Laboro Ergo Sum (I Work Therefore I Am): The Effects of Occupation Characteristics on Psychological Characteristics and Non-Work Outcomes

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ABSTRACT

This dissertation examines the transformative effects of occupations on individuals. I begin by examining a prominent theory in organizational behavior that focuses on the effects of occupations on individuals: the Job Characteristics Model (JCM). I build upon the main arguments in the JCM, and draw from the plasticity perspective of human design to propose an alternative model for how and why occupations affect individuals. The crux of my theory is that occupation characteristics engender the development of psychological characteristics that facilitate individuals' performance of their occupation. I draw from the work-family research stream to then suggest that the transformed psychological characteristics carry over to influence individuals' non-work behaviors and attitudes. Specific hypotheses are presented regarding the relationship between occupation characteristics, psychological characteristics, non-work outcomes, and the moderating roles of occupation tenure, occupation mobility, and social support. The hypotheses are tested in two studies using two nationally representative databases: the General Social Survey (GSS) and the Occupation Information Network (O*NET). Findings suggest that certain sets of psychological characteristics—particularly individuals' values—are susceptible to shaping and molding by occupation characteristics. This shaping then has an effect on non-work outcomes, specifically those that are most directly related to the intermediary psychological characteristics. Broader implications for theory and practice are discussed.

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Dedicated to my family, friends, and mentors who have helped me through this journey.

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CHAPTER 1: INTRODUCTION

> The man whose whole life is spent in performing a few simple operations, of which the effects are perhaps always the same, or very nearly the same, has no occasion to exert his understanding or to exercise his invention in finding out expedients for removing difficulties which never occur. He naturally loses, therefore, the habit of such exertion, and generally becomes as stupid and ignorant as it is possible for a human creature to become. The torpor of his mind renders him not only incapable of relishing or bearing a part in any rational conversation, but of conceiving any generous, noble, or tender sentiment, and consequently of forming any just judgment concerning many even of the ordinary duties of private life
>
> - Adam Smith, Wealth of Nations (1776/1937: 461)

Many social commentators note that there is a divide in contemporary American society. The political scientist Charles Murray observed: "people are starting to notice the great divide. The tea party sees the aloofness in a political elite that thinks it knows best and orders the rest of America to fall in line. The Occupy movement sees it in an economic elite that lives in mansions and flies on private jets" (Murray, 2012). This divide is manifested in the way different groups think, act, and behave—from the way they vote, to the products that they purchase, to the way they care and raise their children, to the types of leisure activities that they engage in, to the types of music that they listen to. There are undoubtedly many micro and macro-level factors that contribute to this divide: education, geography, religious beliefs, parental upbringing, etc. In this dissertation, I focus on occupations[1] as an important unit of analysis, and suggest that occupations can heavily influence individuals' livelihoods—affecting the way they think, act, and behave in their non-work lives.

The importance of occupations in individuals' lives is unequivocal—there are few individuals who can go throughout adulthood without having an occupation. Indeed, an

[1] It is important to discuss what I mean by *occupations*. Most research in organizational behavior uses the terms *occupation, work*, and *job* interchangeably. To remain consistent with the terminology of organizational behavior theory, I also use the terms *work* and *job* when drawing directly from organizational behavior research (e.g., the Job Characteristics Model, work-family research, etc.). This point notwithstanding, I specifically use the term occupations when building my own theory. I define my conceptualization of occupations in more detail in Chapter 2.

individual's occupation is more than just what he or she does; occupations transform the individual fundamentally, systematically, and dramatically. Occupations can transform an individual's monetary status, social status, how others perceive the individual, and how the individual perceives him or herself. Occupations can change how individuals vote, the way they relate to others, their values and principles, their personalities, and perhaps even their morals (Frese, 1982; Furnham, 1992; Jackall, 1988). To illustrate this, consider that soldiers returning from war are described as "changed individuals", with the experiences they gained from their occupation transforming them in fundamental ways (Elder, 1986; Elder, Gimbel, & Ivie, 1991; Settersten, 2006). The occupation need not even be so extreme, however, to see the transformative power of work; for even the most ordinary and mundane of occupations can be transformative. After observing the effects of work on those employed in factory positions, Schwartz noted (1982) "when persons work for considerable lengths of time at jobs that involve mainly mechanical activity, they tend to be made less capable of and less interested in rationally framing, pursuing, and adjusting their own plans during the rest of their time. They are thereby caused to lead less autonomous lives on the whole" (637). Why do occupations have such profound effects on individuals? Moreover, why and how do these occupation-induced effects transcend the workplace boundary to affect individuals' lives more generally?

In examining the effects of occupations on the individual, organizational behavior scholars have offered a plethora of theoretical perspectives. One that has proved especially useful is job design (Miner, 1984, 2003), which argues that occupations affect individuals because occupation features can impact individuals' core psychological attributes. In particular, a highly prominent and influential model within job design, the *Job Characteristics Model* (JCM) (Grant, Fried, & Juillerat, 2010; Morgeson & Humphrey, 2006), argues that occupations impact

individuals because it affects their core psychological needs and motivations. The JCM goes on to explicate how job characteristics can satisfy (or dissatisfy) individuals' psychological needs, and the downstream consequences of this on motivation and other work-relevant behaviors (e.g., absenteeism, performance, etc.). Though the JCM speaks to how and why work affects individuals psychologically while at work, the model does not account for how the effects that occur at work can transcend the workplace boundary to influence individuals' lives more generally.

In this dissertation, I re-examine the core assumptions underlying the JCM. In so doing, I provide a novel perspective for how occupations can shape and transform individuals, and the downstream consequences of this transformation on individuals' lives overall (Chapter 2). My main argument is that occupations lead to the development of psychological characteristics that facilitate individuals' performance of their occupation. The development of these characteristics is then manifested beyond the confines of the nine-to-five workday cycle. To support this thesis, I draw from a broad range of theoretical perspectives that collectively point to and support the notion of the *plasticity,* which suggests that individual attributes are not fixed and static but rather transformable by the demands of the situation. Based on the plasticity framework, I re-examine the JCM's core assumptions regarding the effects of occupations on individuals, and propose an alternative model: that individuals' psychological characteristics—including their values and attitudes—are not fixed and unchanging but rather can emerge, be developed, or be suppressed in the service of occupation characteristics. Through the plasticity lens, I then integrate research on *work-family* to examine how and why these transformed psychological characteristics carry over to influence non-work outcomes (Chapter 3). In Chapter 4, I present hypotheses that examine specific psychological characteristics and non-work outcomes that may

be impacted by occupation characteristics. I test these hypotheses across two archival studies using data from the General Social Survey and the Occupation Information Network.

My theoretical model is depicted in Figure 1.

Insert Figure 1 about here

CHAPTER 2: JOB DESIGN AND THE JOB CHARACTERISTICS MODEL

Introduction

Scholars from a diverse array of disciplines have offered different theories to explain why occupations affect individuals. A particularly prominent stream of research within organizational behavior is *job design*. Job design research investigates how the structure and configuration of work affect individual thought and behavior (Parker & Ohly, 2008). Within job design research, numerous models have been put forth to explain why work features affect individuals. Indeed, reviews of the literature have uncovered as many as five different perspectives: the economic, job enrichment, social information processing, sociotechnical systems, and interdisciplinary perspectives (Grant, Fried, and Juillerat, 2010; Morgeson & Campion, 2003). In this review, I focus on the job enrichment perspective, as within it is housed one of the most prominent and widely used theories in job design research: the *Job Characteristics Model* (JCM). In addition, the JCM speaks to the role that occupations play in influencing individuals.

The main premise of the JCM is that work impacts individuals because work features can satisfy (or dissatisfy) individuals' psychological needs. Satisfaction of these needs then leads to positive individual and organizational outcomes. Though researchers have conducted several hundred studies on the JCM, the core theoretical assumptions have remained largely unchallenged. Grant et al. (2010) noted in their review that critiques regarding the JCM "have tended to focus more heavily on the instruments used to test the JCM than on the core premises of the JCM itself" (426). In another review, Morgeson and Humphrey (2006) observed: "theorizing in the area of work design has slowed dramatically. The dominant theoretical model in work design remains Hackman and Oldham's (1975, 1976) Job Characteristics Theory…Thus, there has been little new theoretical work in this area over the past 20 years" (1322). The goal of

this review will be to revisit the JCM's core assumptions with regards to each element in the JCM: (a) critical psychological states, (b) job characteristics, and (c) work outcomes. In re-visiting each element, I provide a deeper theoretical understanding for each part of the model. Before continuing, it is important to clarify the terminology regarding occupations, work, and job. To remain consistent with the terminology used in organizational behavior theory, I use the terms *work* and *job* when drawing directly from organizational behavior research. In other words, I do not change the terminology of the JCM, for example, which uses the term "job". In Chapter 3, I discuss research from the work-family stream, and remain consistent with that stream's terminology by using "work". This point notwithstanding, I specifically use the term *occupations* when building my own theory. I explain this rationale and my conceptualization of occupations in a later part of this chapter. Though I do use the term occupation for my own theory building purposes, the reader should note that occupation, work, and job are interchangeable in this dissertation.

I now discuss briefly the assumptions underlying job design research in general, because doing so leads to a greater understanding regarding the emergence of the JCM.

Part 1: Job design

1a. Job design research: The economic perspective and homo economicus

Early job design research started with an economic perspective of human nature, one in which individuals were perceived as homo-economicus opportunistically pursuing their own self-interest and preferences. In pursuing their self-interest, amassing monetary wealth was most important. From the employers' perspective, then, the purpose of work was simply to provide employees with monetary incentive. One way to ensure monetary wealth was to increase the profitability of the company. Accordingly, early job design research vis-à-vis Smith (1776) and

Babbage (1835) focused on structuring work in such a way as to optimize the productivity and efficiency of employees. The division of labor, and with it the simplification of tasks and development of specialized skill sets, was seen as the best means to achieve the end goal.

Early twentieth century job design research, as pioneered by Frederick Taylor and his "scientific management" revolution, continued to assume that employees viewed work as merely a means for the attainment of wages. He argued in his influential *Principles of Scientific Management* (1911) that the main goal of the employee was to reach his/her "highest state of efficiency", and in so doing obtain the highest wages. Taylor thus proposed that work should be designed in such a way as to eliminate any extraneous processes that could slow down efficiency. To him, one such extraneous process was knowledge processing, especially amongst employees in lower level positions. According to Taylor, efficiency is best achieved when knowledge-oriented tasks are reserved for those in higher level positions. He stated: "The managers assume…the burden of gathering together all of the traditional knowledge which in the past has been possessed by the workmen and then of classifying, tabulating, and reducing this knowledge to rules, laws, and formulae" (36). Such a divorcing of thinking from doing, especially for those in lower level positions, may have accounted for the observations made by Schwartz and Smith which I outlined in the introduction—that routinized occupations can hinder and even prevent the development of certain cognitive capacities and faculties that then carry over to how individuals behave outside of work.

1b. Job design research: The needs-based approach

To many, Taylorism and the scientific management approach represented both a severe indifference to the plight of workers and a grotesque misrepresentation of human nature. In reaction, the needs-based view of job design emerged which redirected attention away from

outcomes relating to productivity/efficiency and focused on employees' needs and motivation. In contrast to the economic perspective, the needs-based view took as its starting point a more sophisticated perspective of human design—one based on the notion that individuals have psychological needs beyond the maximization of self-interest and wealth accumulation. In the following sections, I detail one particular theoretical model within the needs-based view: the JCM. I focus on the JCM because it is the most highly cited model in the job design field (Grant et al., 2010).

Part 2: Job Characteristics Model Overview

The main premise of the JCM is that *job characteristics* lead individuals to experience one or many *critical psychological states.* Experiencing these states then leads to positive individual and organizational outcomes. The extent to which job characteristics lead to the emergence of critical psychological states, and critical psychological states lead to positive outcomes, is dependent on individual moderating variables (See Figure 2 for an overview of the JCM). In the following section, I first review the three theoretical perspectives that underlie the JCM: *Maslow's hierarchy of needs*, *self-determination theory*, and *Vroom's expectancy theory of motivation*. I then examine each part of the JCM individually—the critical psychological states, job characteristics, outcomes, and moderators. Where necessary, I provide *theoretical clarification* points which reformulate or re-define essential elements of the JCM. My intention is that these clarification points will be integrated into current and future JCM research in order to gain a deeper understanding regarding how occupations can affect and change individuals.

Insert Figure 2 about here

2a. Theoretical assumptions: Psychological needs and motivation

The JCM was developed by Hackman and Oldham (1975, 1976, 1980), though it was based heavily on research by Hackman and Lawler (1971), and Turner and Lawrence (1965). The JCM borrowed directly from Vroom's expectancy model of motivation and indirectly from two psychological needs theories to establish its central assumption: that individuals have higher order needs that if satisfied, lead to motivation. Given this assumption, JCM theorists argued that work can be designed in such a way as to satisfy individuals' higher order needs, leading to optimal levels of job motivation, performance, and satisfaction. In the following section, I discuss the use of psychological needs and motivation in the JCM.

Psychological needs

In developing the JCM, Hackman and Oldham referenced two psychological needs theories, Maslow hierarchy of needs and self-determination theory. I explain how each theory contributes to the JCM's core theoretical assumptions.

Maslow. According to Maslow (1943), human needs can be divided into basic (e.g., physiological, safety, love, and esteem) and growth needs (e.g., cognitive, aesthetics, and self-actualization). These needs can be arranged in the shape of a pyramid, with basic needs forming the base of the pyramid and growth needs forming the top of the pyramid. In this theory, individuals must first satisfy their basic needs before satisfying their growth needs. Once a need has been satisfied, it ceases to motivate (i.e., once hunger is satisfied, it ceases to motivate until the individual is hungry once again). At the top of the pyramid is self-actualization, which is the human need to realize personal potential, personal growth, and self-fulfillment. Though Hackman and Oldham (1975, 1976, 1980) do not explicitly cite Maslow in the development of the JCM, elements of Maslow's theory are clearly incorporated in the JCM, particularly with regards to Maslow's argument regarding hierarchy of needs. Indeed, in early JCM theorizing vis-

à-vis Hackman and Lawler (1971), they argued that individuals have a hierarchy of needs that range from lower to higher levels. Because lower level needs (e.g., need for survival, food, water, safety, etc.) are readily and continually satisfied by contemporary society, they do not serve as motivational incentives at work. This is in contrast to higher level needs, which are not as easily satisfied in society, and thus can serve as a source for motivation at work. Though the JCM incorporates Maslow's notion of higher order needs, Hackman and Lawler (1971) differed from Maslow in their contention that higher level needs are immune to diminishing returns. Instead, Hackman and Lawler (1971) asserted: "a person may experience higher order need satisfaction on a continuing basis without the strength or desire for additional satisfaction of these needs diminishing" (262). This conceptualization of psychological needs as continually motivating aligns with self-determination theory's perspective on psychological needs.

Self-determination theory and psychological needs. Self-determination theory's perspective on psychological needs has become the cornerstone for social scientific studies on psychological needs (Sheldon, 2011). According to this perspective, individuals are "active, growth-oriented organisms who are naturally inclined toward integration of their psychic elements into a unified sense of self and integration of themselves in larger social structures" (Deci & Ryan, 2000: 229). In order to feel as though their sense of self is truly integrated and unified with the larger social structure, three psychological needs must be met: *competence* (the need to control one's outcomes and to experience mastery in performing behaviors); *relatedness* (the need to interact with, connect to, and experience care for others); and *autonomy* (the need to feel as though the behavior is willingly enacted such that the individual fully endorses the actions that he or she engages in). If these psychological needs are met, then individuals will feel self-determined, and as a result, intrinsically motivated. Self-determination theory also

conceptualizes these three needs as fundamental and universal, such that all individuals in all societies must have these needs continually satisfied.

Without directly citing self-determination theory, one can see overlaps between self-determination theory's perspective on psychological needs and the JCM. As mentioned, Hackman and Lawler (1971) theorized that individuals can experience need satisfaction on a continual basis without the desire for the need diminishing. This is similar to self-determination theory's notion that individuals must have the three fundamental needs continually satisfied in order to feel self-determined. In addition, two of the three critical psychological states that are in the JCM overlap with two of the fundamental needs in self-determination theory: *experienced responsibility for outcomes* overlaps with autonomy, and *experienced knowledge of results* overlaps with competence. And finally, the JCM's argument that the satisfaction of psychological needs leads to intrinsic motivation echoes self-determination theory's core claim: that satisfaction of the three fundamental needs leads to feelings of self-determination and thus, intrinsic motivation.

Motivation

Vroom's expectancy theory. The use of Maslow and self-determination theory established the following foundational proposition in the JCM: that individuals have higher order or fundamental psychological needs that if satisfied lead to motivation. To explain how job characteristics could motivate individuals—and in particular why individuals would respond to job characteristics—the JCM relied on Vroom's expectancy theory of motivation (1964). Vroom's theory formulized motivation as a cognitive process involving the interactions among *valence* (individual's perception regarding the importance, attractiveness, desirability, or anticipated satisfaction with the outcomes); *instrumentality* (the probability that the individual

can attain the outcome); and *expectancy* (the subjective probability of an action or effort leading to an outcome or preference). When deciding among different behavioral options, individuals choose the option with the greatest motivational force—i.e., possesses the greatest probability of producing desirable outcomes. Based on Vroom's model, Hackman and Lawler (1971) argued that individuals will cognitively process certain job characteristics as motivating because of the characteristics' potential to satisfy internal psychological needs. In other words, individuals will think to themselves that in performing certain job characteristics, their psychological needs will be satisfied. They will thus be motivated to perform those specific job characteristics.

2b. Issues with theoretical core of JCM

The simultaneous use of the three aforementioned theories is problematic given that the theories make contradictory claims regarding the role of psychological needs and motivation. For example, psychological needs as described in Maslow's theory follow a step-like sequence, such that individuals must satisfy one psychological need in order to satisfy others. Self-determination theory would argue that all three fundamental needs—autonomy, competence, and relatedness—are equally important and can be satisfied simultaneously. In Vroom's theory of motivation, there is a cognitive component to motivation such that individuals must first cognitively process whether engaging in an action would bring forth the desired outcomes. This stands in contrast to self-determination theory, which states that individuals need not be aware that engaging in a behavior will bring about desirable outcomes. Ryan and Deci (2000) stated:

> *"Intrinsically motivated activities are not necessarily directed at satisfaction of these needs per se, and behaviors that are directed at satisfaction of these needs are not necessarily intrinsically motivated. Intrinsically motivated behaviors are those that are freely engaged out of interest without the necessity of separable consequences"* (233).

In other words, according to self-determination theory, intrinsic motivation does not emerge because individuals expect that a behavior will lead to desired outcomes. Instead,

individuals are naturally interested in or enjoy engaging in an activity. Engaging in an activity that individuals find enjoyable naturally leads to psychological need satisfaction, and as a result, intrinsic motivation. The important implication this has for the JCM is that is demonstrates the lack of theoretical clarity underlying the model itself. The JCM relies on two different psychological needs theories (Maslow and self-determination theory) in addition to one motivation theory (Vroom) to make the argument that job characteristics affect individuals because they can satisfy individuals' needs and lead to motivation. As I will discuss in my theoretical clarification points, one way to clarify the JCM's theoretical core is to clarify two important components of the model: what the job characteristics and the critical psychological states actually represent. Now, I move to a discussion of the specific parts of the JCM and provide a more in-depth discussion of the conceptual and empirical issues.

