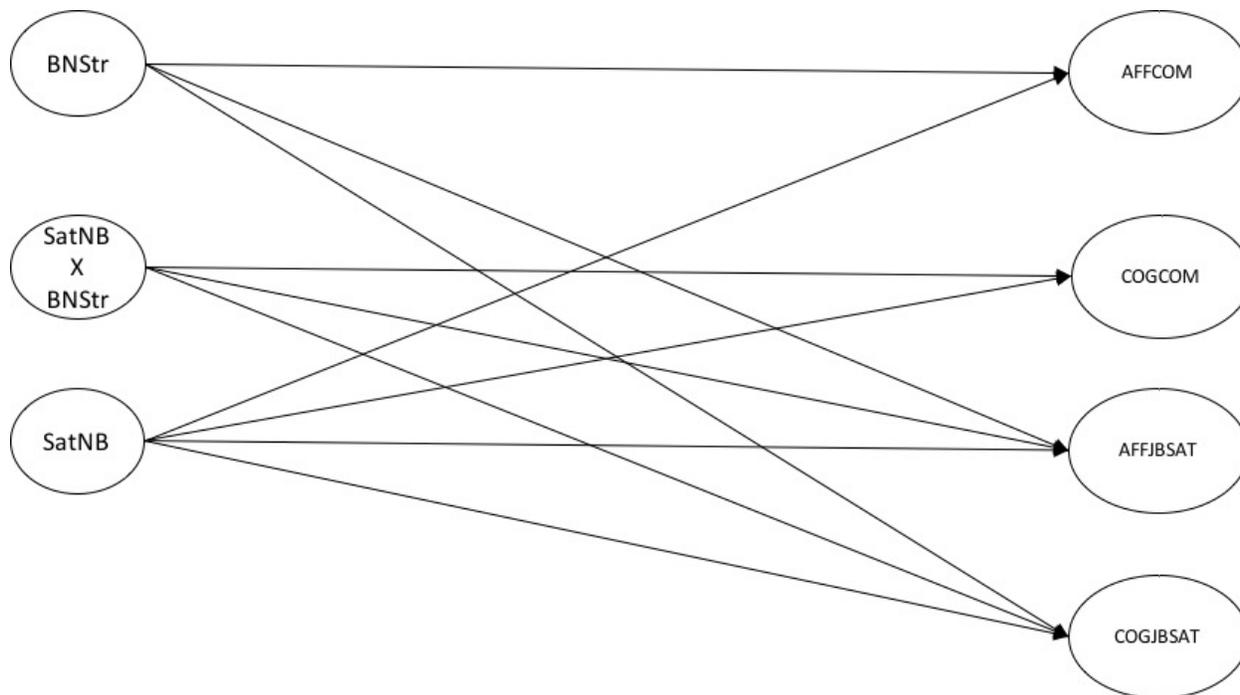


Figure 36. Significant Paths from Overall Structural Model

The overall structural model reveals a different pattern of relationships. Specifically, SatND and DNStr do not have any significant main effects or interactive effects. The interaction between SatNB and BNStr is the only meaningful interaction. Additionally, this interaction reveals a significant effect both affective and cognitive job satisfaction whereas, the individual regressions do not provide support for this relationship. See Table 85 and 86 for a complete overview of the latent structural regressions. The pattern of relationships present in the structural model suggest that the nature of SatNB, SatND, BNStr, and DNStr may be more nuanced than originally hypothesized. Specifically, the structural model suggests that SatND and DNStr are do not have predictive value when BNStr and SatNB are included in the model.