Part 3: Elements of the Job Characteristics Model

3a. Critical psychological states

In the JCM, three critical psychological states constitute the "causal core of the model" (Hackman & Oldman, 1976: 255), such that it is through these states that positive outcomes emerge. The first is *experienced meaningfulness of the work*, which is the degree to which the individual experiences the job as generally meaningful, valuable, and worthwhile. More specifically, the individual will feel his/her job as meaningful to the extent that he/she feels the job: 1) produced or accomplished something of consequence or b) utilized skills or abilities which he/she personally values. The second state is *experienced responsibility for the outcomes of the work*. This is the degree to which the individual feels personally accountable and responsible for the results of the work he/she does. The third state is *knowledge of results of work activities*, which refers to the degree to which the individual knows and understands on a

continual basis how effectively he/she is performing on the job. According to Hackman and Oldham (1975, 1976, 1980), emergence of these states lead to a general positive affective state, which then leads to higher levels of motivation. Unsurprisingly, motivation will be highest when all three states are satisfied. There are theoretical and empirical issues with the critical psychological states that warrant attention.

Empirical issues. Empirical findings on the validity of the states have been inconclusive (e.g., Fried & Ferris, 1987; Johns, Xie, & Fang, 1992; Wall, Clegg, & Jackson, 1978). Renn et al. (1995), for example, noted that only eight studies included in Fried and Ferris' (1987) meta-analysis included critical psychological states, and only three of those eight examined the mediating effects of the critical psychological states (e.g., Arnold & House, 1980; Hackman & Oldham, 1976; Wall, Clegg & Jackson, 1978). In studies that did examine the mediating role of the critical psychological states, findings showed that experienced meaningfulness was the primary mediator for the relationship between job characteristics to work outcomes. The other two mediators (knowledge of results and experienced responsibility) were not significant (Humphrey et al., 2007). The lack of consistent empirical support points to a larger issue with the critical psychological states: lack of theoretical clarity regarding what a critical psychological state actually represents.

Theoretical issues. Hackman and Oldham (1980) referred to the states as "internal to persons and therefore not directly manipulable in designing or managing work" (Hackman & Oldham, 1980: 77), while Grant (2007) described them as "a fluctuating internal condition that is usually caused externally (Chaplin, John, & Goldberg, 1998)" (399). Aside from the states being (a) internal to persons and (b) fluctuating, it is unclear what these states actually represent.

To gain clarity regarding what critical psychological states are, I re-visit early theorizations of the JCM vis-à-vis Hackman and Lawler (1971). Hackman and Lawler (1971) drew indirectly from Maslow and self-determination theory to make the argument that individuals have higher order needs that, if continuously satisfied, can be a source of motivation at work. Specifically, they noted that people may "experience higher order need satisfaction on a continuing basis without the strength or desire for additional satisfaction of these needs diminishing" (Hackman and Lawler, 1971: 262). The satisfaction of these needs then leads to a general positive affective state, which then leads to intrinsic motivation. Given that Hackman and Oldham 1) link the critical psychological states directly to internal motivation, 2) note that the states can emerge without the strength of desire for it subsiding and 3) associate the states with a general positive affective state, there is reason to suggest that underlying the critical psychological states are psychological needs. As discussed in the section prior, psychological needs are viewed as a source of motivation by both Maslow's theory, and Deci and Ryan's (2001) theory. In addition, Deci and Ryan's theory suggest that the strength and desire for the satisfaction of psychological needs is constant throughout life because it leads to positive affect generally, and well-being in particular (243). Given this, I provide the following theoretical clarification to the JCM's conceptualization of critical psychological states:

> *Theoretical clarification 1: A critical psychological state is the experiential manifestation of satisfied psychological needs. In other words, critical psychological states are the feelings individuals have when they experience psychological need satisfaction.*

If psychological needs underlie the critical psychological states, an important question is what are psychological needs? The JCM assumes that psychological needs are fixed and unchanging within individuals (Hackman & Oldham, 1976), which leads to the model's claim that critical psychological states are "not directly manipulable in designing or managing work"

(77). Thus, job characteristics can be designed in such a way as to elicit or bring forth individuals' psychological states—e.g., critical states, psychological needs—but not directly change or transform them.

Recently, scholars have offered a more nuanced conceptualization of psychological needs. Specifically, in Sheldon and colleagues' *two-process model* (Sheldon, 2011; Sheldon & Gunz, 2009), they conceptualized a *psychological need* as a higher order construct that is manifested in two different forms: *needs-as-requirements* (a psychosocial experience that individuals must have for well-being) and *needs-as-motives* (an energizing force that compels individuals to act). I discuss this further in the section below. The conclusion from this dual perspective on psychological needs leads to the following implication: individuals' psychological characteristics can be dramatically shaped by their occupation. I will use the plasticity perspective in Chapter 3 to more fully establish this point.

Needs-as-requirements. The requirement perspective conceptualizes psychological needs as a "certain type, content, or character of psychosocial experience that people need to feel, presumably consciously, if they are to grow, develop, and be happy and well adjusted" (Sheldon, 2011: 553). Within the needs-as-requirement perspective, self-determination theory (Deci & Ryan, 2001) is the "current exemplar" (Sheldon, 2011: 553). As discussed in the previous section, self-determination theory conceptualizes three needs—competency, autonomy, and relatedness—as fundamental and universal. Individuals must have these needs met by the social context in order to experience self-determination and intrinsic motivation.

Needs-as-motives. Psychological needs can also be conceptualized as motives that individuals have, or "urges to go out and do certain things or pursue certain incentives" (Sheldon, 2011: 553). In the needs-as-requirements perspective, individuals' psychological needs

must be satisfied for them to feel intrinsic motivation (Deci & Ryan, 2000). Thus, in the requirement perspective, psychological need satisfaction is the mediator between the social context and intrinsic motivation. In the needs-as-motives perspective, individuals can proactively be motivated to do things and to pursue certain incentives regardless of whether their psychological requirements are met. In other words, motives may emerge independent of individuals experiencing fulfillment of their three fundamental needs.

The needs-as-motives approach has been utilized in different theories of psychological needs, most notable in McClelland's *motive disposition theory* (1985) (Sheldon, 2011). In this theory, he argues that individuals have desires or urges for three things in life: achievement, power, and affiliation. Rather than awaiting to have these motives be satisfied by the social context, individuals will go out and seek fulfillment of behaviors or incentives that lead to these outcomes. For example, for a person high in the achievement motive, he or she will seek out and be oriented toward achievement situations. Rather than viewing these motives as fixed and unchanging within the individual, McClelland (1985) maintained that these motives can be shaped and transformed by the individual's surrounding environment. By this, he means that individuals can become more achievement oriented, or desire more power and affiliation, based on his/her social environment. For example, even though human beings have a natural affinity for relatedness and affiliation, if individuals are in an environment where they can experience it more frequently, then it may result in a strong need for affiliation within the individual. In contrast, if individuals are in an environment where they do not have opportunities for relatedness and affiliation, then the need may become diminished within the individual. Taken together, the needs-as-motive perspective views motives as not fixed and unchanging, but rather susceptible to change through the surrounding context (Atkinson, 1982; McClelland, 1985).

Implications for the JCM. If psychological needs can be separated into requirements and motives, how does this impact theorizing in the JCM? An important implication is that it brings to the forefront the malleability of individuals within the context of occupations. The causal core of the JCM is the critical psychological states, which are presumed to be "internal to persons and therefore not directly manipulable in designing or managing work" (Hackman & Oldham, 1980: 77). As I have argued, however, psychological needs are what underlie the critical psychological states (theoretical clarification 1), so it must be the psychological needs that are conceptualized as "internal to person" and "not directly manipulable". However, given that psychological needs can be separated into requirements and motives, with the latter susceptible to shaping, molding, and transforming by the surrounding context, what evidence is there to suggest that psychological needs are indeed fixed and unchanging within the JCM? Another way to ask the question is: which psychological need perspective, needs-as-requirements or needs-as-motives, is implied in the JCM? To this, I argue that the needs-as-motives perspective aligns with the way the JCM has been theorized. As discussed, in the needs-as-motives perspective, individuals are proactive in pursing certain incentives and behaviors. In the JCM theory, Hackman and Oldham specifically cited Vroom's theory to argue that individuals will perceive job characteristics as potentially leading to desired outcomes, and thus have a desire to actively engage in the job characteristics. Given that the JCM directly draws from Vroom's theory to portray individuals as actively seeking incentives and outcomes, I contend that the needs-as-motive perspective most aligns with the JCM's theory. The important implication of this for the JCM, then, is that individuals' core features—in this case, their psychological needs—can be shaped by job characteristics themselves. Thus, rather than merely activating or producing critical psychological states, job characteristics can change the states.

Indeed, Hackman and Oldham acknowledged (1976) the potential malleability of individuals when discussing the moderator growth needs strength. They stated:

> *"It may be that individuals' needs change or adjust to meet the demands of the situation in which they find themselves. Thus, the needs of an individual may actually become more 'growth oriented' when he is confronted with a complex job which seems to demand that the individual develop himself and exercise independent thought and action in his work"* (275).

This observation, however, has not been integrated into past and present theories regarding the JCM. I return to this point in Chapter 3, where I draw from the plasticity perspective to demonstrate how occupations can change individuals.

3c. Job characteristics

Given that the three critical psychological states constitute the core of the JCM, and that they are conceptualized as fixed and unchanging, of interest to scholars was uncovering the job features that could most directly bring forth the critical psychological states. Turner and Lawrence (1965) developed the Requisite Task Attributes Index (RTA) to create a typology of job characteristics that could be most directly tied to the critical states. In developing the RTA, Turner and Lawrence created a 2 x 3 matrix, with one axis representing whether the job dimension was discretionary or prescribed, and the other axis indicating whether the behavioral element required to complete the job dimension was an activity, interaction, or mental state. They then placed different job characteristics into the matrix, and from this chose the job characteristics to include in the RTA based on a) its logical fit in the matrix and b) on previous research, which linked the job characteristics to positive outcomes like employee satisfaction. The final RTA thus included the following six job characteristics: variety (the array of activities required by the task); autonomy (the amount of discretion in carrying out the job requirements); required interaction (the degree to which the task was interdependent with other tasks and

interchange between individuals was necessary to complete the task), optional interaction (non-prescribed interaction that occurred on the job but that was not necessary for completion of the job), knowledge and skill required (the amount and kind of mental and/or motor skills needed to complete assigned task), and responsibility (the degree to which certain attitudes were necessary to complete the tasks).

Drawing from Turner and Lawrence's work (1965), Hackman and Oldham (1980) revised the 6-item RTA index to five "core" and "objective" job characteristics that they believed were most directly related to the critical psychological states. The first is s*kill variety,* which refers to whether a job uses a diverse set of the employee's skills and talents. The second is *task identity,* which is the extent to which the employee feels he/she meaningfully partook in the whole production process, from beginning the end. Third is *task significance,* or the extent to which the employee feels his/her job impacts the lives of others. Fourth is *autonomy,* defined as the extent to which the job permits the employee to have freedom and discretion over the work process. And fifth is *feedback*, or the extent to which the job provides clear and direct feedback to the employee regarding his/her progress and performance. Hackman and Oldham justified the use of these five dimensions based on Vroom's expectancy theory of motivation, which theorized that employees will increase their motivational level if they expect that doing so will produce the critical psychological state (Aldag, Barr, & Brief, 1981).

The JCM further specified specific linkages between certain job characteristics and certain critical psychological states. First, they hypothesized that skill variety, task identity, and task significance would have an additive and positive impact on experienced meaningfulness of the work. With regards to skill variety, they argued: "when a task requires a person to engage in all activities that challenge or stretch his skills and abilities, that task almost invariably is

experience as meaningful by the individual" (1976: 257). Similarly, they argued that if an individual assembles a complete project (task identity), then he/she should find the work more meaningful. And lastly, they argued that if the individual understands the significance of his/her work on others' well-being (task significance), then this should positively influence the individual's experienced meaningfulness.

Second, they hypothesized that autonomy would lead to the emergence of experienced responsibility for work outcomes. This is because autonomy would lead the individual to recognize that the outcome depended on the "person's own efforts, initiatives, and decisions rather than on the adequacy of instructions from the boss or on a manual of job procedures" (Hackman & Oldham, 1976: 258).

And third, they argued that feedback would lead to knowledge of results. (See Figure 2 for linkages between job characteristics and critical psychological states). As with the critical psychological states, there are theoretical and empirical ambiguities with job characteristics that warrant attention.

Empirical issues. Empirically, scholars have questioned the distinctiveness of the five job characteristics. Using a sample of public sector employees, Lee and Klein (1992) found support for the JCM's 5-factor structure. Nonetheless, amongst a sample of technicians and service workers, the 5-factor structure was not supported. Instead, the authors found support for a 4-factor structure—autonomy was not found to be a distinct job characteristic. The lack of distinctiveness of the 5-factor model has been further replicated in other research studies (e.g., Aldag, Barr, & Brief, 1981; Campion, 1988; Harvey, Billings, & Nilan, 1985; Idaszak & Drasgow, 1987; Taber & Taylor, 1990). In Fried and Ferris's (1987) meta-analysis, they even provided evidence to suggest that respondent's age, education level, and position in the

organization influenced the extent to which respondents could differentiate between the five dimensions.

The second issue was with the reliability of the scale used to assess the job characteristics: the Job Diagnostics Survey (JDS). For example, in several studies, scholars showed that changing the JDS to include only positively worded items fit the 5-dimension structure better than using the scale's originally worded items (e.g., Idaszak, Bottom, & Grasgow, 1988). In attempts to address some of the JDS' weaknesses, Campion (1988; Campion & Thayer, 1985) developed the multi-method job design questionnaire (MJDQ), which conceptualized work along dimensions other than the JCM's five core job characteristics. The dimensions in the MJDQ included: motivational (job features intended to motivate employees, e.g., autonomy, task identity, etc.), mechanistic (job features related to time and motion); biological (job features related to ergonomics); and perceptual/motor (job features related to information processing). This too, however, suffered from measurement problems and lack of distinct constructs (Edwards, Scully, & Brtek, 1999, 2000). Nonetheless, Campion's scale raised the question of whether there are other job characteristics aside from the JCM's five that matter. This leads to the third issue raised against the JCM, which is whether there are other job characteristics aside from the five mentioned in the JCM. As Morgeson and Humphrey (2006) argued: "if only a small number of motivational job characteristics are considered (e.g., autonomy and variety), the types of design decisions are likely to be highly restricted" (1322). In light of these criticisms, scholars have made great strides in developing a more complete model of job characteristics. In particular, job characteristics relating to social characteristics (e.g., interdependence, feedback from others, social support, interaction outside the organization) and

work context (e.g., physical demands, work conditions, and ergonomics) are now included as important work features.

In addition to empirical questions about the job characteristics themselves, scholars have raised issue with the hypothesized linkages between the job characteristics and the critical psychological states. In a cross-sectional study involving 658 employees working on 62 different jobs across seven organizations, zero-order correlational analysis revealed that the links between the five job characteristics and the three psychological states were positive and in line with the stated hypotheses (i.e., the study found that autonomy was related to experience responsibility for outcomes, feedback was related to knowledge of results, and so forth) (Hackman & Oldham, 1976). Other researchers, however, have not been able to replicate these results, instead showing that specific job characteristics relate to critical psychological states other than the ones specified by the JCM. For example, feedback, which is linked to knowledge of results in the JCM, has been associated with experienced responsibility in other studies(Fried & Ferris, 1987; Johns, Xie, & Fang, 1992).

Wall, Clegg, and Jackson (1978) further questioned the validity of the psychological mediators. They showed in their study that in excluding the psychological mediators all together, the direct effect between job characteristics and outcomes fit the data equally well. Furthermore, Johns et al. (1992) found that experienced meaningfulness was a "particularly encompassing psychological state" (667), meaning that it served as the mediator for all five job characteristics—rendering the other two critical states irrelevant. Questions were thus raised regarding the mediators' predictive power and general utility. The findings from Humphrey et al.'s (2007) meta-analysis further showed that "the primary mediator of the motivational characteristics-work outcome relationships is experienced meaning. Its inclusion in the

mediation model led to the greatest level of mediation" (1346). In speculating the reasons for this, Humphrey et al. (2007) argued that experienced meaningfulness is most closely linked to the ultimate goal of all human beings: to have purpose and meaning in their lives (Ryan & Deci, 2001). Thus, it is perhaps unsurprising that it captured the most variance compared to the other critical psychological states.

Theoretical issues. In addition to the aforementioned empirical issues, questions remain as to the level of analysis that is most appropriate in examining job characteristics. In original theorizations on the JCM, job characteristics were conceptualized at the occupation level. Most JCM research and theory, however, is at the organization level. For example, in the updated JCM questionnaire by Morgeson and Humphrey (2006), they included organization-specific (e.g., "I receive a great deal of information from my manager and coworkers about my job performance") as well as general occupation-characteristics (e.g., "the job requires me to analyze a lot of information") under the general umbrella of "job characteristics".

To provide clarification to the construct of job characteristics, I remain consistent with the original JCM theory and view *job characteristics* at the occupation level (Hackman & Oldham, 1976), referring to them as *occupation characteristics.* I provide further clarification regarding the concept of occupation characteristics by defining and delineating what I mean by *occupations.* In my conceptualization, I view occupations as enclosed groups in society that are defined by their social purpose. The purpose or goal of dentists, for example, is to perform dental services for people in society; the goal of professors is to teach students and conduct research. The *characteristic* of the occupation refers to the essential features that define the occupation, and differentiate it from others. This occupation-based perspective to job characteristics aligns

with Hackman and Oldhman's conceptualization (1976) and with sociological research on stratification.

Broadly speaking, stratification research seeks to understand how and why societies become divided, the underlying factors for social groupings, and what that groupings mean for members internal and external to the group (Grusky, 1994: 3). Numerous theoretical perspectives have been put forth to explain stratification and the mechanisms by which it is maintained. The "big class" approach is rooted in Marxian philosophy (Marx, 1869/1963), and views societies as divided into two classes: the "capitalists" and the "workers".

In contrast to Marx, the Weberian perspective (Weber, 1946) conceptualized stratification as a function of economic (ownership of capital) and status characteristics (ownership of certain traits, lifestyles, etc.). Drawing from Weber's approach, sociologists Weeden and Grusky (2005) proposed that a meaningful way to examine stratification in society is to look at it from the occupation level (Grusky 2005; Grusky and Sorensen 1998; Grusky & Weeden 2001; Weeden & Grusky 2005). More specifically Weeden and Grusky (2005) argued that due to the division of labor in society, each occupation creates for itself a functional niche, and that this niche becomes institutionalized and enclosed in much the same way cultures are institutionalized and enclosed. In particular, three sociological forces account for how occupations become enclosed. First, individuals who join occupations are often subjected to explicit training in the form of vocational programs, apprenticeships, or graduate/professional school, resulting in "occupation-specific homogeneity in behaviors and worldviews" (Weeden & Grusky, 2005). Second, individuals spend much of their time interacting with those in their specific occupational boundary, thus preserving and reinforcing occupation-specific lifestyles and worldviews. And third, employers from diverse firms and industries tend to construct occupations using similar occupational

templates, resulting in within-occupation consistency in working conditions across organizations. Collectively, these forces "combine to convert technical categories into socially meaningful ones and to generate closed groupings at the occupation level" (Weeden & Grusky, 2005). Drawing from this perspective, I thus contend that occupations are the appropriate level of analysis from which to examine job characteristics.

In my re-conceptualization, I further contend that past and present JCM theorizations on job characteristics have understated the notion that the characteristics themselves are both *the occupation demands/requirements of the occupation* and the descriptive elements of the occupation. In the current JCM questionnaire (Morgeson & Humphrey, 2006), respondents are asked questions that probe descriptive elements such as the work context and social interactions that occur on the job (e.g., "the job occurs in a clean environment", "the job has a large impact on people outside the organization", "I receive a great deal of information from my manager and coworkers about my job performance"). In addition, respondents are asked questions about the requirements of the job, or the thoughts and behaviors that are demanded of the individual while he or she is doing the occupation (e.g., "the job requires spending a great deal of time with people outside my organization", "the job requires a variety of skills", "the job requires me to monitor a great deal of information"). When conceptualizing occupation characteristics, it is thus important to view them as the descriptive qualities that define the context in which an occupation occurs (e.g., I work with people, I work at a school), in addition to the activities and tasks (behavioral, cognitive, emotional, etc.) in which occupation members *must* engage in order to be members of the occupation (i.e., in order to keep or maintain their occupation). It is important to note that in my theorizing, I do not attempt to create a typology of occupation characteristics, as is done in the JCM. Rather, in my conceptualization of occupation characteristics, I provide a

general blueprint regarding what occupation characteristics are—the descriptive and requirement elements of the occupation—thereby allowing researchers to examine the characteristics that might be most appropriate or applicable to their research interests.

To summarize, I re-conceptualize job characteristics (a) at the occupation level, and (b) as containing both descriptive elements that define the occupation context in addition to elements that delineate the demands that are placed on individuals within the occupation.

> *Theoretical clarification 2: Job characteristics are conceptualized at the occupation level, and referred to as occupation characteristics. Occupations are conceptualized as enclosed groups in society, with individual members belonging to the occupation. Occupation characteristics are a) the descriptive elements that illustrate the context (social or physical) in which the occupation occurs and b) the behavioral, emotional, and/or cognitive requirements that occupation members must fulfill in order to be members of the occupation.*

3c. Outcomes of the Job Characteristics Model

In the original JCM, the three psychological states were hypothesized to predict five behavioral and attitudinal outcomes: job satisfaction, growth satisfaction, internal work motivation, job performance, and absenteeism (Hackman & Oldham, 1976). Unlike the linkages between the job characteristics and critical psychological states where it was hypothesized that specific job characteristics relate to specific psychological mediators (e.g., autonomy impacts the experienced responsibility for outcomes for the work, etc.), the JCM does not specify which critical psychological state relate to which outcome. Instead, the general idea is that increased motivation as a function of any of these three critical psychological states would positively influence work-related outcomes.

Empirical findings on the linkages between job characteristics, critical psychological states, and outcomes remain unclear (e.g., Fried and Ferris, 1987; Humphrey et al., 2007). For example, in a meta-analysis conducted with nearly 200 studies, the researchers found strong

support for the linkages between job characteristics and attitudinal outcomes (e.g., job satisfaction, growth satisfaction, and internal work motivation), but found a much weaker relationship between job characteristics and behavioral outcomes (e.g., job performance and absenteeism) (Fried and Ferris, 1987). These findings were further replicated in a more recent meta-analysis involving 259 studies, where job characteristics were more strongly associated with attitudinal outcomes than behavioral ones (Humphrey et al., 2007). In making sense of the inconsistent findings, Fried and Ferris (1987) suggested that one reason for the stronger associations between job characteristics and psychological outcomes was the fact that most studies were conducted using self-report measures. As such, subjective ratings of behavioral outcomes—e.g., performance and absenteeism—may have biased the results. Humphrey et al. (2007) echoed this point in their meta-analysis, stating that because most of the studies on job design has been conducted with employees evaluating both the work and outcome variables, the data may have suffered from common-source biases (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003).

Aside from these data issues, Fried and Ferris (1987) further suggested that job characteristics themselves may have a more direct effect on psychological rather than behavioral outcomes, "whereas contextual factors such as economic conditions, marital status, performance norms or peer groups at work, and so forth could substantially influence the relationship between job factors and behavioral outcomes" (311). This point is further supported by Humphrey et al.'s (2007) meta-analysis, where they found that compared to the job characteristics outlined in the JCM (e.g., autonomy, skill variety, etc.), the social characteristics of the job (e.g., interdependence, feedback from others, social support, and interaction outside the organization) more strongly predicted behavioral outcomes such as performance and turnover intentions. Their

rationale was that social characteristics provide employees with the opportunity to learn from each other and mimic others' behaviors. Thus, social characteristics, as opposed to job characteristics, more strongly predicted the outcomes.

Beyond these criticisms regarding the discrepancy between attitudinal and behavioral outcomes, researchers have also criticized the JCM for its limited focus on only a handful of outcomes. As such, calls have been put forth to expand outcomes of interest beyond those revolving around performance and productivity. Areas of burgeoning interest now include helping (Grant, 2008; Parker & Axtell, 2001), creativity (Amabile & Gryskiewicz, 1989; Oldham & Cummings, 1996; Shalley, Zhou, & Oldham, 2004), safety (e.g., Parker, Axtell, & Turner, 2001), voice (e.g., LePine & Van Dyne, 1998), and proactive behaviors (Parker, 1998). In addition, Parker and Wall (1998) argued that non-work outcomes should be considered in job design research. They argued that though it is unsurprising that the focus has been on work-related outcomes, "it is also important to investigate how the nature of work 'spills over' and affects life outside work (35)." Consideration of non-work outcomes, however, means broadening the scope of the JCM to include different psychological mediators. In addressing this critique, my dissertation seeks to broaden the JCM by considering different psychological mediators (values and attitudes) and non-work related outcomes.

3d. Psychological moderators in the Job Characteristics Model

The aforementioned links from job characteristics to critical psychological states, and critical psychological states to work-related outcomes, are not without contingencies. For example, in an early JCM study involving 470 employees in 47 different jobs, Turner and Lawrence (1965) hypothesized that jobs that were higher on their RTA index would be related to increased job satisfaction and lower absenteeism. This hypothesis was confirmed with factory

workers in small towns, but not with workers in urban settings. In addition, amongst the urban workers, RTA was not related to absenteeism. Turner and Lawrence (1965) concluded that the cultural background of employees in rural and urban settings accounted for the differences in responses to RTA.

In following up on Turner and Lawrence's (1965) findings, Blood and Hulin (1967) argued that small town and urban workers differed in the cultural values they placed on traditional work norms. More specifically, they argued that urban workers have a culture characterized by alienation from the traditional work norms, while employees from small towns hold to traditional values of work and achievement. This difference then moderated workers' responses to job design such that those who felt highly alienated from work (urban employees) would respond more negatively to complex jobs while those who held to the traditional work norms (rural employees) would respond positively. Blood and Hulin's (1967) found support for these hypotheses, leading them to conclude that a strong relationship existed among worker alienation, job level (status), and satisfaction with work.

Early JCM research thus demonstrated the importance of moderating variables. More specifically, Turner and Lawrence (1965) and Hulin and Blood (1968) showed that macro-level factors (e.g., differences between urban and rural settings and worker alienation culture) moderated the link from job characteristics to outcomes. The focus on macro-level factors was contested by Hackman and Lawler (1971), who argued that the town-city conceptualization assumed a "homogeneity of worker characteristics and response tendencies for employees within the two cultural settings" (261). Instead, they argued for a more micro-level focus on individual difference variables.

In line with Hackman and Lawler's (1971) arguments, Hackman and Oldham's JCM (1980) endorsed the more micro-level view, proposing that "psychological needs of people are critical in determining how vigorously an individual will respond to a job high in motivating potential" (85). They thus argued that important individual differences should moderate the JCM at two different points: 1) from the job characteristics to critical psychological states link and 2) from the critical psychological states to outcomes link. In particular, the JCM presented three moderating variables: level of knowledge and skill, satisfaction with the work context, and growth needs strength (GNS). *Level of knowledge and skill* refers to the extent to which employees possess the requisite capacities to perform the job. The argument is that high levels of knowledge and skill should increase the positive effects of job characteristics on critical psychological states, and from critical psychological states to the behavioral outcomes. In other words, "for jobs high in motivating potential, then, people who have sufficient knowledge and skill to perform well will experience substantially positive feelings as a result of their work activities" (Hackamn & Oldham, 1980: 84), which will then lead to positive behavioral outcomes (i.e., higher performance, etc.). *Satisfaction with the work context* refers to the extent to which the individual is satisfied with aspects of the job (i.e., job security, co-workers, supervision, etc.). The higher one's satisfaction, the more likely will work characteristics influence critical psychological states, and critical psychological states then influence outcomes. And lastly, *growth needs strength (GNS)* refers to an individual's need for personal accomplishment, learning, and development. Again, it is believed that the higher the GNS, the more positively will job characteristics lead to critical psychological states, and the critical psychological states lead to positive behavioral outcomes. Though each moderator can independently affect the JCM, the effects will be stronger if the individual is high on all three moderators. For example, if the

individual is highly skilled, has a high GNS, and likes his or her work, then the link from job characteristics to critical psychological states, and then from critical psychological states to work outcomes, will be augmented.

Of the three moderators, GNS has received the most attention (Morgeson & Campion, 2003). In empirical tests of GNS, Hackman and Oldham (1976) found that GNS moderates the relationship between the three psychological states and the following outcome variables: internal motivation, general satisfaction, and growth satisfaction. They thus concluded that "individuals with strong growth needs do react more positively to complex jobs than do individuals with weak needs for growth" (274).

Given the importance of GNS in the JCM—it is hypothesized to moderate the model at two different points—one would think that it has been included in most of the subsequent JCM studies. However, GNS has not been explored extensively in the literature. In Fried and Ferris' (1987) meta-analysis, only 2 of the 75 studies directly examined the moderating effect of GNS. In a more recent meta-analysis conducted by Humphrey, Nahrgang, and Morgeson (2007), the authors did not even examine the moderating role of GNS.

There have been a handful of studies that have looked at GNS, but the findings here have been mixed (e.g., Johns et al., 1992; Tiegs, Tetrick, & Fried, 1992). In a meta-analysis of 28 studies, Loher, Noe, Moeller, and Fitzgerald (1985) concluded that GNS did moderate the path from job characteristics to job satisfaction, but not from critical psychological states to work outcomes. In another study by Tiegs, Tetrick, and Fried (1992) involving 6,405 respondents across 876, the authors did not find support for the moderating effects of GNS. Grant et al. (2010) thus concluded in their review that "it is not yet clear whether these conflicting findings are an artifact of range restriction and other measurement limitations or whether they are due to

the theoretical possibility that growth need strength may be more relevant to some outcomes than others (Fried & Ferris, 1987; Johns et al., 1992; Spector, 1985)".

As discussed in the section on need-as-motives, one possible explanation for the lack of consistent findings for GNS is that GNS may actually change as a function of job characteristics. I return to this point in Chapter 3, in my discussion of the plasticity perspective where I suggest that occupation characteristics can change and transform core psychological features of the individual—perhaps even their GNS.

3e. Alternative views to the Job Characteristics Model

Though the JCM is the most influential model in the job design field, it was not without its critics. For example, Salancik and Pfeffer (1978) contested the assumption that individuals' needs can be satisfied by job characteristics. Rather, in their *social information processing perspective*, they conceptualized needs as an outcome produced by the individual, rather than something inherent or innate in the individual. In other words, individuals construct needs in response to "externally generated or self-generated requests for evaluations and explanations of some other behavior" (226). Parker and Wall (1998) further suggested that job restructuring could lead to learning and development outcomes that change the way individuals think and act, even in non-work situations. For example, they cited Crouter's (1984) work, which found that for women, high levels of participation at work could increase their desire for high levels of participation at home. Frese and Zapf (1994) also suggested that complex work environments could facilitate the development of long-range goals that could then transfer to non-work activities. Using longitudinal data, sociologists Kohn and Schooler (1978) found that job complexity had a small but consistent effect on employees' general intellectual flexibility. In addition, Parker, Wall, and Jackson (1997) showed through a longitudinal study that enhanced

autonomy at work facilitated the development of broader and more proactive role orientations. They described this as a learning and development process, whereby through "active and autonomous engagement in more tasks, people develop new understandings of their roles and how they should be performed" (Parker, Wall, & Jackson, 1997: 923). Parker and colleagues, however, did not discuss the exact psychological mechanisms responsible for the learning and development process. Nonetheless, the aforementioned studies highlight the extent to which occupations can shape and mold core features of the individual. In the next chapter, I discuss theoretical frameworks that can help explain this shaping process, and the effects of this shaping on non-work outcomes.

Part 4: Summary of Chapter 2

Though researchers have conducted several hundred studies on the JCM, the core theoretical assumptions have remained largely unchallenged. In this review, I revisited the JCM's core assumptions with regards to the critical psychological states and job characteristics. In re-visiting these elements, I provided theoretical clarification for what critical psychological states and job characteristics actually represent. With regards to critical psychological states, I re-conceptualized them as the experiences individuals feel when they have their psychological needs satisfied. In other words, critical psychological states are the feelings individuals have when they experience psychological need satisfaction. Psychological needs themselves are conceptualized in the needs-as-motives perspective, suggesting that psychological needs are susceptible to transformation by the external environment. This re-conceptualization is important for JCM researchers because it provides clarity to what a critical psychological state actually is—something that thus far had been unclear in current JCM theorizing. In addition, it brings to the forefront the JCM's assumption that the critical psychological states are fixed and "not directly

manipulable" by occupations. Instead, this re-conceptualization of critical psychological states would suggest that individual attributes are indeed susceptible to direct shaping by occupations.

In addition, I re-conceptualized job characteristics at the occupation level, and refer to them as occupational characteristics. I do so in order to remain consistent with original theorizing in the JCM. In my re-conceptualization, I view occupations as enclosed groups in society that are defined by their social purpose. Occupation characteristics are a) the descriptive elements that illustrate the context (social or physical) in which the occupation occurs and b) the behavioral, emotional, and/or cognitive requirements that occupation members must fulfill to serve the occupation's purpose, and be a member of the occupation. With these clarifications, I now turn to a discussion regarding how occupations can transform and change individuals, and the downstream consequences of this for individuals' overall livelihood.

CHAPTER 3: PLASTICITY PERSPECTIVE

Introduction

As reviewed in Chapter 2, the *Job Characteristics Model* (JCM) theorizes that job characteristics produce critical psychological states, which then lead to increased work motivation and other positive work-related outcomes. Throughout the JCM, there is an underlying presumption regarding the fixedness of human design. As discussed in Chapter 2, the critical psychological states are defined as "internal to persons and therefore not directly manipulable in designing or managing work" (Hackman & Oldham, 1980: 77). The purpose of this chapter is to provide a different perspective regarding human design. To do this, I turn to a broad range of theoretical perspectives that collectively point to and support the notion of *plasticity.* Based on the plasticity framework, I build upon the JCM's core arguments and propose an alternative model regarding the effects of occupations on individuals: that individuals' psychological characteristics are not fixed and unchanging but rather can emerge, be developed, or be suppressed in the service of occupation characteristics. Through the plasticity lens, I then integrate research on *work-family* to examine how and why these transformed psychological characteristics carry over to influence non-work outcomes.

Part 1: Plasticity Overview

Plasticity is a perspective on human development. Its general theme is that individual attributes are not fixed and static, but rather transformable by the environment. Plasticity is the notion of within-individual modifiability (Gollin, 1981; Lerner, 1984). This modifiability occurs because, throughout the life course of the individual, he or she will encounter situational, environmental, or social demands that could not have been "anticipated by genetic

programming" alone. (Munte et al., 2002: 476). Plasticity thus allows the individual to adapt to these environmental demands and to develop in ways that were not pre-programmed.

The plasticity perspective can be contrasted with the more "traditionalist" paradigm of human development and design. In this paradigm, individuals reach a state of fixedness such that environmental features have little to no effect on the individual. In neuroscience, scholars have long held to the notion that the adult brain becomes "fixed, ended, immutable" once reaching a certain age (Cajal, 1913), and that changes thereafter are slight and insignificant. Indeed, this view was so pervasive that by the 1950s, the "immutable paradigm had become the conventional wisdom of neuroscience" (Schwartz & Begley, 2002: 167). This fixed view of human design permeated research on personality psychology, where the prominent belief was that personality was relatively stable once individuals reached adulthood. William James (1890), for example, argued that "for most of us, by age 30, the character has set like plaster and will never soften again" (124). The *five-factor model of personality* reiterated James' claim, viewing personality as unchangeable after the age of 30 (Costa & McCrae, 1994). Such plaster theories of personality would mean that in relation to occupations, "personality change associated with work experience would only occur when people are young, that is, before they turn 30. After young adulthood, core personality dispositions would be impervious to life experiences" (Roberts, 1997: 207).

In contrast to the traditionalist paradigm, the plasticity framework conceptualizes individual modifiability as occurring throughout an individual's life course, such that no age period holds supremacy in regulating the nature of development. The implication of the plasticity framework is that "life-long development may involve processes of change that do not originate at birth but lie in later periods of the life span" (Baltes, 613). How does the plasticity framework differ from related theoretical perspectives? Within the organizational sciences, for example,

socialization is the process by which an individual comes to appreciate the values, abilities, expected behaviors, and social knowledge essential for assuming an organizational role and for participating as an organizational member. Though the notion that individuals can adapt and change is suggested in the socialization perspective, this perspective places a limit on the individual attributes that can be changed. Ashforth and Saks (1996) note that because central aspects of the self (e.g., values and personality) are resistant to change, "socialization primarily influences what Schein [1971] referred to as the more 'labile' self" (153). This is an important point of departure between socialization and plasticity, for the former still assumes a fixedness to individuals that is absent in the latter's perspective.

In the following sections, I discuss plasticity in detail. I begin by presenting two general tenets of plasticity. I then discuss plasticity with regards to occupation characteristics.

1a. The first general tenet of plasticity: Individual change is a response to environmental demands

According to life-span researchers, life-long development occurs because of the "demands and opportunities that individuals face as they move through life" (Baltes, 1987: 613). These demands and opportunities can be conceptualized as *developmental tasks*, which are a series of problems, challenges, or life-adjustment situations that come from biological development, social expectations, and personal action (Havighurst, 1948/1972). These tasks spur within-individual modifiability, such that individuals develop in ways that will allow them to confront and fulfill these tasks. Taken together, the notion of an environmental context that demands and challenges individuals is integral to plasticity, and thus I present it as the first general tenet of plasticity: *that individual change is a response to environmental demands.* By environmental demands, I mean the cognitive, behavioral, and/or emotional tasks, duties, or roles that an individual must engage in or fulfill within a particular context. Within the context of

occupations, for example, occupation members are required to think and behave in ways that will support or fulfill the goals, aims, and general purpose of the occupation—e.g., professors are required to conduct research and teach, doctors are required to help the sick, etc. In response to these demands, individuals develop in ways that allow them to meet the demands of the environment.