Table 85. Structural Model Regression Results for Affective Attitudes

Outcome	Predictor	B	SE B
Affective Commitment	BNStr	0.33*	0.15
	SatNB	0.42*	0.19
	DNStr	-0.14	0.17
	SatND	0.47	0.33
	SatND x DNStr	0.25	0.37
	SatNB x BNStr	0.03	0.25
	SatNB X SatND	-0.13	0.21
	Gender	-0.38*	0.16
	Age	0.14*	0.06
	Education Level	0.076	0.10
	Family Status	0.019	0.08
	Hours Worked	0.003	0.01
	Salary	-0.025	0.03
	Affective Job Satisfaction	BNStr	0.20*
SatNB		0.48***	0.14
DNStr		-0.04	0.12
SatND		0.36a	0.23
SatND x DNStr		-0.11	0.26
SatNB x BNStr		0.42*	0.20
SatNB X SatND		-0.22	0.15
Gender		-0.17	0.11
Age		0.07	0.04
Education Level		0.02	0.07
Family Status		0.13**	0.05
Hours Worked		0.01	0.01
Salary		-0.01	0.02

Note. a $p=.10$; * $p < .05$; ** $p < .01$; *** $p < .001$; Belongingness Satisfaction; SatND = Distinctiveness Satisfaction; DNStr= Distinctiveness Need Strength; BNStr = Belongingness Need Strength; N=328

Table 86. Structural Model Regression Results for Cognitive Attitudes

Outcome	Predictor	B	SE B
Continuance Commitment	BNStr	-0.03	0.10
	SatNB	-0.24a	0.14
	DNStr	0.13	0.12
	SatND	-0.13	0.22
	SatND x DNStr	0.30	0.28
	SatNB x BNStr	-0.40*	0.21
	SatNB X SatND	0.15	0.15
	Gender	0.15	0.11
	Age	0.04	0.04
	Education Level	0.08	0.07
	Family Status	0.02	0.05
	Hours Worked	0.00	0.01
	Salary	0.00	0.02
	Cognitive Job Satisfaction	BNStr	0.10*
SatNB		0.15*	0.07
DNStr		-0.071	0.06
SatND		0.17*	0.11
SatND x DNStr		0.07	0.12
SatNB x BNStr		0.18*	0.10
SatNB X SatND		-0.03	0.07
Gender		-0.06	0.05
Age		0.00	0.02
Education Level		0.01	0.03
Family Status		0.02	0.02
Hours Worked		0.00	0.00
Salary		0.01	0.01

Note. a $p=.10$; * $p < .05$; ** $p < .01$; *** $p < .001$; Belongingness Satisfaction; SatND = Distinctiveness Satisfaction; DNStr= Distinctiveness Need Strength; BNStr = Belongingness Need Strength; N=328

Discussion

Overall, my results showed that the need for belongingness and the need for distinctiveness along with belongingness and distinctiveness satisfaction can be important predictors of specific job attitudes. Specifically, those with a low need for belongingness but high satisfaction of belongingness reported lower, rather than higher, continuance commitment. Additionally, my results indicated that a high level of belongingness satisfaction or distinctiveness satisfaction can compensate for a low level of the other. This suggests that the importance of satisfying both needs may not be as critical as expected in affective job satisfaction and commitment. Taken as a whole this study has important theoretical implications for the JDR.

The main goal of this study was to build upon the JDR concept of personal resources and personal demands. In doing this, a primary focus was on integrating theories of psychological needs with the JDR to address the question of how personal demands and resources can augment job satisfaction and commitment. This is a valuable contribution as the JDR theorizes effects of personal demands and resources, but few studies have explicitly addressed this. Further, understanding the way in which belongingness and distinctiveness need strength interacts with need satisfaction is important for two reasons: first, despite the theorized role of personal demands and resources little is known about the attitudinal outcomes; second, the JDR provides a parsimonious way to explain the way belongingness and distinctiveness need strength and satisfaction interact to affect job satisfaction and commitment. This study is one of the first to explicitly examine both personal demands and personal resources in a single study from the perspective of the JDR. Overall, this study has important theoretical and practical implications.

At a very basic level, this study has theoretical implications for understanding psychological needs as antecedent of job attitudes from the perspective of the JDR. Some of my results provide evidence for the hypothesized relationship between personal resources and demands. For example, results for hypothesis three and four found that high SatNB and high SatND operate as compensating personal resources for affective job satisfaction, cognitive job satisfaction, and affective commitment. However, in contrast, other results are befuddling on the surface. For example, results for hypothesis one found a significant negative effect of SatNB on continuance commitment for individuals with low to average BNStr. This suggests that in the absence of a strong need for belongingness, high levels of SatNB result in a decrease in continuance commitment. These seemingly disparate results provide an important refinement of the JDR with regard to personal demands and resources. Specifically, a personal resource may result in undesirable work outcomes. For example, the personal resource of belongingness may affect the individual's overall self-concept resulting in a belief that their connection with others could shield the employee from negative effects of leaving the organization. Thus, this personal resource could decrease, rather than increase, continuance commitment.

My results for hypothesis two were mixed. While the analyses indicated significant interaction of DNStr and SatND for affective commitment and a marginally significant effect for cognitive job satisfaction, these results provide little practical value. My results showed that the confidence intervals for the effects of SatND at each level of DNStr overlap. This means that while the interaction is significant, we cannot be sure that the effect is different at high and low levels of DNStr. Consequently, the difference in the effect of SatND for affective commitment and cognitive job satisfaction is likely only meaningful at the very extreme ends of the scale. Despite this limitation, this result does provide some indication that the combination of certain

psychological needs and resources can interact to positively impact certain job attitudes. This is important for the JDR in that it provides a small degree of support for Bakker & Demerouti's initial proposition that personal resources and personal demands operate in the same way as job resources and job demand (2017). However, the unexpected significant effect found for hypothesis one offers different insight.

The interaction between BNStr and SatNB was only significant for the outcome of continuance commitment. However, as noted above, the result was negative. The interaction between DNStr and SatND was significant for affective commitment but failed to reach significance for each of the other outcomes⁴. Despite the lack of support for hypotheses one and two these results are important for the JDR for two reasons. First, it indicates personal resources and personal demands have the potential to impact attitudes at work. This means that organizations should be aware of the strength and satisfaction of their employees underlying psychological needs for belongingness and distinctiveness. Because psychological needs operate as nutriment for wellbeing, organizations could potentially develop meaningful ways to contribute to employee belongingness and distinctiveness at work and outside of work. For example, providing support for employees to participate in meaningful activities at work or outside of work that contribute to their belongingness (e.g. playing on a softball team, attending an important social event with friends) and distinctiveness (e.g. membership in an elite group, engaging in a unique hobby).

Second, the interaction effect of SatNB and the BNStr on continuance commitment suggests that continuance commitment decreases for individuals with low to average BNStr. This

⁴ There was a marginally significant interaction effect between SatND and DNStr on cognitive job satisfaction ($p = .0948$).

is an important extension of the JDR as it suggests that the strength of a personal demand can buffer the negative effects of personal resources. In other words, when the personal demand of BNStr is low but there is a high level of SatNB individuals report the lowest levels of continuance commitment. This suggests that the strength of certain personal resources, not demands, negatively impact some job attitudes. This also suggests that personal demands, not resources, can act as a buffer for negative outcomes. While at first this seems surprising, there may be a logical explanation for this unexpected outcome.

To interpret the unexpected result, it is important to consider what the personal resource of SatNB represents. As Baumeister and Leary note, the need for belongingness drives our desire to connect with others (1995). This affective connection with others is not limited to the work domain. In fact, the strongest affective bonds individuals are likely to exist outside the work domain – spouses, children, friends. These strong affective bonds may be sufficient to satisfy the need for belongingness for individuals with average to low levels of BNStr. Consistent with the definition of a personal resource, this may generate a sense of relational security that increases an individual's "resiliency" (Xanthopoulos et al., 2007). This resilience may result lower levels of continuance commitment as the individual is not reliant on their job to significantly contribute to the satisfaction of their need for belongingness. Additionally, an individual with high BNStr may also have high affective bonds outside of work. However, the high strength of this need may indicate that the affective bonds that individual has with others at work are important contributors to their need satisfaction. Consequently, the high personal demand for belongingness – the requirement set by the individual – means that they are not as likely to experience a change in continuance commitment as they will "invest effort in their work" to

maintain these affective bonds and thus satisfy their need for belongingness (Barbier et al., 2013, p751).