1b. The second general tenet of plasticity: Individual change facilitates effective functioning within a context

The second general tenet of plasticity is that individual development serves a purpose: *to allow individuals to function effectively within the demanding context*. In the studies of plasticity detailed below, individual modifiability occurs to facilitate the individual's performance of a task (Draganski et al., 2004), or to enable the individual to function effectively in a social situation (e.g., in a classroom in the US, Kitayama & Uksul, 2011). By effective, I do not mean optimal or even high performance functioning—for example, as indicated by high performance evaluations, high test scores, or other objective measures of performance. Rather, effective is used here to denote that the individual will be able to perform, at the bare minimum, the tasks and duties that are required of him or her within a context. Within the context of occupations, effective functioning could be perceived as doing what is necessary to be perceived as a member of the occupation—i.e., doing what is necessary to not be fired and to maintain status as an occupation member. The purpose of plasticity is thus to facilitate effective functioning within a context, while remaining agnostic as to the "success" or "quality" of the performance.

In the following sections, I outline research from life-span, neuroplasticity, and psychology that point to the notion of within-individual modifiability.

Part 2: A family of perspectives on plasticity

2a. Life-span

Life-span researchers are interested in psychological development throughout an individual's life course. Several themes are noteworthy in this research stream. First, the period of development extends over the course of an individual's life, meaning that individuals can be transformed at any age period in their life span. Second, developmental processes are not simply a movement toward higher efficacy or efficiency, but rather consist of the joint occurrence of gain (growth) and loss (decline). For example, individuals can become more growth oriented, or become less growth oriented during the course of their lives, with the implication being that growth orientation is not static and pre-determined. And third, development is a function of contextual and/or biological demands. For example, Havighurst (1948/1972) argued that developmental tasks—which are a series of problems, challenges, or life-adjustment situations that come from biological development, social expectations, and personal action—can lead to the emergence or suppression of psychological characteristics within the individual.

Research on cognitive development has been a particularly fruitful area in which life-span researchers have shown the modifiability of individuals. Typical theories of intelligence vis-à-vis Flavell et al. (1970) and Piaget (1972) have tended to view intelligence in a cognitive-structuralist stance, such that intelligence is perceived to be relatively fixed and static once individuals reach early adulthood. In contrast, research grounded in the life-span perspective has challenged this fixed view of intelligence (Dixon & Baltes, 1986). Intervention studies with the elderly, for example, have shown that intelligence can be developed even in the later stages of life. For example, research shows that, after a fairly brief program of cognitive practice, many older adults aged 60-80 years exhibited higher levels of performance comparable with those observed in "untreated" younger adults. These findings have been replicated in other domains of cognitive functioning and knowledge generation. For example, life-span researchers have argued

that expertise, which denotes skills and knowledge that are highly developed and practiced, can emerge in adults who are given the chance and opportunity to practice such forms of expertise (Denney, 1984; Dixon & Baltes, 1986; Hoyer, 1985; Rybash, Hoyer, & Roodin, 1986). This suggests that, "expertise in select facets of the pragmatics of intelligence can be maintained, transformed, or even newly acquired in the second half of life if the conditions are such that selective optimization in the associated knowledge system can occur" (Baltes, 1987: 615). In addition to expertise, life-span researchers note that wisdom is another manifestation of cognitive development that occurs in the later periods of life. Wisdom is an expertise in the fundamental pragmatics of life (Dittmann-Kohli & Baltes, 1990). Empirical studies on wisdom have shown that older adults have more well-developed systems of knowledge about situations that involve questions of life-planning (Smith, Dixon, & Baltes, 1989). Collectively, the life-span research stream lends support to the plasticity perspective of human design, suggesting that contextual factors (e.g., life experiences, life demands, etc.) can lead to the development of psychological attributes in the individual.

2b. Neuroplasticity

Draganski et al. (2004) opened their article on neuroplasticity with the following question: "Does the structure of an adult human brain alter in response to environmental demands?" (311). Emerging research in neuroplasticity suggests that the answer to this question is "yes." Neuroplasticity refers to the ability of the brain to change its structure and function in response to life experiences and environmental demands (Munte et al., 2002). According to neuroplasticity researchers, the neural changes lead to subsequent behavioral changes, which can last a few seconds, a few minutes, or even after a few years. What matters is not the duration of the effect (i.e., five minutes versus five years), but rather the anatomical effects of the change on

the brain. More specifically, for Munte et al. (2002), they referred to neuroplasticity as experience-driven brain change attributable to two neurological alterations. First is the "de novo" growth and improvement of new dendrites, synapses, and neurons, which entail structural changes at either the microscopic or macroscopic levels. Simply put, new neural patterns are forming in the brain. Second is the inhibition of existing lateral connections between neurons, which requires a strengthening or inhibiting of already existing synaptic connections. In other words, pathways that the individual already has (e.g., being extroverted) becomes augmented and strengthened. In contrast to the first process, the latter refers to the adjustment of already existing neural connections. These two forms of experience-driven neuroplasticity should be separated from the more rapid changes of brain responses that occur in milliseconds, and that have also been mislabeled as neuroplasticity. As Munte and colleagues (2002) argued, "these [rapid changes] are likely to result from the attentional modulation of neural circuits, and should be distinguished from true plastic changes" (476). Thus, in simplistic terms, neuroplasticity is either the formation of new connections, or the strengthening or disinhibition of old connections within the brain.

Empirical support for neuroplasticity research

A diverse array of research supports the neuroplasticity argument. For example, in an experiment at Harvard Medical School, volunteers were recruited to practice a piano exercise for 2-hours each day, for a total of five days. At the end of each day's practice session, a transcranial-magnetic-stimulation (TMS) test was conducted, in which participants sat beneath a coil of wire that ran from the crown of their head toward their ears. The coil then sent brief magnetic pulses into their motor cortex, which allowed researchers to assess the function of the neurons beneath the coil. The findings showed that the area of the brain that controlled the finger

movements became augmented. In fact, within a week of practice, “the stretch of motor cortex devoted to these finger movements took over surrounding areas like dandelions on a suburban lawn” (Munte et al., 2002: 479). In a similar study, Elbert and colleagues (1995) examined the cortical representation of the left hand in those who played a string instrument compared to those who did not play a string instrument. They found that the cortical representation of the left hand was larger in the musicians’ brains than in the non-musicians’. In addition, researchers found that years of practicing music, increased the amount of grey and white matter volume in several brain regions (e.g., Keenan, van Thangaraj, Halpern, Schlaug, 2001; Schlaug, Jäncke, Huang, & Steinmetz, 1995). In response to these findings, some may argue that these differences in brain anatomy are not attributable to musical practice, but rather to inherent differences in the person. In other words, those with higher volumes of grey and white matter chose to practice musical instruments. As the authors noted, however, the fact that “a correlation was found between the extent of the anatomical differences and the age at which musical training started strongly argues against the possibility that these differences are pre-existing and the cause, rather than the result, of practicing music” (Munte et al., 2002: 476). Thus, according to these researchers, “neuroplasticity allows the brain to adapt to environmental factors that cannot be anticipated by genetic programming” (Munte et al., 2002: 476).

In addition, research on meditation has found that repeated engagement in meditative practices can alter the brain’s structures. Lazar et al. (2005) found with magnetic resonance imaging (MRI) studies that mediation led to an increase in the thickness of the cerebral cortex in participants with extensive experience in mediation. These results were compared against a control group, which had no experience in mediation. In another study by Draganski et al. (2004), the researchers were interested in learning-induced plasticity in the brains of twenty-one

volunteers who were taught how to juggle. In the study, a homogenous group of participants who were matched for sex and age and were randomly assigned to two groups: one group was taught to juggle and the other was the control group. Prior to any experimental manipulation, participants' brains were scanned. For those in the juggling group, participants were given three months to learn to juggle three balls. A second brain scan was performed once the participant became skilled (i.e., they could juggle for 60 seconds). The brain scan revealed that before the experimental manipulation, there was no difference between control and experimental groups on grey matter. Longitudinal analysis revealed, however, that the juggler group had significantly more grey matter in the mid-temporal area and left posterior intraparietal sulcus between the first and second scans. No difference was found for the non-juggler group between their first and second scans. The researchers thus concluded that: "Our results contradict the traditionally held view that the anatomical structure of the adult human brain does not alter, except for changes in morphology caused by ageing or pathological conditions. Our findings indicate that learning-induced cortical plasticity is also reflected at a structural level" (311).

Building upon these findings, May et al. (2006) were interested in whether structural neuroplasticity could arise in a matter of days rather than months. In their study, they recruited 36 volunteers, and randomly assigned them to either an experimental or placebo condition. In the experimental condition, participants were given low-frequency electrical pulses to parts of their brain for five days. Those in the control condition received no electrical treatments. The findings showed that those in the experimental group had macroscopic cortical changes in gray matter in just five days. The authors concluded that "our findings suggests that cortical plasticity on a structural level in adult humans is already detectable after 1 week, which provides support for fast adjusting neuronal systems" (205).

In another study by Kempermann, Gast, and Gage (2002), the authors were interested in neuroplasticity particularly within the context of the aged, adult brain. They specifically looked at the hippocampus because of its involvement in higher cognitive functions, especially in learning, development, and degenerative disorders in the aging brain. Their main research question was whether participation in an active life can benefit the adult hippocampus. Using data from aging mice, they found that participation in an enriched environment—characterized by a complex combination of inanimate and social stimulation, interaction, and behavioral experiences—led to plasticity in the hippocampus, specifically to improvements in learning, exploratory behavior, and locomotor activity. Thus, this study showed that engagement in behaviors—in this case behaviors oriented around cognitively complex tasks—can transform the brain, with this transformation influencing other, non-related behaviors (e.g., exploratory behavior).

As discussed in Chapter 2, the needs-as-motives perspective conceptualizes motives as susceptible to change by the surrounding context (McClelland, 1985; Sheldon, 2011). Within neuroplasticity research, motives have also been shown to be transformable. In neuroscience, motives are represented as "internal neural and neuroendocrine mechanisms" that "affect the probability of occurrence of a behavioral pattern" (Zupanc & Lamprecht, 467-468). In other words, motives are energizing forces that compel behavior. In the human brain, neuroscientists have identified different structures associated with motives (e.g., ventral striatum, Schmidt et al., 2012; mesolimbic circuit, Adock et al., 2006; right prefrontral cortical area). To what extent are these structures plastic and malleable? Studies on addiction and physical rehabilitation provide the most direct and compelling support for the notion of motive plasticity, and the role of context and behavioral engagement in the context as important sources for motive plasticity. For

example, stroke patients placed in a stroke unit with routinized and daily rehabilitation regimes (i.e., repeated engagement in rehabilitation exercises) became more motivated to perform and complete their exercises compared to those not placed in stroke rehabilitation units (Johnson, 2003).

Taken together, the research on neuroplasticity challenges the traditionalist paradigm of neuroscience, which has viewed the adult brain as fixed, ended, and immutable. In contrast, neuroplasticity research shows that the anatomical structure of the adult brain can be transformed and shaped by the environment.

2c. Cultural Psychology

Research in neuroplasticity has shown that individuals' neuroanatomical structure can change in response to environment demands. Within psychology, research has also pointed to the plasticity of individuals' psychological characteristics and qualities. In particular, a stream of research in cultural psychology utilizes a neurocognitive perspective to examine how contextual demands can shape and mold individuals' brains.

Cultural psychologists study how culture influences individuals' psychological tendencies, dispositions, and ultimately behaviors. Different perspectives exist for how and why culture influences individuals. In the culture-as-situated-cognition perspective, culture influences individuals because nested within each culture are situations that cue specific mind-sets (e.g., Oyserman et al., 2009). A related perspective is Hong and colleagues' (2000) dynamic constructivist perspective, which argues that because culture makes certain cognitive structures highly accessible—e.g., the independent or interdependent self-construal—these structures are likely to be activated in social judgments and behaviors. In these two perspectives, culture's

influence resides in its capacity to activate certain mind-sets (e.g., independence vs. interdependence).

In contrast, some theories see culture's influence as more than just the ability to activate and deactivate mind-sets. For these researchers, culture influences individuals because it *transforms and shapes their brains*, not because it activates and deactivates mind-sets. The main proponent of this perspective is Kitayama and colleagues, who proposed the neuro-culture interaction model (NCIM) to demonstrate how culture can transform core neurological features of the individual (Kityama & Na, 2011; Kitayama & Uksul, 2011, See Figure 3). In particular, the model asserts that two elements of a culture, its values (i.e., general goal states) and the behavioral routines aimed at achieving those values, play pivotal roles in transforming individuals' brains.

Insert Figure 3 about here

The NCIM is based on the larger neuroplasticity research outlined above. Within the NCIM, culture is viewed as a collectively represented and shared phenomenon composed of values and routinized behaviors. By collectively represented and shared, this means that cultural values and behaviors are "collectively distributed and, to some important extent, shared" by members of the cultural society (Kitayama & Uksul, 2011: 421). These values develop through the interaction of numerous socio-structural factors including ecological, economic, geographic, and familial. Once these values become collectively recognized and adopted, behavioral tasks develop in order to support and sustain these values. Members of the culture then repeatedly engage in these behaviors, and "what results will be culturally induced activation patterns of the brain that support the person when he or she intends to perform his or her cultural tasks" (424).

In other words, cultural features lead to changes in the brain of the individual, thus facilitating his/her performance of cultural tasks and duties.

As an illustrative example of the NCIM, consider the commonly studied cultural phenomenon of *self-construal*, which refers to how individuals define themselves. Two types of self-construal are common in cultural psychology research: the *independent* (the self is defined by internal traits unique to the individual) and *interdependent* self-construal (the self is defined by individual's connections and relations to social others) (Cross et al., 2009). As cross-cultural research repeatedly demonstrates, Western societies place a greater emphasis on independence over interdependence, while the reverse is true in Eastern societies (e.g., Kitayama et al., 2007; Oyserman et al., 2002; Markus & Kitayama, 1991). According to the NCIM, ecological, economic, and other socio-structural factors led to the valuing of independence or interdependence in Eastern and Western societies (see Kitayama et al., 2006). Once these values are established, sets of behaviors develop to service and sustain these values. For example, "American culture offers a number of practices designed to achieve the overarching cultural values of independence such as self-promotion, self-expression, strong leadership, and so on" (Kitayama & Uksul, 2011: 423). Those within the American culture will then act in ways to support and sustain the value of independence, and in so doing have their brains shaped, molded, and transformed. Figure 3 summarizes the arguments of the NCIM.

Empirical support for the effects of culture on the brain

Though empirical evidence for the NCIM is still emerging, the studies conducted thus far have lent consistent support to the NCIM's main arguments. The following discussion is organized around four domains of cross-cultural research that have received significant attention

in the literature: representation of the self, views of social others, holistic processing style, and views of choice.

Representation of the self. Research shows that Easterners, compared to Westerners, hold a more independent self-construal (Markus & Kitayama, 1991). In support of this, neurological imaging studies have found differences in neural representations of the self in Eastern and Western participants. For example, in a functional magnetic resonance imaging (fMRI) study conducted with Chinese and Westerners living in Beijing, Zhu et al. (2007) found that when making self-reference judgments, the medial prefrontal cortex (mPFC)—which is believed to serve a variety of functions such as retrieving, manipulating, and integrating self-relevant information—became activated in both Chinese and Western samples. However, when asked to make judgments about one's mother, Chinese participants also showed activation in the mPFC, signifying that the area of the brain used in self-judgment was also used in judgments about one's mother. Western participants, however, did not show similar mPFC activation when asked about their mother. These findings thus suggested that amongst Chinese but not Western participants, self and mother are mutually interdependent, which is consistent with theorizations on the interdependent vs. independent self construal.

In another study examining the effects of culture on the brain, researchers sought to demonstrate the neurological differences in how Westerners and Easterners represented themselves within the contextual environment. Social psychological research has demonstrated, that Americans tend to generate abstract self-traits regardless of whether they were given a contextual cue (i.e., tell me about yourself at home, at school, etc.). In contrast, Japanese participants generated abstract traits only when given a specific social setting (e.g., in school, at home, etc.) (Cousins, 1989). In examining the neurological basis for this, Chiao et al. (2009)

conducted an fMRI study with Japanese participants in Japan, and European American participants in the US. In this study, participants were asked to make a series of self-reference judgments with the context specified or unspecified. Participants were also asked to fill out Singelis' (1994) 24-item self-construal scale, which assessed individuals' level of independence and interdependence .

The findings showed that across the two cultures, those who scored highest on the independence scale tended to show greater mPFC activations in the context-general condition. Those who scored higher on interdependence scale, on the other hand, showed greater mPFC activation in the context specific condition. Thus, this showed that for individuals with a strong independence orientation, they were able to make context-free self-judgments whereas for individuals with an interdependent orientation, they made self-judgments only when a specific context was given. This study not only highlighted the neurological basis for differences in views of self, but also demonstrated how a self-belief scale that assessed behavioral engagement moderates the brain response. In other words, individuals' neurologically represented view of self matched their explicitly stated view of self.

Representation of others. In another series of studies, researchers sought to examine the neurological bases for cultural differences in the fundamental attribution error (FAE) (Ross, 1977). The FAE is a bias whereby individuals are more likely to explain another person's behavior based on the person's dispositions (e.g., their personality, attitudes, values, etc.), thus ignoring pertinent situational factors that may have caused the behavior. Research in cross-cultural psychology has demonstrated that interdependent individuals are less likely to commit the FAE because of their overall focus on situational factors (see Choi et al., 1999 for a review). In the first neurological test of this, Kobayashi et al. (2007) presented European American and

Japanese participants with two types of stories: one that required participants to speculate as to what the protagonist in the story was thinking (experimental), and one that did not require such speculations (control). In comparison to the control stories, the experimental ones activated the brain regions linked to the inference of traits, intentionality, and desires (the temporal lobe, the temporo-parietal junction, and the mPFC). Although this was seen in both European American and Japanese samples, it was especially pronounced for European Americas. According to the researchers, this suggested that when asked to make attributions about a person's dispositions/traits/intentions, European Americans were more easily able to make such judgments regarding the person's internal mental state. However, this was harder to do for Japanese participants

Representation of holistic attention. Research in cross-cultural psychology has also shown that in comparison to Westerners, Easterners are more likely to perceive the context in a holistic way (i.e., they are more likely to focus on the surrounding context in lieu of attributes of a single focal target). For example, when asked to explain an underwater scene, Americans focused immediately on a focal fish, while Asians described the surrounding context first before focusing on the focal fish (Masuda & Nisbett, 2001). In a related study, Kitayama et al. (2003) used the framed lined test to examine whether Easterners, as compared to Westerners, were more likely to focus holistically on the context. In the test, participants are instructed to draw a line similar in length to other lines in their visual frame. Kitayama et al. (2003) found that Americans were quite accurate in drawing a line that was identical to another reference line, thus able to ignore other lines in their visual field. However, when asked to draw a line with the same proportion as that of another line, Americans were less accurate. Japanese participants, on the other hand, were more accurate at drawing the relative line than the identical line. The

researchers took this to mean that the American participants were better able at ignoring the context compared to the Japanese participants.