The results for hypothesis three and four provide some additional insight and clarification. Hypothesis three and four suggested that a high level of either of the personal resources of SatNB or SatND can compensate for a low level of the other for affective job satisfaction, cognitive job satisfaction, affective commitment, and continuance commitment. The pattern of results indicated overall that, indeed, a high level of SatNB did compensate for a low level SatND. The compensation effect was positive, as predicted, for affective and cognitive job satisfaction and affective commitment. However, the compensation effect was negative for continuance commitment. This has three additional important implications. First, at a basic level suggests that the high satisfaction of either belongingness or distinctiveness may foster resiliency and in turn improve affective and cognitive job satisfaction as well as affective job commitment. This is important as it suggests that presence of either personal resource of SatNB or SatND is offers significant attitudinal improvements on the job. Second, not all personal resources operate in the manner proposed by the JDR. JDR notes that resources are directly related to various job attitudes and that an increase in any resource will have a beneficial effect (Bakker & Demerouti, 2014). However, SatNB has a significant negative effect on continuance commitment at average to high levels of SatND. Similar to the results of hypothesis one, this suggests that a personal resource may operate differently than a personal demand. This is important as it indicates that the type of resource is an important consideration from the perspective of the JDR.

Third, the acquisition of personal resources creates a situation where an individual is free to act in their self-interest. The JDR is attractive as it provides a parsimonious way to understand the factors that may lead to engagement or burnout (Bakker & Demerouti, 2001;2017; Tadic et

al, 2015). This works very well when considering just job resources and demands as there is a basic assumption that an individual has some baseline motivation to complete a job. The JDR is predicated on the notion that when possible (i.e. the right resources are present to meet the demands) an individual will engage in the specific job activity as it is in the individual's self-interest. Presumably, an individual wants to complete the job so that they can earn money so that they can buy food...etc. In fact, nearly all theories of behavior in social and organizational psychology operate from this same premise (Meglino & Korsgaard, 2004; Miller, 1999). However, personal resources may provide an individual with a more fundamental evaluation of their options. As noted earlier, SatNB may provide an individual with the security and support they need to make a career or job change and thus reduce their continuance commitment.

This represents an important change to the way the JDR theorizes about the role of personal resources and personal demands. Although based on an inductive approach, this study suggests that the effects of personal demands and personal resources affect job attitudes differently than job resources and job demands. While this statement may be bold as it is based on a single post-hoc study, I believe this offers an important empirically testable question for future research. This calls for additional research to explore and validate the potentially unique effects of personal demands and resources within the framework of the JDR. The present study does not address the potential boosting or buffering effects present between a job resource and a personal demand or a personal resource and a job demand. Additionally, the present study has some important limitations. Namely, I did not include any explicit job demands or job resources. While this is a clear limitation and does not allow a full or even partial evaluation of the propositions set out by Bakker and Demerouti, this study is an important incremental step forward in assessing the theorized role of personal demands and resources (2017).