In testing the neurological basis for this, Hedden et al. (2008) conducted an fMRI study where American and East Asian participants engaged in the framed line test. After completing the test (and after the brain scan), American participants completed an independence questionnaire (e.g., "I am not to blame if one of my family members fails"), while East Asians completed an acculturation questionnaire (e.g., "How well do you fit when with other Asians of your same ethnicity?"). The findings showed that Americans were more deliberate and intentional (as signified by activation in the fronto-parietal attention network) when drawing the relative line than when drawing the absolute line. In contrast, Asians were more deliberate and intentional when performing the absolute framed-line task. This suggests that because Americans are naturally inclined to focus on a single object, when presented with a more holistic picture, they had to exert more effort in processing the information. The reverse was true for East Asians. In addition, the findings further showed that the effects were influenced by the self-report measures, such that for American participants, higher levels of independence increased activation in the fronto-parietal networks (the more independent, the more the participant had to exert effort in examining the holistic picture). In contrast, for the Asian participants, lower feelings of acculturation with other Asians decreased activation in these same brain regions.

Representations of choice and motivation. Cross-cultural research has also shown that North Americans tend to interpret their behaviors from the choices they make (e.g., I picked the Justin Beiber CD so I must love Justin Beiber, Savani et al. 2010), which may account for why North Americans tend to cling to choices that they have made regardless of the response from the environment (e.g., My friends think it's weird to like Justin Bieber, Patall et al. 2008). This

phenomenon is not as readily evident in interdependent cultures, as individuals in these cultures tend to look to social responses in order to validate their choices (Iyengar & Lepper, 1999). In a neurological test of this, Park et al. (2009) examined Asian's and American's negative neural electrical peaks, which are brain activities that generally occur when an error in cognitive task has been committed (called error-related negativity or ERN). In their study, the participants were briefly exposed to either a face prime condition (which led to impression that the individual is being seen by others) or a control condition. In addition, participants filled out Singelis (1994) 24-item independence and interdependence scale. The findings confirmed previous cross-cultural results, showing that Asians demonstrated greater ERN when exposed to the face-priming trials than in the control prime, whereas the reverse was seen in American subjects (remember that ERN networks are recruited to detect errors or conflicts). The fact the ERN was activated more so in Asians when exposed to the face primes meant that Asian participants' were more attentive to detecting errors if they thought others were looking at them. In addition, as with the other studies using self-report scales, Park et al. (2009) found that the ERN in the face prime condition was correlated with self-reported levels of interdependence. In fact, the difference in ERN between Asians and Americans in the face prime condition was mediated by self-reported measures of interdependence.

Empirically, the studies discussed thus far provide evidence for the NCIM's main premise: that cultural differences exist at the neurological level. It should be noted that though the NCIM emphasized repeated engagement in behaviors as the mechanism for neural patterning (see Figure 3), the aforementioned neurological studies do not measure behavior explicitly. Rather, these studies assumed that individuals in a culture will consistently engage, or have consistently engaged, in culturally relevant behaviors. Though some may take issue with self-

report measures, I would argue that the self-report measures of independent and interdependence used in some of the studies are valid proxies for engagement in culturally relevant behaviors. Indeed, in some of these studies, the findings showed that self-report measures corresponded to brain responses, such that higher levels of self-reported independence or interdependence augmented activation of the relevant brain regions. As observed by Kitayama & Uksul (2011), this is quite impressive given that "relevant behavioral studies have consistently failed to observe similar correlations" between behavioral outcomes and self-report measures (438). For instance, in the above-mentioned Chiao et al. (2009) study, they found a significant correlation between self-reported independence and mPFC activation. These findings thus lend further support to the NCIM. In particular, Kitayama & Uksul (2011) argued that self-report measures of independence/interdependence is an indication of how "identified" the person is with the values, behaviors, etc. associated with independence/interdependence cultures. Higher levels of identification should thus mean that the individual is willing to engage in the relevant tasks associated with independence/interdependence, which should then lead to relevant brain shaping. Thus, it is not surprising that self-report measures of independence/interdependence are highly correlated with neural patterns.

Summary of cultural psychology research. An important takeaway from the research in cultural psychology, particularly the NCIM, is that engagement in cultural tasks and behaviors literally shape the brain. Within a cultural context, certain values are upheld (e.g., independence or interdependence) and certain behavioral tasks or routines are carried out in order to uphold and sustain the culture's values. Drawing from research and theory in neuroplasticity, the NCIM contends that as individuals engage repeatedly in these tasks and behaviors, the anatomical structure of the brain is changed and transformed. In other words, the brain of an individual who

endorses Japanese culture will be different from the brain of a person who endorses American culture. Some may argue that this shaping process can occur only a few times in the individual's life—that once an individual's brain is shaped by a culture, the brain becomes fixed, ended, immutable. If this were the case, then phenomena such as bi-culturalism (the gradual adoption of two cultural value systems that then alternate; e.g., Benet-Martinez, et al., 2002; Lafromboise, et al., 1993) and acculturation (adoption of new cultural values that then override existing ones, e.g., Kitayama et al., 2006) would not be possible. As studies have shown, however, bi-culturalism and acculturation can occur throughout adulthood (Yamada & Singelis, 1999), suggesting that individuals can continually develop in deep and fundamental ways throughout the course of their lives.

Part 3: Plasticity and occupations

Should plasticity occur as a function of individuals' occupations? The first general tenet of plasticity suggests that individual malleability occurs in response to environmental demands. The life-span stream focused on developmental tasks as the contextual demands that engender individual development. Neuroplasticity research showed that brain changes occur when individuals encounter environmental tasks not anticipated by genetic programming. The NCIM theorized that individuals' brains are shaped and transformed by the cultural tasks that individuals engage in that serve to uphold the culture's values. The second tenet of plasticity is that within-individual transformation facilitates individuals' performance of a task, or enables individuals to function effectively in a context. In the neuroplasticity studies, individuals' brains were transformed to facilitate their performance of certain tasks (e.g., juggling, Draganski et al., 2004; meditation, Lazar et al., 2005). In the NCIM, neuroanatomical brain changes enabled "the person to perform culturally scripted behaviors (for example, to be unique or to be

argumentative) when these very behaviors are called for by the specific situation at issue so that the person can enact the required behaviors both automatically and seamlessly" (Kityama & Uksul, 2011: 424). In other words, plasticity facilitated the individual to exist and co-exist within the confines of a cultural context.

Given these general tenets of plasticity, and the studies that support them, could occupations be considered contexts that engender plasticity? As defined in Chapter 2, I conceptualized occupations as enclosed groups within society that have their own values, goals, and behavioral routines. Occupations are defined by occupational characteristics, which I defined as the descriptive context that surrounds occupation members (e.g., where occupation members work, the physical and social layout of the work context, etc.) as well as the behaviors, thoughts, and emotional tasks in which occupation members are required to engage and fulfill. Those who fail to meet the occupation characteristics are not considered members of the occupation (e.g., someone who does not practice law is not a lawyer). From this conceptualization, it stands to reason that occupation characteristics can engender plasticity. When individuals are placed within an occupation, they are confronted with demands and tasks that they must fulfill. To fulfill these tasks and demands, and thus to be effective members of the occupation, they may develop psychological and neurological characteristics that allow them to "automatically and seamlessly" perform their occupation tasks. Focusing specifically on psychological development, I argue that occupation characteristics will engender the development of psychological characteristics that facilitate individuals' performance of the occupation. This leads to the first overall theoretical proposition:

> *Theoretical proposition 1: Occupation characteristics engender the development of psychological characteristics that aid individuals in the performance of the occupation.*

It is important to note that I leave what constitutes "psychological characteristics" purposefully broad. As demonstrated from the literature review on plasticity, various individual variables have been shown to change as a function of environmental demands—motives, intelligence, self-construal, cognitive representations of social others, etc. Indeed, research on plasticity does not limit the kinds and types of individual variables that are subject to modifiability. As will be seen in Chapter 4, the types of psychological characteristics that I focus on in this dissertation are psychological values and attitudes. I focus on these two characteristics because of their importance to the two organizational behavior theories that I use to support my argument: the JCM and work-family research.

Part 4: Moderators

As with the JCM, the extent to which occupation characteristics affect psychological characteristics may depend on important moderating variables. In this dissertation, I focus on the role of situational rather than individual moderators. I do so not because I claim that *all* features of the individual are susceptible to influence by job characteristics; but rather because the plasticity framework would suggest *remaining open* to the notion that human design is plastic, and that occupation characteristics can impact, at least to some extent, any individual feature.

4a. Occupation tenure

Time is an important factor that may influence the proposed relationship between variables (Mitchell & James, 2001). For example, in causal relationships where X affects Y, issues relating to the duration of the effect or the trajectory of the effect over time are important to consider. I suggest that the effects of plasticity hinge on the amount of time individuals spend in their occupations. Current research in neuroscience shows that though neural changes can occur quite frequently throughout a single day, and within mere milliseconds (Munte et al.,

2002), plasticity occurs when there are neuroanatomical changes to the brain. This requires a phase of development that is "longer than the time it takes to induce the initial and primary plasticity inducing change" (Lovden, 2010: 663). In other words, the demands that are placed on individuals must be sustained long enough such that individuals are required or obliged to fulfill the demand. Else, neuroanatomical changes are less likely to occur. Research in psychology further speaks to the importance of time for plasticity. Cultural psychology studies have shown that individuals who are exposed to a culture for an extended period of time are more likely to act, think, and behave in accordance to that culture's norms and values (Kitayama et al., 2006). The role of time has also been documented in studies showing the effects of occupations on personality development. Roberts et al's (2003) longitudinal study of young adults showed that work experiences can augment individuals' personality tendencies—i.e., extroverts become more extroverted, introverts become more introverted, etc. But this effect was seen over the course of an 8-year period. Given the above research, I argue that time spent within an occupation has important implications for the effects for plasticity. Specifically, individuals who are in an occupation for a longer period of time—i.e., those with high occupation tenure—are constantly and consistently exposed to the demands of their occupation. They are thus more likely to be engaged in tasks, behaviors, and thinking patterns that support or sustain the occupation's values and goals. Higher occupation tenure should therefore increase the likelihood that individuals' psychological characteristics are shaped and transformed by occupation characteristics[2].

4b. Occupation mobility

In addition to the effects of time, I argue that the extent to which individuals have occupation mobility potential should also influence the likelihood of plasticity. Occupation

[2] Currently, there is no consensus with regards to how long the development phase needs to be in order to induce plasticity. Some researchers found evidence of plasticity in 5-days (Munte et al., 2002), while others found it in 3-months (Draganski et al., 2004).

mobility refers to actual or expected changes to individuals' current occupation category (Duncan, 1979). Individuals with higher occupation mobility have more options in terms of leaving occupations and finding comparable ones, or even occupations with better benefits (e.g., pay, location, etc.). Individuals with lower occupation mobility have fewer options in terms of leaving their current occupation to find comparable occupations (Hauser et al., 2000). In this dissertation, I do not examine the antecedents to occupation mobility, as that is beyond the scope of this dissertation. I do, however, control for some of the antecedents to mobility. For example, sociologists and economists have identified individuals' parental characteristics (e.g., education), sex, race, and geographic location as factors that affect occupation mobility (Fallick & Fleischman, 2004; Kambourov & Manovskii, 2008; Neal, 1999). As will be demonstrated in Chapter 5, I will use many of these variables as control variables in my empirical testing of the plasticity model.

I argue that occupation mobility will influence the extent to which occupation characteristics influence individuals' psychological characteristics, regardless of the antecedent factor(s). This argument fits with research on job turnover, which shows that individuals will be more likely to quit their jobs if they have options from which to choose after leaving their job. In their review article of employee turnover, Hom et al (2012) note that intentions to leave emerge only after individuals have actual options from which to choose from when quitting. When options become available to individuals, a "leaving mindset" may emerge and persist within individuals', thus acting as a proximal precursor for individuals quitting their jobs (Mobley, 1977; Steel, 2002). Drawing from this research, I suggest that individuals with high occupation mobility are less likely to be shaped and transformed by their occupation. Individuals can choose to change occupations if they do not think the occupation fits with their values, goals,

personalities, etc. Individuals with less occupation mobility, however, are more likely to stay with an occupation regardless of the positive or negative impact it has on their psychological characteristics.

4c. Supportive Context

A supportive context is a context where the individual's co-workers—peers, direct reports, managers, etc.—encourages him or her to engage in the required occupation behaviors, provides support for him or her when needed, and more generally accepts him or her as a member of the occupational group. There are two pathways through which a supportive context facilitates plasticity. These pathways are based on research that has examined how a supportive context can help people learn and practice behaviors and roles that are new to them (Ibarra, 1999). First, a supportive context can offer legitimizing feedback, which could then encourage the individual to continue to pursue work related behaviors. This legitimizing process can be manifested in activities such as positive feedback when the person announces his/her plans to join the occupation, or words of encouragement when the person is unable to fulfill an occupational requirement (e.g., pass a test) (Ibarra, 1999). Second, the supportive context can provide the individual with interpersonal interactions that allows that individual to practice the requisite occupational behaviors (Ibarra, 1999; McIntosh, 1989; Van Maanen and Schein, 1979; Nicholson, 1984, 1987). For example, social others can legitimize a lawyer's sense of self by constantly asking him/her for legal advice in social settings. This could then allow the lawyer to practice on a continual basis behaviors that are oriented around the lawyer occupation (e.g., analyze issues as they relate to the law). Thus, I contend that a supportive context positively moderates the extent to which work behaviors shape the brain.

The aforementioned moderators can be expressed in the following theoretical proposition:

> *Theoretical proposition 2: The relationship between occupation characteristics and psychological characteristics will be moderated by (a) occupation tenure, (b) occupation mobility, and (c) social support.*

Part 5: Implications for non-work outcomes

Thus far I have suggested that occupation characteristics can engender the development of individuals' psychological characteristics that then facilitate individuals' effective functioning within the occupation. To what extent does this transformation have an effect on individuals' lives more generally? Unsurprisingly, the JCM has focused on the effects of job characteristics on organizationally relevant outcomes such as job performance, job satisfaction, and turnover. Though this is undoubtedly important, focusing solely on work-related outcomes ignores the potentially far-reaching effects that occupation characteristics can have on other arenas of life. In addition, it appears somewhat of a paradox that job characteristics as conceptualized in the JCM can affect such core and critical features of the individual (e.g., their critical psychological states), but not have more far-reaching implications for the person's life overall. In this paper, I argue that occupation characteristics can also influence work related as well as non-work related outcomes. Because researchers have already studied the link from job characteristics to work-related outcomes, I use the plasticity framework to discuss the link from occupation characteristics to non-work outcomes. To further inform and guide my arguments, I outline research from the work-family perspective. The central premise of this perspective is that on-the-job behaviors and experiences affect off-the-job behaviors and experiences. I discuss the work-family stream below to suggest that occupations characteristics can have far-reaching and lasting effects on individuals' overall lives.

5a. Linking mechanisms in work-family relationship

An important assumption in work-family research is that "work" and "family"[3] are separate domains, and that within each are different role identities that individuals must fulfill. Role identities carry with them specific goals, values, beliefs, norms, and interaction styles that inform individuals how to behave in the domains. Given that each domain contains specific role identities, work-family researchers have focused on uncovering linking mechanisms, or ways in which the family and work domains relate to each other. To clarify, I use the term "family" to refer to all non-work related outcomes and experiences (Piotrkowski, Rapoport, & Rapoport, 1987). This conceptualization aligns with current work-family research, in which a vast array of non-work related variables such as health and wellness, life satisfaction, general life stress, and so on are included under the general umbrella of "family" (see Eby et al., 2005 for a review). Below, I detail the linking mechanisms that have been discussed in organizational behavior research. In addition, I discuss whether the mechanism is intentional (i.e., the effects of work on family are purposefully intended by the person) or unintentional (i.e., the effects of work on family are accidental).

Compensation. Compensation refers to instances when individuals try to offset negative experiences in one domain by seeking positive experiences in a separate domain (Burke & Greenglass, 1987; Champoux, 1978; Lambert, 1990; Zedeck, 1992). Compensation can manifest itself in two different forms. First, a person may decrease participation in the unsatisfying domain and increase participation in the satisfying domain. For example, an individual may spend more time at work rather than at home because within the work context, he or she receives more positive rewards/feedback compared to the home environment. Second, a person may seek rewards (e.g., experiences that fulfill the person's desires and enhance their satisfaction) in an

[3] I use the term "family", "life" and "non-work" interchangeably.

alternate domain to offset negative experiences in another domain. This form of compensation has been further separated into supplemental and reactive compensation. Supplemental compensation occurs when rewards that are lacking in one domain are then sought in another domain, so that cumulatively the rewards across both domains are positive. Reactive compensation occurs when undesirable experiences in one domain are equalized by positive experiences in another domain, such as a glass of wine at home after a stressful day at work. Given that compensation occurs when individuals actively seek or avoid experiences in different domains, this mechanism is classified as intentional (Edwards & Rothbard, 2000).

Segmentation. Early conceptualizations of segmentation were based on the notion that work and family are indeed separate domains (Blood & Wolfe, 1960). However, most scholars see the domains of work and family as inevitability intertwined, and thus contemporary work-family researchers conceptualize segmentation as "an active process whereby people maintain a boundary between work and family" (Edwards & Rothbard, 2000). More specifically, Piotrowski (1979) described the process as one in which individuals actively suppress work-related thoughts, feelings, and behaviors in family life, and vice versa. In further explicating the causal mechanism, Edwards and Rothbard (2000) described segmentation as intentional "moderating effects that nullify relationships between work constructs and family constructs" (190).

Resource Drain. Another perspective argues that individuals have finite psychological and physiological resources (e.g., time, attention, energy) that must be spread across different domains (e.g., work, family, social) and different roles (e.g., professor, bowling league member, marathon runner). As such, individuals will transfer resources from one domain to meet the needs of another domain (i.e., transfer time from work to family life). Though this mechanism is similar to compensation in that there is some sort of shifting of resources between domains,

compensation is much more of a purposeful process of reallocation. Resource drain, on the other hand, refers to any transference of resources regardless of the intentionality. For example, resource drain can be both intentional (i.e., purposefully re-directing time from one domain to another) or unintentional (i.e., working the evening shift makes it physically impossible to spend time with children). In addition, compensation entails the movement of non-tangibles (e.g., level of priority, focus), whereas resource drain refers to the movement of more tangible goods (e.g., time, energy, etc.).

Work-family conflict. This perspective focuses on inter-role conflict and argues that the fulfillment of role demands in one domain negatively impacts fulfillment of role demands in a separate domain. Greenhaus and Beutell (1985) specifically distinguished between three forms of conflict: time-based, strain-based, and behavior-based. Time based conflict occurs when fulfillment of role demands in one domain limits the amount of time one can devote to fulfilling role demands in a separate domain. As with resource drain, time based conflicts can be both intentional (i.e., purposefully re-allocating time) or unintentional (i.e., job constraints prohibit one from devoting time to the family domain). Strain-based conflict occurs when increased strain (e.g., dissatisfaction, tension, anxiety, and fatigue) from one domain hinders fulfillment of roles in another domain. Strain-based relationships are conceptualized as unintentional. For example, work may lead to fatigue and stress that then unintentionally interfere with one's family activities. And finally, behavior-based conflict is when the behaviors necessary in one domain (i.e., aggressiveness in the workplace) are inappropriately expressed in another domain (i.e., aggressive parenting). This relationship is conceptualized as unintentional, as behaviors nurtured in one domain may naturally interfere with role performance in a separate domain.

Spillover. Spillover refers to the "effects of work and family on one another that generate similarities between the two domains" (Edwards & Rothbard, 2000: 180). Two general perspectives of spillover have been presented in the literature. The first conceptualizes spillover as similarity between a work construct and a related but conceptually distinct construct in the family domain (Judge & Watanabe, 1994; Zedeck, 1992). For example, positive affect at work influences positive affect in marriage. The second perspective views spillover as the transference of whole experiences between work and family (Near, 1984). This perspective does not describe any linking or causal relationships. For example, "the display of work fatigue at home indicates that an experience generated in one domain is exhibited in another domain, but it does not indicate that a construct in the latter domain is affected" (Edwards & Rothbard: 180). In Edwards and Rothbard's discussion, spillover can be both intentional and unintentional.

What exactly is spilling over from the work to family domains? Edwards and Rothbard focused specifically on moods, values, skills, and behaviors, as these have been the variables most commonly studied in the literature. In general, Edwards and Rothbard argued that the work domain impacts some broad affective or cognitive structure within the person (their moods, values, skills, and behaviors), and that these effects are seen in the family domain. In developing my hypotheses, I focus on the spillover of values from the occupation domain to the non-work domain. I explain this in more detail in the next section.

Congruence. The congruence perspective argues that work and family are linked due to a third variable that is common to both domains (Morf, 1989; Zedeck, 1992). Common third variables include those mentioned in the spillover process: mood, values, skills, and behaviors. With values, for example, overarching life values may create similar values in both the work and family domain. In addition, with regards to skills, general aptitude or intelligence may lead to

similar skill sets in both the work and family domains. And finally, general behavioral styles may lead to similar behavioral patterns in both the work and family domains. These relationships can be both intentional (i.e., individuals strive for consistency in their values in both the work and family domain) and unintentional (i.e., habits become elicited unintentionally in both the work and family domains). The implication of the congruence perspective is that there are innate individual factors that explain the work-to-family interface. Though the congruence perspective does not explicitly deny that these individual factors can themselves be altered through experiences in the work or family domains, scholars in the work-family literature have yet to address or explore this issue further.

The effects of occupation characteristics on non-work outcomes

The linking mechanisms described above collectively demonstrate the many ways in which on-the-job behaviors and experiences can affect off-the-job behaviors and experiences. Though individual factors such as an individual's gender, race, family size, age of children, or personality may influence the extent to which work affects family outcomes (Eby et al., 2005) research shows that most employed individuals have, at some point in their careers, had work affect their family life, or vice-versa (Lobel, 1991; Pleck, 1977). Williams and Alliger (1994) noted: "Work and family goals must compete for limited psychological, physical, and temporal resources"; thus it may be "inevitable that one role will interrupt, or intrude into, the activities of the other" (841).

In coupling the research from the work-family stream with the research on occupational stratification (discussed in Chapter 2), there are reasons to suggest that occupation characteristics may affect individuals' non-work life in general. Occupational stratification research would argue that societies are stratified based on occupational groupings, such that the reason why

lawyers and laborers think and act differently in the social sphere (vote differently, prefer different music, purchase different products) is due to their respective occupations (Weeden & Grusky, 2005). Integrating arguments from the work-family stream would further suggest that the reason why occupations have such lasting effects on individuals' overall social lives and livelihood is due to one of the aforementioned linking mechanisms. In addition, the seemingly inevitability that "work and family goals must compete" would further suggest that occupation will affect individuals non-work outcomes.

Taken together, there is reason to suggest that occupations will affect individuals' non-work lives. Integrating this proposition to my theory on occupation-based plasticity—and to the JCM from which my theory builds—the argument is that occupations affect individuals through the effects of occupation characteristics on individuals' psychological characteristics. As I have conceptualized, occupation characteristics are the transforming elements of occupations that bring forth development and transformation of individuals' psychological characteristics. Thus, the occupation-to-non-work relationship is driven by the transformations that occur as a result of individuals' adherence to and engagement in the occupation characteristics. This leads to the following proposition:

> *Theoretical proposition 3: The development of psychological characteristics as a function of occupation characteristics influences non-work outcomes. Occupation tenure, occupation mobility, and social support moderate the relationship from occupation characteristics to psychological characteristics*.

5b. Mediators and outcomes of occupation characteristics to non-work outcomes

An important area of research in the work-family stream focuses on uncovering the specific psychological mediators that link the work domain to the family domain, as well as the non-work outcomes that emerge as a result. Numerous psychological mediators have been identified, including job satisfaction (Parasurman & Simmers, 2001), organizational

commitment/loyalty (Yang, Chen, Choi, & Zou, 2000), marital attitudes (Jackson & Maslach, 1982), turnover intentions (Anderson, Coffey, & Byerly, 2002), stress (Frone et al., 1997), values, and attitudes/beliefs. The main argument emerging from these research studies is that work affects these psychological variables in some way—i.e., through one of the linking mechanisms identified in the section above—which then affects a non-work outcome.

In this dissertation, I focus on values and attitudes as the psychological mediators that link the work domain to the non-work domain. Values are defined as abstract and trans-situational notions of what is good, right, and desirable (Graham et al., 2009; Knafo, Roccas, & Sagiv, 2011). Attitudes are "a psychological tendency that is expressed by evaluating a particular entity with some degree of favor or disfavor" (Eagly & Chaiken, 1993: 1). I focus on values because it has been conceptualized as a trans-situational variable, with research showing that values in the work domain can carry over to influence individuals' non-work life (Edwards & Rothbard, 2001). I focus on attitudes because it is one of the most researched psychological mediators in the work-family stream. In Eby et al's (2005) review of the literature, they found that in 20% of the work-family studies that they reviewed, the focus was on examining how attitudes formed at work influence non-work outcomes.

If values and attitudes are the mediators that bridge the work domain to the life domain, an important question concerns the type of non-work outcomes that are affected by work. Given that the domain of "non-work" is broad, encompassing everything that is not work-related, it is unsurprising that work-life scholars have examined a plethora of non-work outcomes (see Eby et al., 2005 for a review). This point notwithstanding, most of the non-work outcomes that have been examined are more organizationally relevant rather than socially relevant. By this, I mean that the outcomes of focus are on those that are common to the organizational sciences—health,

marital satisfaction, life satisfaction, stress, etc. Though some of these variables have direct and clear social importance—i.e., individuals' health—the work-family stream has not discussed a broader range of non-work outcomes that are currently debated in modern day public discourse. For example, non-work outcomes relating to racial/gender issues and political conservatism are dividing and segregating social issues that demand attention from a wide array of researchers—not just those in political science, public policy, etc. As organizational scholars one way we can contribute to the conversation is to identify how work-related antecedent variables—in this case how occupations and their characteristics—can indirectly affect these larger social issues. In the next chapter, I present specific hypotheses regarding how occupation characteristics, through their transformation of psychological characteristics, can indirectly affect important non-work outcomes—particularly social outcomes and phenomenon.

CHAPTER 4: HYPOTHESES DEVELOPMENT

Introduction

Sociological studies on stratification have sought to understand how and why societies become divided, and the underlying bases for this division. Several sociologists proposed that a meaningful way to examine stratification is from the occupation level (Grusky 2005; Grusky & Sorensen 1998; Grusky & Weeden 2001; Weeden & Grusky 2005), arguing that the source for the division in society comes from occupational groupings (See Chapter 2 for a discussion of stratification). The implication from this perspective is that the reason why groups of individuals in society vote the way they vote or purchase the types of products that they purchase, is due to their respective occupational groupings. Building from this occupational stratification perspective, this dissertation presents a narrative for how occupations can affect individuals' non-work lives. The broader implication from this dissertation, then, is that one reason for the stratification of social thought and behavior. In other words, why groups of individuals tend to think and act the way they do in the social sphere is because of the occupation in which they are employed.

As a reminder, I conceptualized occupations as enclosed groups in society that are defined by their social purpose. Occupation characteristics refer to the essential features that define the occupation, and differentiate it from others (see Chapter 2 for a discussion). Drawing from the plasticity perspective, the crux of my argument is that occupation characteristics can indirectly influence individuals' non-work lives through their effects on individuals' psychological characteristics. To support this thesis, I began by arguing how occupation characteristics can engender the development of psychological characteristics that facilitate individuals' performance of their occupation (theoretical proposition 1). In other words,

psychological characteristics emerge and are developed in the service of occupation characteristics. I also discussed important boundary conditions—occupation tenure, occupation mobility, and social support—that affect the extent to which occupation characteristics influence psychological characteristics (theoretical proposition 2). Drawing from the work-family research stream, I then made the case for why these developed psychological characteristics transcend the occupation boundary to influence individuals' lives more generally (theoretical proposition 3). Using the three theoretical propositions presented in Chapter 3, this chapter focuses on developing specific hypotheses regarding the relationship between occupation characteristics, psychological characteristics, non-work outcomes, and the moderating roles of occupation tenure, social support, and occupation mobility. In developing these hypotheses, my overall goal is both to build upon existing research in organization science, and to broaden the focus of organization science research in general.

In developing specific hypotheses regarding the transformative effects of occupations on individuals, I begin by focusing on the following set of occupation characteristics: skill/task variety, autonomy, safety, control, and work-family conflict. The decision to focus on these characteristics is based on their importance to the two organizational science research streams that I have relied upon to support my theory: the Job Characteristics Model (JCM) and work-family research. Specifically, the first three occupation characteristics (skill/task variety, autonomy, safety) are drawn directly from the JCM, and thus are direct extensions of the JCM. The latter two occupation characteristics (control and work-family) are important variables in work-family research (Eby et al., 2005). To be clear, my intention is not to create a typology of occupation characteristics that define and describe all occupations. Rather, I conceptualize

occupation characteristics in such a way so that future scholars can determine for themselves which characteristics are essential to the occupation in which they are studying.

From these five occupation characteristics, I then discuss psychological characteristics that are likely affected by the occupation characteristics. As mentioned in Chapter 4, I focus on values and attitudes due to their importance to the work-family research stream. I draw from research in the social sciences to hypothesize specific values and attitudes that are likely influenced by the occupation characteristics of interest (skill/task variety, autonomy, safety, control, and work-family conflict). Once I establish this relationship, I examine a host of non-work outcomes aimed at broadening the scope of organizational science's research focus. Throughout this dissertation, my focus has been on integrating a diverse stream of research from sociology, neuroscience, psychology, and life-span to examine the broad question of how occupations change individuals. Given the inter-disciplinary nature of the dissertation, and particularly the integration of sociological theories of stratification to define and conceptualize occupations (Chapter 2), my goal is to link social outcomes and phenomenon (outcomes that are socially, politically, or cultural relevant in current society) to occupations. In so doing, I focus on non-work outcomes that some may view as beyond the purview of organizational scholarship. Recently, organizational researchers have called upon the field to look beyond the organizational confines to examine socially important outcomes such as social welfare and social inequality (Davis & Cobb, 2010; Walsh, Weber, & Margolis, 2003). In developing hypotheses regarding the indirect effect of occupation characteristics on non-work outcomes, my goal is twofold: 1) draw from current research to examine the non-work outcomes that are relevant to the psychological mediators and occupation characteristics and 2) focus on non-work outcomes that are not traditionally examined in organizational scholarship (e.g., social tolerance, racial/gender

stereotypes and attitudes, etc.). Indeed, these non-work outcomes can be perceived as larger social phenomenon that researchers have examined in the past, and have observed group-based differences in their occurrence. For example, one of the non-work outcomes that I examine is social tolerance, with researchers noting geographic-based differences in social tolerance. In the hypotheses below, I theorize how and why occupations may be a source for the group-based differences in each social phenomenon.

As with the occupation characteristics, my aim is not to create a typology of non-work outcomes. Rather, I present a broad range of non-work outcomes that span a diverse array of social issues. The following hypotheses are organized around the five occupation characteristics: autonomy, skill/task variety, safety, control, and work-family conflict. Because the aim is not to create an exhaustive model that captures all occupation characteristics and non-work outcomes, each set of hypotheses should be examined independent of each other. Indeed, in testing my hypotheses, each set of analyses is independent of one another (e.g., autonomy occupation characteristics constitute one set of analysis, skill/task variety occupation characteristics constitute a separate set of analysis, etc.).

Part 1: Autonomy occupation characteristics

In JCM research, autonomy is one of the most widely studied dimensions of work (Campion, 1988). It was initially conceptualized as the extent to which individuals have independence in carrying out their work assignments. Recently, scholars have expanded it to include the extent to which the individual is allowed freedom in scheduling work, making decisions, and choosing the methods and means to execute their tasks (Breaugh, 1985; Wall, Jackson, & Davids, 1992; Wall, Jackson, & Mullarkey, 1995).

In conceptualizing autonomy as an occupation characteristic, the following interpretation can be offered: occupations differ in the extent to which they a) provide individuals with an autonomous working context or environment and/or b) require individuals to act autonomously. Occupations may provide an autonomous work environment by having managers and supervisors manage at a distance, thus encouraging the individual to develop his or her own working methods, style, pace, schedule, etc. Occupations can also demand that their members act autonomously. For example, the occupation requirement may explicitly state that individuals are obligated to dictate how all parts of their occupational tasks are completed.

Autonomy values

One psychological characteristic that I argue may be influenced by autonomy occupation characteristics is autonomy values. As discussed in Chapter 3, values are abstract and trans-situational notions of what is good, right, and desirable (Graham et al., 2009; Knafo, Roccas, & Sagiv, 2011). Research in the work-life stream has shown that work experiences can affect individuals' values (Kanter, 1977; Payton-Miyazaki & Brayfield, 1976; Piotrkowski, 1979; Repetti, 1987). For example, research has shown that people in jobs where obedience is valued will also value obedience. Specifically, these individuals will tend to raise their kids to value obedience over other values such as self-direction (Kohn, 1963; Payton-Miyazaki & Brayfield, 1976; Pearlin & Kohn, 1966).

Though the aforementioned studies have shown a positive association between occupation experiences and values, it is still unclear why occupation experiences themselves influence individuals' values. Drawing from the plasticity perspective, I argue that occupations high in autonomy will engender the development of psychological characteristics to aid the individual in his or her performance of the occupation. My theory suggests that because

occupations are demanding contexts that require individuals to engage in certain types of behavioral, cognitive, and emotional demands, individuals develop psychological characteristics that facilitate their performance of the occupation. Decades of research indicate that values guide attention and action, encouraging some behaviors while discouraging others (Schwartz, 1992; Verplanken & Holland, 2002). Thus, in relation to occupations, individuals may develop values that facilitate performance of their occupation duties and demands.

In the case of autonomy values, research suggests that the surrounding context may influence the extent to which individuals prioritize independence. For example, research shows that cultural contexts (Gould, 1999) and education (Snibbe & Markus, 2005) could determine the extent to which individuals view independence and autonomy as important values in life. In acknowledging the effects of context on autonomy values, I propose that autonomous occupation characteristics can determine the extent to which individuals value autonomy. This leads to the following hypothesis:

> *Hypothesis 1: Autonomous occupation characteristics will increase the extent to which individuals in that occupation value autonomy.*

As was also discussed in Chapter 3, the extent to which individuals are shaped by occupation characteristics is dependent on three important boundary conditions. First, occupations shape individuals to the extent that they are placed in the occupation context for an extended period of time and thus repeatedly engaging in their occupation duties. The longer individuals engage in and perform their occupation, the more likely occupation characteristics will lead to plasticity. Thus, the first boundary condition is occupation tenure. Second, individuals who have high occupation mobility may be less likely to be shaped by one particular occupation. In contrast, individuals who have fewer occupation mobility—either due to educational constraints, geographic constraints, job market health, etc.—may be more likely to

stay within their occupation and be shaped by their occupation. I therefore suggest that occupation mobility will also moderate the relationship between autonomous occupation characteristics and the development of autonomous values. And finally, the degree of social support can also determine the extent of plasticity. In contexts with high social support, individuals are encouraged to engage in the required occupation behaviors, are provided support when needed, and more generally are accepted as a member of the occupation group. This would likely increase the extent to which individuals are shaped by the occupation characteristics.

> *Hypothesis 2: The relationship between autonomous occupation characteristics and the valuing of autonomy by individuals in that occupation is moderated by a) occupation tenure b) occupation mobility and c) social support.*

Social tolerance

As discussed in the introduction to this chapter, I am interested in examining how occupations can influence broad social phenomenon. Within US society, one phenomenon that has become especially important in public discourse concerns social tolerance. As the US becomes increasingly diverse in its demographic, cultural, and social make-up, tolerance has become increasingly important for social harmony and social cohesiveness (Tulshyan, 2014). Social tolerance is understood as the extent to which individuals are willing to listen to and be open to the views of social others, and to allow social others to express that view in public spaces (Sullivan & Transue, 1999). Individuals high in social tolerance do not necessarily agree with those holding different opinions/beliefs, but are merely open to hearing others' viewpoints and beliefs.

Research has shown that an important antecedent to social tolerance is individuals' respect for democratic values of uniqueness and individuality (Gibson 1987, 1992; Marcus et al., 1995 – from Sullivan). To the extent that individuals can recognize the uniqueness of others,

then the greater the likelihood that individuals will be willing and able to accept that social others have different beliefs/opinions, and to hear others' opinions/beliefs. If individuals value autonomy as a personal value, then this should increase the extent to which individuals see others also as autonomous agents with their own unique qualities and idiosyncrasies (e.g., "I am unique and different, and so too are others around me," Markus & Kitayama, 1991).

Scholars have demonstrated that at a societal level autonomy and social tolerance vary by social groups. Within socio-economic statuses, for example, researchers have shown class-based differences in autonomy such that individuals from lower socio-economic status backgrounds value autonomy to a lesser extent compared to those from a higher socio-economic status background (Bowman et al., 2009). In addition, research has shown that individuals living in certain geographic areas are less socially tolerant (Brace et al., 2002). In this dissertation, I suggest that occupations themselves can be a powerful source for group-based differences in autonomy values and social tolerance: occupations high in autonomy characteristics can engender the development of autonomous values that then spillover over to how individuals behave in their social and personal lives. (See Figure 4a for model).

> *Hypothesis 3: The positive relationship between autonomous occupation characteristics and social tolerance is mediated by individuals' valuing of autonomy, and moderated at the first stage by a) occupation tenure b) occupation mobility and c) social support.*

Part 2: Skill and task variety occupation characteristics

In the JCM, skill and task variety refer to the degree to which individuals are able to perform different tasks on the job, and to use their different skillsets and abilities. In viewing skill and task variety as occupation characteristics, I conceptualize it as the extent to which occupations a) offer individuals the opportunity to do different tasks and use different skills and/or b) require that individuals do different tasks and/or use different skillsets. For example,

graduate students are given the opportunity to take many different courses throughout graduate school (task variety) that would give them a variety of different skillsets. As professors, however, it is not necessarily required that professors use their various skillsets or that they engage in different tasks on a day-to-day basis. In contrast, some occupations may require skill and task variety. Individuals working in occupations with unexpected changes and challenges (e.g., doctors, police officers, etc.) may be required by the very nature of their occupations to perform different tasks on a day-to-day basis, or to use different skillsets. Occupations high in skill and task variety characteristics will thus require and/or allow individuals to engage in a wide range of different task and duties and to use their different skillsets.