The work/non-work conflict literature offers one particularly ripe area for exploring the effects of personal and job resources and demands from the perspective of the JDR. There are both positive and negative interference effects across domains (e.g. Greenhaus & Buetell, 1985; Greenhaus & Powell, 2006). Existing research in this area has addressed the role of various resources. For example, Grandey and Cropanzano evaluated the relationship between work and family stressors (i.e. demands) and various outcomes across domains (1999). Applying the conservation of resources theory (Hobfoll, 1989), they found the role of self-esteem (i.e. personal resource) did not significantly moderate the relationship. Additionally, research in this area has also already begun to look at explicit domain spanning demands. For example, recent research has found that the demand of workload predicts work-family conflict leading to lower levels of life satisfaction but that the job resource of supervisor support buffers this effect by negatively moderating the relationship (Goh, Ilies, Wilson, 2015). Other research has found that daily job satisfaction (i.e. work resource) affects daily marital satisfaction (i.e. personal resource) suggesting that a boosting effect might be present (Ilies, Wilson, Wagner, 2009). Yet, relatively few studies in this area have employed the JDR framework to explicitly address personal resources and demands. Building on this present study, future research could further explore the effect of personal resources garnered outside of the workplace on important JDR outcomes.

In addition to the theoretical implications of this study, this study has important practical implications for managers, EAP counselors, and psychologists and how they respond to employees. First, the results suggest that SatNB and SatND have important main effects on various job attitudes. This is important as it provides one possible explanation for why employees are dissatisfied or lack commitment to the job which may allow the manager to address these needs. Additionally, the main effects of BNStr and DNStr provide insight for EAP

counselors and psychologists as to why certain individuals experience particular symptoms and do not respond to some interventions. Specifically, because psychological need strength is associated with higher levels of depressive symptoms as noted earlier, developing specific interventions targeting these needs could yield improved treatment plans from EAP professionals and psychologists. Second, the interactions between SatNB and BNStr imply that individuals with high levels of SatNB and low levels of BNStr experience lower levels of continuance commitment. This is important for EAP professionals and psychologists as it suggests that individuals with moderate to high SatNB and low levels of BNStr may be able to more easily handle a career transition. More specifically, understanding the unique combination of SatNB and BNStr could allow psychologists and EAP professionals greater insight as they counsel individuals experiencing distress at work as it suggests that the individual may have the sufficient resources to buffer a career change. Finally, the overall results of this study have practical implications for employees wellbeing as EAP professionals and psychologists help them to understand their unique combination of need strength and satisfaction. Recently there has been a focus in counseling psychology on developing a growth mindset and the positive aspects of vulnerability (e.g. Brown, 2017; Dweck, 2015). When framed through these two trends in counseling psychology the results of this study suggest that an unmet need is simply an individual difference and can change as a result over time. This may allow the individual, with guidance from a professional, to proactively seek out other opportunities to satisfy unmet needs and improve their overall wellbeing – a fundamental goal of the JDR.

Despite the implications of this study, there are some significant limitations beyond those noted in chapter five. First, we are not able to draw clear causal relationships as this study did not experimentally manipulate any factor and cannot establish temporal precedence, a primary goal

of empirical research (Kerlinger & Lee, 2000). Second, this study suffers from being conducted post-hoc. Because of the inductive nature of this study, there are serious questions about the validity and generalizability of the findings. The data were collected and analyzed prior to the development of this chapter. This has significant limitations as there is a possibility that the findings presented here capitalize on chance. A further limitation of this study is the relatively small effect sizes. While a significant result provides a degree of confidence about the presence of an effect, it is possible that the small effect sizes of the significant results are simply due to chance. This possibility is potentially amplified by the fact that the study in chapter 6 was conducted post-hoc and may be capitalizing on chance rather than deductive logic. An additional limitation of stemming from the post-hoc nature of this study is that access to potentially important explanatory variables was limited. Specifically, there are many variables beyond the strength and satisfaction of psychological needs that could provide an equally or more logical conclusion. For example, many personality traits such as positive affectivity/negative affectivity could provide similar results. Clearly, additional research is needed to validate and address the numerous limitations.

Additionally, the analyses used to evaluate the hypotheses also represent a limitation of this study. This study uses multiple linear regression analyses to evaluate each of the hypotheses individually. This is a limitation for this study as the analysis is unable to make use of the full latent structure of the focal constructs. While I did conduct a SEM as an overall test of the hypotheses provided in chapter 6 to partially address this limitation, no alternative models were evaluated. Thus, a comparison between competing models was not possible.

The analytic limitation is especially true of the analyses conducted in chapter 4. The true results are potentially obfuscated due to the use of composite variables. However, one benefit of

using an OLS regression based model is that results tend to be more precise whereas latent structural models tend to be more accurate (Ledgerwood & Shrout, 2016). Future studies could address this by using alternate analytical methods that rely on the full range of data instead of composite variables. Further, the use of multiple regression does not estimate the entire model simultaneously. When the overall model is evaluated simultaneously, more accurate estimations of the true relationships among variables is possible. Additionally, the analytic method utilized in chapter 4 does not allow for the calculations of various fit indices. This is a limitation in that alternative explanatory models are not able to be compared to one another. Thus, the results of the study are limited in their applicability. Future research should look to improve on this limitation by utilizing alternative analytical techniques such as SEM to the entire set of hypotheses to provide a richer and more accurate understanding of the relationships.

While this study suffers from significant limitations, the inductive nature of the study does not invalidate the findings. There is a long history of inductive theory building in organizational science (Shepherd & Sutcliffe, 2011). Additionally, deductive studies do not necessarily result in more valid theory (Colquitt, Zepata-Phelan, 2007; Miner, 1984; 2003). In fact, Miner identified 73 organizational behavior theories deemed important by management scholars. First, scholars were asked to rate the importance of the perceived theory. Then, Miner conducted a systematic analysis of the theories and found only 25 to be high in validity (2003). The lack of validity of deductively developed theories does not suggest inductive theories are necessarily better. This does, however, indicate that the majority of theory building suffers from issues of validity. If anything, this underscores the need for additional research to validate proposed relationships and seek out important boundary conditions as there is still “nothing so practical as a good theory” (Lewin, 1943).

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APPENDIX A. SURVEY MEASURES

Psychological Needs Strength

Need to Belong (Leary, Kelly, Cottrell, & Schreindorfer, 2005)

(5 point Likert Scale – strongly disagree → strongly agree)

1. If other people don't seem to accept me, I don't let it bother me. (R)
2. I try hard not to do things that will make other people avoid or reject me.
3. I seldom worry about whether other people care about me. (R)
4. I need to feel that there are people I can turn to in times of need.
5. I want other people to accept me.
6. I do not like being alone.
7. Being apart from my friends for long periods of time does not bother me. (R)
8. I have a strong need to belong.
9. It bothers me a great deal when I am not included in other people's plans.
10. My feelings are easily hurt when I feel that others do not accept me.

Self-Attributed Need for Uniqueness Scale (Lynn & Harris, 1997)

1. I prefer being different from other people.
(a) no, (b) slightly, (c) moderately, (d) very, (e) extremely
2. Being distinctive is important to me.
(a) not at all, (b) slightly, (c) moderately, (d) very, (e) extremely
3. I intentionally do things to make myself different from those around me. (a) never, (b) seldom, (c) sometimes, (d) often, (e) always
4. I have a need for uniqueness.
(a) weak, (b) slight, (c) moderate, (d) strong, (e) very strong

Psychological Needs Satisfaction

General Belongingness Scale (adapted from Malone et. al. 2012)

Acceptance

(items anchored with strongly disagree to strongly agree)

1. When I am with other people I am satisfied with how included I feel
2. I am satisfied with the close bonds I have with [other people in my life]
3. I am satisfied by how accepted I am by others
4. I am satisfied with my overall sense of belonging
5. Overall in my life I feel satisfied that I have a place at the table with [other people]
6. I am satisfied with how connected I feel with [other people in my life]

Personal Sense of Uniqueness (adapted from Simsek & Yalincetin, 2010)

1. I am satisfied that as people get to know me more, they begin to recognize my special features
2. Overall in my life I am satisfied with how unique I feel
3. In general I am satisfied with my characteristics that distinguish me from others

4. *In my life I am satisfied that characteristics that make me up are distinct from others*
5. *Overall in my life I am satisfied that some of my characteristics are completely unique to me*
6. *I am satisfied with how distinct I am from other people in my life.*

Think about a meaningful group that you are a part of AT WORK. This might be a group of coworkers, a specific team that you work on, or any other group at work that is meaningful to you. Type the name of that group here _____.