Meaning

In the JCM, skill and task variety are theorized to produce the critical psychological state of experienced meaningfulness. As was discussed in Chapter 2, I contend that psychological needs underlie the critical psychological states. Given this re-conceptualization, it is unclear from the JCM theory what psychological need underlies the critical psychological state of experienced meaningfulness, as "experienced meaningfulness" is not a psychological need that has been explicitly identified in psychological needs theories (e.g., Deci & Ryan, 2000; McClelland, 1985; Sheldon, 2011). Rather than having to infer that experienced meaningfulness is an actual psychological need, I conceptualize experienced meaningfulness as an attitude that individuals possess regarding the significance of their personal growth and development. This aligns with research in social psychology, which has shown that individuals differ in the beliefs regarding how significant they perceive their lives to be (Kray et al., 2010). For individuals who have positive attitudes regarding meaning in life, they tend to create personal narratives characterized

by themes such as connectedness, purpose, and growth (McAdams, Reynolds, Lewis, Patten, & Bowman, 2001; McGregor & Little, 1998).

I argue that skill/task variety occupation characteristics will influence individuals' attitudes regarding meaning in their lives. For individuals in occupations with high skill/task variety, they are given the opportunity to engage in different tasks that should make their work less mundane and routinized. They are also given the opportunity to use different skillsets to accomplish their occupation duties and requirements. The capacity to engage in different tasks, and to use a wide range of skills, should in turn make them feel challenged on a personal level, and to feel that they are growing and learning from their occupation (Ghani & Deshpande, 1994). Thus, they will be more likely to feel as though their lives are meaningful if they are given the opportunity to grow and develop in their occupation. I thus propose the following hypothesis:

> *Hypothesis 4: Skill and task variety occupation characteristics will change the attitudes that individuals in that occupation have regarding meaning in their lives. Higher skill and task variety occupation characteristics lead to positive attitudes regarding meaning.*

Similar to H1-H3, I argue that higher occupation tenure and social support, and lower occupation mobility, should increase the likelihood of plasticity. Individuals who have worked for an extensive period of time in occupations high in skill/task variety, or who receive a great deal of social support while performing their occupation tasks and roles should be more likely to be shaped by the occupation characteristics. In addition, individuals who have little options for occupation change should be more likely to be influenced by their occupation. (See Figure 4b).

> *Hypothesis 5: The relationship between skill and task variety occupation characteristics and individuals' attitudes regarding meaning in their lives is moderated by a) occupation tenure b) occupation mobility and c) social support.*

Part 3: Safety occupation characteristics

In Morgeson and Humphrey's (2006) updated JCM, a new job dimension that was added

concerns worker safety. Safety includes the presence of health hazards such as excessive noises, temperature, and cleanliness (Campion & McClelland, 1991; Edwards et al., 1999; Stone & Guetal, 1985). Within most workplaces, worker safety is a highly important concern for managers (Gherardi & Nicolini, 2000). Providing a safe physical environment that prevents or, at the very least mitigates, worker injuries or accidents has become a normative expectation for most organizations (Gherardi, Nicolini, & Odella, 1997). In addition to physical safety, psychological safety is a priority for many managers. Organizational scholars identify this as *team psychological safety*, and define it as the shared belief amongst employees that they will not be embarrassed, rejected, or punished by others for acting, behaving, or thinking in a certain way (Edmonson, 1999). Regardless of whether the focus is on physical or psychological safety, research has been conclusive in showing that providing a safe work environment leads to positive outcomes such as increased job performance (Edmonson, 1999).

The following interpretation can be offered regarding safety as an occupation characteristic: occupations differ in the extent to which they a) provide individuals with a physically or psychologically safe work environment and/or b) require individuals to be concerned and/or care about safety. For example, occupations may seek to provide a work environment that promotes physical and psychological safety by having anti-bacterial dispensers to prevent the spread of germs, or having suggestion/complaint boxes where people can express their opinions (Burris et al., 2008). Occupations can also demand that occupation members be concerned and care about safety. For example, in any commercial construction occupation, workers are required to have safety training courses through the Occupational Safety and Health Administration (OSHA), and to prioritize safety in their day-to-day activities (Levitt & Samelson, 1987).

Trust propensities

I argue that safety occupation characteristics can have important effects on individuals' *trust propensities*, defined as individuals' belief that others can be relied upon. Trust propensity is distinct from similar constructs like *trustworthiness,* which refers to the ability, benevolence, and integrity of a trustee (Rousseau et al., 1998). As Mayer et al. (1995) noted, the main distinction is that the latter is a situational state whereas trust propensity is more of an attitudinal variable that persists across contexts. Given that trust propensities are likely to be trans-situational, I choose to focus on it as an attitudinal variable that may be influenced by safety occupation characteristics, and that can carryover to influence non-work outcomes.

Research has identified two factors that increase trust propensities (Mayer et al., 1995 – from Colquit). The first is *benevolence*, which is that extent to which the trustor believes that the trustee will want to do good for the trustor. Within occupations, this factor manifests itself in an environment where employees feel that their well-being is cared for, and that those in charge are looking out for their health and well-being (Jarvenpaa, Knoll, & Leidner, 1998; Mayer & Gavin, 2005– from Colquit). The second is *integrity*, the extent to which the trustor believes the trustee will abide by moral, ethical, or legal principles. Workplace environments where promises are not fulfilled, or shortcuts are being taken to undermine the rights of the individual, negatively impact individuals' trust propensities.

Within occupations, one important feature that can affect both the perceived benevolence and integrity of the workplace is the occupation's safety characteristics. When the occupational context provides individuals with safety, this signals to employees that their well-being and overall health is an important concern for occupational stakeholders. Creating a safe working environment also signal the occupation's adherence to ethical and legal principles that emphasize

physical safety and security (Corley et al., 2005). Thus, it stands to reason that occupations that provide a safe working environment should increase individuals' propensities to trust those with whom they work—including the management, owners, and fellow employees (McKnight et al., 1998). Drawing from the work-life research stream, this general trust within the workplace may span boundaries to influence people's general trust in others. Indeed, research has shown that those who are high in trust propensities are likely to trust social others across a wide variety of contexts (Macy & Skvoretz, 1998). Thus, I hypothesize the following:

> *Hypothesis 6: Safety occupation characteristics will positively increase the trust propensities of individuals in that occupation.*

As discussed, individuals' occupation tenure, social support, and occupation mobility should influence the extent to which trust propensities are directly influenced by safety occupation characteristics (See Chapter 3 moderator section, for a detailed discussion of how occupation tenure, occupation mobility, and social support moderate the relationship from occupation characteristics to psychological characteristics).

> *Hypothesis 7: The relationship between safety occupation characteristics and the trust propensities of individuals in that occupation is moderated by a) occupation tenure b) occupation mobility and c) social support.*

Behaviors oriented around safety

Individuals who believe that their safety is threatened may engage in different behaviors in order to preserve their safety (Coan et al., 2006). In threatening work situations, for example, workers will search for ways to control the threat and maintain their safety (Goldberg et al., 1991). Behaviors can include coping and other forms of defense mechanisms, such as withdrawal or fatalism (Nelkin & Brown, 1984; Monat & Lazarus, 1985). On a social level, individuals can also engage in different types of behaviors such as buying increased safety

devices (Akerlof & Dickens, 1982) or moving to safer neighborhoods or cities (DeLisi & Regoli, 2000).

In scanning the headlines that have most captured the attention of Americans, one issue that seems especially prominent concerns the issue of gun control. Indeed, gun control—specifically gun ownership—is a highly controversial and timely social, political, and cultural behavior that has divided the country. Though there is no one factor that predicts whether someone supports or opposes gun ownership, scholars have pointed to some general factors that make individuals more likely to support a certain position. For example, Braman and Kahan (2003) suggest that individuals from Southern cultures may view guns as a means to "tame the western frontier", and thus imbue in gun ownership symbols revolved around "honor, courage, chivalry, and individual self-sufficiency" (10). Support or opposition to gun ownership has also been shown to differ by political orientation, educational attainment, and socioeconomic status (Wildavsky & Dake, 2003).

Drawing from the occupational stratification literature, I contend that occupational groupings may account for differences in gun ownership. Specifically, I argue that trust propensities engendered within one's occupation influences that extent to which occupation members support or oppose gun ownership—such that individuals with higher trust propensities are less likely to own a gun compared to those with lower trust propensities. This argument falls in line with research showing that individuals who are less trusting of social others and of the government are more likely to own guns compared to those who have more trust in social others and in the government (Gleaser & Glendon, 1998). The argument can be expressed in the following hypothesis (See Figure 4c for model):

> *Hypothesis 8: The negative relationship between safety occupation characteristics and safety behaviors (specifically gun ownership) is mediated by individuals' trust*

propensities, and moderated at the first stage by a) occupation tenure b) occupation mobility and c) social support.

Part 4: Control occupation characteristics

To reiterate, I view occupations as enclosed groups in society that are defined by their social purpose, with occupation members required to engage in certain tasks or duties in order to fulfill the occupation's purpose. In order to facilitate this process, most occupations provide individuals with tools to fulfill the occupation goals. These tools can come in the form of standard operating procedures, policies, rules, equipment, knowledge, etc. Within the organizational literature, scholars have identified these tools as organizational controls, defined as "any process by which managers direct attention, motivate, and encourage organizational members to act in desired ways to meet the firm's objectives" (Cardinal, 2001: 22). As an occupation characteristic, control refers to the extent to which the occupation a) has many controlling features that surround occupation members (e.g., the occupation has many different rules, policies, procedures, etc.) and b) requires occupation members to abide by and follow the occupation controls. For example, the military represents an occupation with high control requirements, where the occupation members are both surrounded by controlling features (daily rituals and routines), and required to abide by the occupation's control features.

Obedience

As discussed, values are one of the most researched psychological mediators in the work-family research stream. In addition, research has shown that values can be shaped and transformed by work experiences (Kohn, 1963; Payton-Miyazaki & Brayfield, 1976; Pearlin & Kohn, 1966). Research has demonstrated a positive association between work experiences and obedience values, showing that people in jobs where obedience is valued will also value obedience (Kohn, 1963; Payton-Miyazaki & Brayfield, 1976; Pearlin & Kohn, 1966). Though a

positive association between work and obedience values has been shown, it is unclear why and how work experiences influence individuals' values. Drawing from the plasticity perspective, I argue that the degree of control within occupations can influence the extent to which individuals prioritize obedience as a life value. If occupations have a high degree of control—either by surrounding individuals with features that aim to control their behaviors and thoughts, or by explicitly requiring individuals to follow the occupation's controlling features—then the more likely it is that individuals within that occupation will abide by and follow the mandates of the occupation (Child & Fulk, 1982). Indeed, the essence of controls are to keep members of an entity (e.g., organization) working together to accomplish an objective (Loughry & Tosi, 2008). If individuals are in occupations with high levels of control, then the more likely it is that they are acting in accordance with the dictates of the occupation's controlling features. This practice of obedience over time may then cement in the individual's the importance of obedience as a life value.

I argue that occupations that are high in control are likely to engender the valuing of obedience. As individuals are continually required to follow occupation controls, or are presented with controlling cues, then the greater the likelihood that individuals will see the value and importance of obedience through repeated practice. The moderating roles of occupation tenure, occupation mobility, and social support should also operate as hypothesized in H2, H5, and H7.

> *Hypothesis 9: Occupation control characteristics will increase the extent to which individuals in that occupation value obedience.*
>
> *Hypothesis 10: The relationship between occupation control characteristics and individuals' valuing of obedience is moderated by a) occupation tenure b) occupation mobility and c) social support.*

Deference to authority

What effects do obedience values have on larger social phenomenon? One phenomenon that has interested social psychology research concerns issues of conformity in general, and deference to authority in particular. After the Holocaust, researchers and lay people alike were puzzled as to why individuals were willing to suspend their judgments and obey the inhumane directions of authoritative figures (Milgram, 1965). This broader phenomenon is referred to as deference to authority, which refers to individuals' tendency to obey, show respect, and defer to those in positions of power, legitimacy, or status (Skitka et al., 2009).

What factors may influence individuals' tendency to show deference to authority? Haidt and colleagues' developed a theory called Moral Foundations Theory, which characterizes human morality according to a set of discrete moral domains or foundations (Graham et al., 2009; 2011; Haidt, 2012; Haidt & Joseph, 2004; Iyer et al., 2012). Each moral foundation encompasses an array of interrelated components, including constellations of values (Graham et al., 2009; Knafo, Roccas, & Sagiv, 2011). One moral foundation is authority/subversion, which focuses on the importance of managing and maintaining societal hierarchies by showing deference to those at the top of the social hierarchy. Individuals who prioritize this foundation are more likely to show respect and obey those at the top of the social hierarchy. At the cornerstone of the authority/subversion foundation are values relating to obedience.

Though Haidt and colleagues do not pinpoint a specific cause for differences in deference to authority, they show that political ideology and socio-economic status can influence the extent to which an individual prioritizes the authority domain, and in so doing demonstrate deference to authority. In my research, I suggest that occupational differences in control may be one source for variance in deference to authority. Specifically, I argue that individuals who are in controlling occupations are more likely to value obedience, which in turn should increase their likelihood to

show deference towards authoritative figures. This is supported by numerous research studies in social psychology showing that deference to authority is driven by obedience (e.g., Milgram, 1965; also see Kelman & Hamilton, 1989). The hypothesized relationship can be formally stated as follows (See Figure 4d for model):

> *Hypothesis 11: The positive relationship between occupational control characteristics and deference to authority is mediated by obedience values, and moderated at the first stage by a) occupation tenure b) occupation mobility and c) social support.*

Part 5: Work-family conflict

Broadly speaking, work-family research examines how and why the work and family domains affect one another. Within work-family research, a commonly studied topic is work-family conflict. This topic focuses on examining instances of conflict, such as when work interferes with family, or family interferes with work (e.g., Kelloway, Gottlieb, & Barham, 1999; Williams & Alliger, 1994). The conflict can be a result of time imbalances, where time spent at work impedes on family time (Greenhaus et al., 1987), or behavior/cognitive spillover, where the thoughts and behaviors that individuals enact while at work affects behaviors in home life (e.g., a litigator is argumentative at work, and remains argumentative in family contexts) (Edwards & Rothbard, 2001). As an occupation characteristic, work-family conflict can be defined as the extent to which an individual's occupation 1) has qualities that lends or promotes work-family conflict (e.g., individuals work in a location that is far from home) and/or 2) requires individuals to engage in tasks or activities that lead to work-family conflict (e.g., be on call, work more than 40 hours a week, etc.).

Attitudes about women working

What effects might occupation characteristics centered on work-family conflict have on individuals' psychological characteristics? Research has shown that work-family conflict affects

work (e.g., job satisfaction) as well as non-work attitudes (e.g., marital attitudes). For example, work-family conflict is related to lower marital satisfaction (Allen et al., 2000), marital withdrawal, and marital anger towards one's spouse (MacEwan & Barling, 1994). In their review of the literature, Eby and colleagues (2005) identified other work and non-work attitudes that are affected by work-family conflict, including commitment/loyalty, life satisfaction, and family satisfaction.

I contend that repeated work-family conflict can influence the attitudes that individuals form regarding an important social issue: women in the workplace. While some hold positive attitudes regarding women working—specifically that women working does not harm family life—others hold negative views regarding women working—that women working does harm family life (Sandberg, 2013). One unexplored factor that may influence the positive and/or negative attitudes that people have of women working is work-family conflict.

I argue that individuals' attitudes about women working may be affected by work-family conflict. Specifically, I argue that in occupations with high work-family conflict, both males and females may be more likely to view women working negatively. This is because work-family conflict tends to produce negative outcomes for family life due to family roles and responsibilities being neglected or unfulfilled (Behson, 2002). When individuals are faced with these unfulfilled family duties/roles, individuals engage in ameliorative behaviors and/or thought processes aimed at addressing the situation (Caligiuri et al., 1998). One likely strategy would be to abide by the traditional view of family life in order to address the family shortcoming: believing it best for the woman to stay home and take care of the family duties. From a traditional point of view, women's felt obligations for homecare are stronger compared to men (Schwartz & Zimmerman, 1992). Even though current attitudes about women working have

progressed, the traditional view that women should prioritize family duties over work duties still pervades contemporary social thought (Sandberg, 2013; Wajcman, 2013). In the face of work-family conflict, then, spouses must attempt to create alternative strategies to address the family shortcomings. Both males and females may thus be more likely to abide by traditional attitudes about women working to address the problem (Schwartz & Zimmerman, 1992). This falls in line with research on stereotypes, which shows that people are likely to abide by the most prominent social stereotypes—or *master stereotype*—in situations of ambiguity and/or conflict (Evers et al., 2011). The moderating role of occupation tenure, occupation mobility, and social support is also hypothesized below.

> *Hypothesis 12: Work-family conflict characteristics will change the attitudes individuals in that occupation have about women working. Higher levels of work-family conflict occupation characteristics lead to negative attitudes regarding women working.*
>
> *Hypothesis 13: The relationship between work-family conflict characteristics and attitudes regarding women working is moderated by a) occupation tenure b) occupation mobility and c) social support.*

Attitudes about racial groups

Stereotype research has shown that some individuals are more prone to engage in stereotypical thinking compared to others (Carter et al., 2006). Examining this phenomenon from the occupational lens, I argue that occupations themselves can be one source for the dissemination of stereotypical beliefs. Research on stereotypes has shown that individuals who hold stereotypical beliefs about one group are likely to develop stereotypical beliefs about other groups in society (Levy, 1999; Levy et al., 1998). For example, studies have shown consistently positive correlations among prejudices towards several different social groups (Bierly, 1985). As the above hypotheses suggest, I argue that the attitudes that individuals develop regarding women working are influenced by occupation-based work-family conflict. Specifically, negative

attitudes regarding women in the workplace reflect the traditional stereotypical beliefs that it is better for family life if women stay out of the workforce. In other words, having a negative attitude about women working represents the stereotypical belief about women's family roles. Given that engaging in stereotypical thinking about one group in society can lead to the development of stereotypical thinking about other groups in society (Bierly, 1985), I argue that individuals' attitudes about women working is associated with individuals' general attitudes towards racial groups in society. The direct and indirect effects of the model can be summarized as follows (See Figure 4e for model):

> *Hypothesis 14: The positive relationship between work-family conflict characteristic and racial stereotypes is mediated by attitudes regarding women working, and moderated at the first stage by a) occupation tenure b) occupation mobility and c) social support.*

Figure 5 depicts all the hypotheses presented in this chapter.

Chapter 5: Methods overview

Overview of Studies

To test my hypotheses, I conducted two archival studies. Study 1 uses a panel dataset compiled from two US nationally representative databases: the General Social Survey (GSS) and the Occupation Information Network (O*NET). In this study, I test the relationship between occupation characteristics and psychological characteristics, and the moderating roles of occupation tenure, social support, and occupation mobility. The panel design allowed me to look at changes in psychological characteristics over time. The purpose of Study 2 was to examine the full moderated mediation models, with occupation characteristics predicting non-work outcomes through psychological characteristics, and occupation tenure, social support, and occupation mobility moderating the first stage. In Study 2, I used a cross-sectional dataset drawn from the GSS. Taken together, both Study 1 and 2 aims to show how occupations can change individuals. Study 1 focuses on how occupation characteristics change individuals' psychological characteristics, while Study 2 focuses on how the transformed psychological characteristics can carryover to impact individuals' non-work lives.