Think about a meaningful group that you are a part of OUTSIDE OF WORK. This might be a group religious group, sports team, or group of family/ friends. Type the name of that group here _____.

Individual Distinctiveness at work (indicates additional item)* (Sheldon & Bettencourt, 2002)

1. How much do you feel like you stand out at work?
2. How much do you feel unique when you participate with people at work?
3. How distinct and separate do you feel within your group at work (i.e. *piped text from participant*)?
4. *How different are you from your group at work (i.e. *piped text from participant*)?
5. *How similar are you to other members within your group at work (i.e. *piped text from participant*)?
6. *How much do you agree with following statement: I exactly like everyone else within my group at work (i.e. *piped text from participant*)?

Individual Distinctiveness outside of work (indicates additional item)* (Sheldon & Bettencourt, 2002)

1. How much do you feel like you stand out outside of work?
2. How much do you feel unique when you participate with people outside of work?
3. How distinct and separate do you feel within your group outside of work (i.e. *piped text from participant*) ?
4. *How different are you from your group outside of work (i.e. *piped text from participant*)?
5. *How similar are you to other members within your group outside of work (i.e. *piped text from participant*)?
6. *How much do you agree with following statement: I exactly like everyone else within my group outside of work (i.e. *piped text from participant*)?

Group Distinctiveness at work (Sheldon & Bettencourt, 2002)

1. How different is your group from other groups at work (i.e. *piped text from participant*)?
2. How much does your group at work (i.e. *piped text from participant*) seem to stand out, compared to other groups at work?
3. How much does your group at work (i.e. *piped text from participant*) seem unique, compared to other groups at work?

Group Distinctiveness outside of work (Sheldon & Bettencourt, 2002)

1. How different is your group from other groups outside of work (i.e. *piped text from participant*)?
2. How much does your group outside of work (i.e. *piped text from participant*) seem to stand out, compared to other groups outside of work?
3. How much does your group outside of work (i.e. *piped text from participant*) seem unique, compared to other groups outside of work?

Group Belongingness at work (Sheldon & Bettencourt, 2002)

1. How close and connected do you feel with other members of your group at work (i.e. *piped text from participant*)?
2. How much of a sense of relatedness do you feel with other members of your group at work (i.e. *piped text from participant*)?
3. To what extent do you feel a sense of personal friendship with the other members of your group at work (i.e. *piped text from participant*)?

Group Belongingness at work (Sheldon & Bettencourt, 2002)

1. How close and connected do you feel with other members of your group outside of work (i.e. *piped text from participant*)?
2. How much of a sense of relatedness do you feel with other members of your group outside of work (i.e. *piped text from participant*)?
3. To what extent do you feel a sense of personal friendship with the other members of your group outside of work (i.e. *piped text from participant*)?

Affective & Cognitive Outcomes

The following scales use a 5 point Likert scale: strongly agree – strongly disagree)

Job Satisfaction (Schleicher et al., 2004)*Affective*

1. My job seems like a hobby to me.
2. My job is usually interesting enough to keep me from getting bored.
3. It seems that my friends are more interested in their jobs. (R)
4. I consider my job rather unpleasant. (R)
5. I enjoy my work more than my leisure time.

6. I am often bored with my job. (R)
7. I feel fairly well satisfied with my present job.
8. Most of the time I have to force myself to go to work. (R)
9. I am satisfied with my job for the time being.
10. I feel that my job is no more interesting than others could get.
11. I definitely dislike my work. (R)
12. I feel that I am happier in my work than most other people.
13. Most days I am enthusiastic about my work.
14. Each day of work seems like it will never end. (R)
15. I like my job better than the average worker does.
16. My job is pretty uninteresting. (R)
17. I find real enjoyment in my work.
18. I am disappointed that I ever took this job. (R)

Cognitive

1. I am satisfied with being able to keep busy all the time.
2. I am satisfied with the chance to work alone on the job.
3. I am satisfied with the chance to do different things from time to time.
4. I am satisfied with the chance to be "somebody" in the community.
5. I am satisfied with the way my boss handles his or her workers.
6. I am satisfied with the competence of my supervisor in making decisions.
7. I am satisfied with being able to do things that don't go against my conscience.
8. I am satisfied with the way my job provides for steady employment.
9. I am satisfied with the chance to do things for other people.
10. I am satisfied with the chance to tell people what to do.
11. I am satisfied with the chance to do something that makes use of my abilities.
12. I am satisfied with the way company policies are put into practice.
13. I am satisfied with my pay and the amount of work I do.
14. I am satisfied with the chances for advancement on this job.
15. I am satisfied with the freedom to use my own judgment.
16. I am satisfied with the chance to try my own methods of doing the job.
17. I am satisfied with the working conditions.
18. I am satisfied with the way my coworkers get along with each other.
19. I am satisfied with the praise I get for doing a good job.
20. I am satisfied with the feeling of accomplishment I get from the job.

Commitment (Allen & Meyer, 1990)

Affective

1. I would be very happy to spend the rest of my career with my organization
2. I enjoy discussing my organization with people outside it
3. I really feel as if this organization's problems are my own
4. I think that I could easily become as attached to another organization as I am to the one I work for (R)
5. I do not feel like 'part of the family' at my organization (R)
6. I do not feel 'emotionally attached' to my organization (R)
7. This organization has a great deal of personal meaning for me

8. I do not feel a strong sense of belonging to my organization (R)

Cognitive (Continuance)

1. I am not afraid of what might happen if I quit my job without having another one lined up (R)
2. It would be very hard for me to leave my organization right now, even if I wanted to
3. Too much in my life would be disrupted if I decided I wanted to leave my organization now
4. It wouldn't be too costly for me to leave my organization not (R)
5. Right now, staying with my organization is a matter of necessity as much as desire
6. I feel that I have too few options to consider leaving this organization
7. One of the few serious consequences of leaving this organization would be the scarcity of available alternatives
8. One of the major reasons I continue to work for this organization is that leaving would require considerable personal sacrifice – another organization may not match the overall benefits I have here.

Virtuallity

Geographic Dispersion

1. When I am working with my coworkers we work in the same (select all that apply)
 - a. Office
 - b. Building but different floors
 - c. Same city
 - d. Same state
 - e. Same country
 - f. Most of my coworkers are located in other countries
2. When I am working with my supervisor we work in the same (select all that apply)
 - a. Office
 - b. Building but different floors
 - c. Same city
 - d. Same state
 - e. Same country
 - f. My supervisor is located in another country
3. On average how far away in miles do you typically work from your organization's office?
 - a. 0 – I work in the same office
 - b. Slider to estimate the number of miles
4. In an average week how many days do you work from a location other than your office?
 - a. 1
 - b. 2
 - c. 3
 - d. 4
 - e. 5 or more

Frequency/Synchronicity of Electronic Communication

Please rate your use of each of the following forms of communication with your coworkers in an average week (never, less than once a week, once a week, once a day, a few times a day, many times a day, many times an hour)

1. Face to face
2. E-mail
3. Text Message
4. Video Conference
5. Social media
6. Other _____

Controls/Moderators*Demographics*

1. Gender
2. Age
3. Education level
4. Family status
5. Job Tenure
6. Org Tenure
7. Year entered the workforce (graduation year)
8. Annual Pay
9. Race
10. Hours worked per week
11. Pay type – salary, hourly, commission