A principal objective in designing Study 1 and 2 was to establish causality, to establish that occupation characteristics determine individuals' psychological characteristics, which then influences their non-work behaviors. In Study 1, I employ a panel dataset, which allows me to track changes in individuals' psychological characteristics over the course of the 3-panelwaves (2006, 2008, 2010). Because I also have information on individuals' occupation characteristics during that time period, I can test the effect that occupation characteristics have on psychological characteristics. Using the fixed effects models to test my hypotheses similarly aids in establishing causality. Also, because I chose to use fixed effects models to test my hypotheses (I

describe this in more detail in a later section), I can account for time invariant observed or unobserved variables that may bias the predictor or outcome variables. Using fixed effects models thus helps to control for alternative variables (e.g., parents history) that may have influenced the extent to which individuals enter an occupation, and thus are shaped and transformed by their occupation. Furthermore, examining the findings from Study 1 in conjunction with the findings from Study 2 help to strengthen the causal arguments. Because Study 2 is cross-sectional, the issue of temporal precedence cannot be established in this study as it can be in Study 1. This point notwithstanding, the findings from Study 2 point to the covariation of the predictor variables (occupation characteristics) to the outcome variables (psychological characteristics and non-work outcomes). Taken together, then, the findings from Study 2 could help strengthen the findings that were established in Study 1.

Chapter 6: Study 1

Study 1 combines data from the GSS and O*NET.

Part 1: Data

1a. GSS

The GSS is a National Science Foundation funded national survey conducted by the National Opinion Research Center at the University of Chicago. It has been conducted annually from 1972 to 1994, and biennially thereafter. The main purpose of the GSS is to examine attitudinal and behavioral trends within the US population.

Respondents were selected using a national, full probability, multistage sampling design. In the first stage, the primary sampling units (PSU) are chosen based on the U.S. Census geographic designations (General Social Survey, 2012). In the second stage, smaller block groups and households are selected based on a probability-proportionate-to-size approach[4]. Respondents are adults (18+) living in households in the US. Households contain both family and nonfamily members. Adults living in institutions and group quarters were excluded from the sample (e.g., dorms, military quarters, mental institutions, etc.). In recruiting respondents, trained GSS interviewers canvassed neighborhoods and obtained verbal agreement for participation (Davis, Smith, & Marsden, 2003). Nonresponses are categorized as refusal, unavailability, or other. Refusals are the chief source of nonresponse (17%-19%). Respondents were interviewed face-to-face with trained GSS interviewers, with interviews lasting approximately 90 minutes.

The GSS utilized a cross-sectional design from 1972-2006. In 2006, a panel design was implemented. Panel data is available for 2006, 2008, and 2010. For Study 1, I used the 3-wave GSS panel dataset. In the GSS panel data, a subset of respondents from the 2006 sample

[4] Probability-proportionate-to-size is a sampling technique where the probability of selecting a sampling unit (e.g., households) is proportional to its size (e.g., the size of the household). In the GSS, then, block groups and households with the largest number of individuals are more likely to be selected for the interview.

(N=2,000) were re-interviewed in 2008, and once again in 2010. This gives a total of 6,000 observations, with 2,000 individuals per panel wave.

1b. O*NET

Data from the O*NET was used to assess occupation characteristics. The O*NET is a comprehensive database designed to describe occupations in the United States. Conducted by the U.S. Bureau of Labor Statistics, each occupation in the US is assessed based on multiple descriptors based on the O*NET Content Model (Figure 6). Assessing occupations according to the Content Model allows for a detailed examination of each occupation, as well as a common language to compare and contrast occupations.

The O*NET uses six broad domains to classify occupations: experience requirements, worker requirements, occupational requirements, worker characteristics, occupation characteristics, and occupation-specific characteristics. Within each broad domain are sub-domains that assess specific characteristics of occupations. Data were collected from job incumbents who filled out the questionnaires. Job incumbents were selected based on a stratified random sampling approach.

Occupations are identified using a unique 8-digit O*NET-SOC code (OSOC). In the most current O*NET version 17.0 database, there are 974 occupations represented.

1c. Merging GSS and O*NET

To merge the GSS and O*NET, I linked the occupation coding system used in the O*NET to the occupation coding system used in the GSS. As mentioned, the O*NET uses the 8-digit OSOC codes to identify occupations. In the GSS, respondents are asked to name their occupation title (e.g., “I am a custodian”, “I am a secretary”, etc.). The qualitative answer is then recoded into a 3-digit 1980 Census Occupation Code (COC). In the publically available GSS

datasets—panel and cross-sectional—only the recoded 1980 COC codes are provided, and not the self-reported occupation titles. Though recoding respondents' occupations to 1980 COC codes allows researchers to make comparisons across GSS years (1972-2010), it poses several problems. First, the occupation structure of the US has changed dramatically from 1980 to the present (See Figure 7 for an example). Thus, when GSS participants report their occupation titles, some occupations are not present in the 1980 COC codes but are recoded anyway to fit the 1980 structure (e.g., a 2010 GSS respondent's occupation title is "database administrator", which is an occupation that did not exist in 1980. This person may then be assigned an incorrect code, or coded as "missing"). Second, the 1980 COC codes are outdated, and not used in any current occupation database or survey, including the O*NET. Therefore, there are no accurate methods for researchers interested in linking the publically available GSS data to the O*NET. Below, I detail the steps I took to merge the GSS and O*NET database together (See Appendix B for description of alternative steps I took).

To create the merge, I contacted the GSS surveyors and requested access to respondents' actual self-reported occupation titles. GSS surveyors consider this information sensitive, and do not release it to the public. Once I received the data, myself along with two research assistants examined each of the 6,000 observations and manually updated the codes using the O*NET website. Specifically, we typed each occupation title that respondents listed in the GSS data into the O*NET search engine (http://www.onetonline.org), and then assigned each GSS respondent the updated 8-digit OSOC codes. Given resource constraints, inter-rater agreement was not assessed in this merging process. An important future step to assure the validity of the merge is to have a separate research assistant code a subset of the observations (N>300) and perform a robustness check (e.g., ICC(1), ICC(2)).

The merged panel dataset contains a total of 6,000 observations with 2,000 individuals per panel wave (2006, 2008, and 2010). Key demographic characteristics of the overall sample are presented in Table 2. There were 469 different occupations represented. Table 3 shows the 10 most common and 10 least common occupations. Given that there are many occupations that have only one individual employed in that occupation (N=152), the analyses are conducted at the individual level. This is still in line with my theoretical model, as I would expect that individuals within different occupations will possess different psychological characteristics and non-work outcomes as a function of their occupation characteristics.

Part 2: Analytical Strategy

2a. Dealing with missing data

There are two kinds of missing data in the GSS. The first is identified as *inapplicable*, which occurs when respondents are not asked a specific question. This happens because all GSS surveys—cross-sectional or panel—utilize a split-ballot design whereby respondents are given different versions of the GSS survey (See Table 1 for a breakdown of survey versions by year for Study 1). This allows for the inclusion of a wide range of items, though it also means that not every respondent in the GSS will be asked the same sets of questions. The second type of missing data is *no answer,* which occurs when respondents are asked a question but choose to not answer the question.

Because missing data can affect model estimates and standard errors (Schafer, 1997; Raghunathan, 2004), it is important to deal with missing data. In this dissertation, I chose to use listwise deletion to deal with missing data. Listwise deletion eliminates all cases with any missing data from subsequent analyses. This approach is the most commonly used method to deal with missing data in social science research (Gilley & Leone, 1991; Roth, 1994). In

addition, listwise deletion is the default option in most statistical software packages including Stata, which is what I used to test my hypotheses (Little & Rubin, 1987). Furthermore, I chose to use listwise deletion because previous studies in sociology that have used the GSS have also employed listwise deletion in their analyses (e.g., Marsden, 1987; McPherson et al., 2006). The rationale given by these researchers was that missing data in the GSS was likely a function of fatigue or non-cooperativeness on the part of respondents, rather than on something more systematic in the sample or design of the survey (e.g., White males are less likely to answer a specific type of question) (McPherson et al., 2006: 366). This conclusion was drawn from conversations these researchers had with the GSS interviewers who conducted the face-to-face interviews. It is important to note that I do not claim the data in the GSS to be *missing completely at random* (MCAR). MCAR assumes that the probability that an observation is missing is not dependent on observed or unobserved factors. Generally speaking, the MCAR assumption is not testable unless researchers can attain the missing values, and then perform comparative tests (Penn, 2007). With the GSS, I cannot claim that the data is MCAR because I do not have access to the missing values. This point notwithstanding, there is reasonable evidence to suggest that the missing data is due to non-systematic factors and thus, that listwise deletion is an appropriate technique to use.

Using listwise deletion, I deleted respondents who had any missing data (either as a result of *inapplicable* or *no answer).* As a reminder, it is important to note that each set of hypotheses (see Figure 4 a-e) contain different sets of occupation characteristics, psychological mediators, and dependent variables. For example, the psychological mediator for autonomy occupation characteristics is autonomy value (H1-H3), the psychological mediator for safety occupation characteristics is trust propensities (H6-H8), etc. Because of the split-ballot design of the GSS,

the samples that are used to test each set of hypotheses will vary. For each set of hypotheses presented below, I delineate the characteristics of the missing data for those analyses[5].

The last point to note with regards to the samples being different from hypotheses to hypotheses is that inferences and comparisons cannot be made across the different occupation characteristics. As discussed in Chapter 4, from a theoretical standpoint my intention is to not create a typology of occupation characteristics, psychological characteristics, and non-work outcomes, and then to compare and contrast the effects. Given that in testing my hypotheses the samples differ from hypotheses to hypotheses, my goal is therefore not to compare across sets of hypotheses. In other words, I do not compare the effects of autonomy occupation characteristics on autonomy values (H1 & H2), with the effects of safety occupation characteristics on trust propensities (H6 & H7). This point notwithstanding, implications can be made regarding each set of hypotheses individually.

2b. Statistical models

To test my hypotheses, I used a fixed effects regression model. In fixed effects models, researchers can examine the relationship between predictor variables and outcome variables within their entity of interest (e.g., country, person, company). In this study, I was interested in the relationship between occupation characteristics and individuals' psychological characteristics, as well as the moderating roles of occupation tenure, mobility, and social support. Fixed effects models acknowledge that individuals have unique characteristics (i.e., individual differences) that may or may not influence the predictor variable—in this study, the predictor variable is occupation characteristic. For example, differences in personality may influence the types of occupations individuals enter, and thus the types of occupation characteristics they are

[5] It should be noted that I am requesting survey weights from the GSS for their panel dataset. These weights calculate the probability that respondents will be given a specific version of the survey. If I receive these weights, then I will be able to keep the "inapplicable" data.

exposed to. The advantage of using fixed effects models is that it assumes the existence of individual difference variables that may impact or bias the predictor (occupation characteristics) and/or outcome variable (psychological characteristics), and controls for it. In other words, fixed effects models assume a correlation between individual's error terms and predictor variables. To account for this, the model removes the effect of these time-invariant individual characteristics from the predictor variables (occupation characteristics) in order to assess the predictors' net effect on the outcome variable (psychological characteristics). I chose to run a fixed effects model to account for self-selection issues that may bias the results. As discussed, fixed effects models account for time invariant variables that may bias the predictor or outcome variables. In this dissertation, I theorized that occupation characteristics shape and transform individuals' psychological characteristics and non-work outcomes. An argument based on self-selection could be that individuals who have certain psychological characteristics, or who behave in certain ways, self-select themselves into a certain occupation. Fixed effects model account for these time invariant individuals characteristics that may influence individuals' decisions to enter an occupation in the first place.

For each set of hypotheses, I ran three fixed effects regression models with: 1) control variables as the predictors and the mediators (the psychological characteristics) as the dependent variables (Model 1); 2) addition of the occupation characteristics as predictors (Model 2); and 3) the interaction terms (Model 3). The fixed effects equation I used to test my hypotheses can be expressed as:

$$\text{Psychological characteristic}_{it} = b_{(\text{occ characteristic})it} + b_{(\text{occ tenure})it} + b_{(\text{occ mobility})it} + b_{(\text{social support})} + b_{(\text{occ charact x occ tenure})it} + b_{(\text{occ charact x occ mobility})it} + b_{(\text{occ charact x social support})it} + \alpha_{it} + e_{it}$$

Where: *i* = each individual entity; *t* = time (2006, 2008, 2010); α = unknown intercept for each entity; e = error term.

Part 3: Measures

3a. Occupation characteristics

To attain measures of occupation characteristics, I relied on the O*NET Content Model (Figure 6). As a reminder, each occupation in the US is assessed according to items organized around the O*NET's six domains (worker characteristics, worker requirements, experience requirements, occupational requirements, workforce characteristics, and occupation-specific information). Within each domain are sub-domains that assess specific elements of the occupation (e.g., under "worker requirements" is the sub-domain "skill"). To attain measures of occupation characteristics, I used the O*NET domains that mapped directly onto my construct of interest. In four of the five cases, there was a direct match between my occupation characteristic of interest (e.g., autonomy occupation characteristics) and an O*NET sub-domain (e.g., independence). There were no items to assess work-family conflict occupation characteristics, however, and thus I do not test these sets of hypotheses (H12-H14) in Study 1. In addition to finding measures for my occupation characteristics of interest, there was an O*NET sub-domain that measured my moderator of interest: social support. I detail the measures below. As a reminder, the sample used to test each set of hypotheses varies. Thus, means, standard deviations, and reliability scores are presented in the hypotheses testing section rather than in the section immediately below.

Autonomy occupation characteristics. Autonomy occupation characteristics was measured using a 6-item measure from the O*NET's "independence" sub-domain. Sample items include: "workers on this job do their work alone", "workers determine the kinds of tools and

equipment needed to do the job", and "workers make decisions without much supervision" (1 = *never*, 5 = *everyday*).

Skill and task variety occupation characteristics. I used the O*NET Content Model's sub-domain "skills" to capture skill and task variety occupation characteristics. In this sub-domain, respondents are asked to indicate the extent to which different skills and tasks are required for that occupation. Sample questions include: "job requires using mathematics to solve problems", "job requires writing computer programs for various purposes", "job requires watching gauges, dials, or other indicators to make sure a machine is working properly" (1 = *not important*, 5 = *extremely important*). There were a total of 34 different skill and task items. To create a measure of skill and task variety occupation characteristics, I averaged the 34 different items to create a measure of skill and task variety occupation characteristics. Higher scores indicate more skill and task variety.

Safety. The O*NET Content Model contains a sub-domain that deals with individuals' work conditions. Specifically, 31 questions were asked regarding the safety of individuals' workplace. Sample items include: "how often does this job require working exposed to sounds and noise levels that are distracting or uncomfortable?", "how often does this job require working in very hot (above 90 F degrees) or very cold (below 32 F degrees) temperatures?", "how often does this job require exposure to disease/infections?", and "how often does this job require exposure to high places?" (1 = *never*, 5 = *everyday*). To create a measure of safety occupation characteristics, I averaged the scores across the 31-items. Higher scores indicate *less* safety.

Control occupation characteristics. Control occupation characteristics were measured using 2-items taken from the O*NET sub-domain "pressure". The items asked participants if the

occupation requires: 1) individuals to "report information to supervisors, co-workers, and subordinates by telephone, in written form, e-mail, or in person" and 2) "never pressured to do things that go against their sense of right and wrong" (reverse-scored) (1 = *never*, 5 = *everyday*). As a reminder, control refers to the extent to which the occupation monitors or tries to direct the behavior of individuals. I argue that these two items assess control in the following ways. First, if individuals are required to report information to their colleagues (via email, telephone, etc.), then the occupation is in some way monitoring the behavior of individuals. This item coincides with previous measures of control. For example, Muntaner et al. (1998) measured control by asking respondents whether they had to report their behaviors and actions to their supervisor. I also argue that the second item—"pressured to do things that go against their sense of right and wrong"—is a valid measure of control. If individuals are pressured to do things against their sense of right/wrong, then the occupation is directing the behavior of its employees towards behaving in unethical ways.

Table 5 lists the O*NET items used to assess each occupation characteristic, along with the O*NET domains and sub-domains from which the items are taken.

3b. Psychological characteristics

Autonomy and obedience values. Respondents were asked "If you had to choose, which thing on this list would you pick as the most important for a child to learn to prepare him or her for life?" Autonomy value was assessed by the rank order given to the item "to think for oneself". Obedience value was assessed by the rank order given to the item "to obey" (1 = *least important*, 5 = *most important*).

Experienced meaningfulness. Researchers have shown that one way in which individuals conceptualize meaningfulness is by creating personal narratives characterized by

themes such as connectedness, purpose, and growth (McAdams, Reynolds, Lewis, Patten, & Bowman, 2001; McGregor & Little, 1998). In addition, individuals' beliefs regarding the coherence and connectedness of past events are also a way to create meaning. Singer (2004), for example, noted that meaning is the belief that there is "causal, temporal, and thematic coherence" to past events (442). Given that attitudes about life's meaningfulness can be oriented around the attribution of significance to life events, I measured experienced meaningfulness with a continuous item that asked respondents the extent to which they believe "life is exciting" (1 = *exciting*, 3 = *dull*). The rationale in using this measure is that individuals who hold positive attitudes about meaning would be more likely to create a personal narrative that imbues life with meaning rather than viewing life as dull.

Trust propensity. Mayer and Davis' (1999) 8-item trust propensity scale included items such as: "these days, you must be alert or someone is likely to take advantage of you" and "most people can be counted on to do what they say they will do". Overall, these items assess individuals' beliefs in the general goodness (integrity/benevolence, Colquit et al., 2007) of social others. For Study 1, I used a categorical item from the GSS that asked respondents "Generally speaking, would you say that most people can be trusted or that you can't be too careful in dealing with people?" (1 = *can't trust*, 2 = *depends*, 3 = *trust*). I believe this item captures individuals' attitudes regarding the goodness of social others (Colquit et al., 2007), and is thus a valid measure of trust propensities.

3c. Moderators

Occupation tenure. I created a continuous measure of occupation tenure based on the time respondents spent at their occupation during the 2006-2010 panel years. To create the score, I started by first giving each respondent a score of "1" for 2006. If they remained at the same

occupation in 2008, they received a score of "2". If they remained at the same occupation in 2010, they received a score of "3". For those who changed occupations from 2006 to 2008, or 2008 to 2010, they received a "1" for each occupation change. See Table 4 for an example. Higher scores indicate longer occupation tenure.

Occupation mobility. Occupation mobility was measured as the extent to which respondents believed that they could leave their occupation and find another one. Respondents' were asked "how easy would it be for you to find a job with approximately the same income and fringe benefits as you have now?" The options that were given were: 1=*very easy to find similar job*, 2=*somewhat easy to find similar job*, and 3=*not easy at all to find similar job*. This was used as a continuous measure of occupation mobility.

Social support. Social support was measured using the O*NET sub-domain "interpersonal relationship", which contained 4-items that assessed the type of relationship individuals have with their colleagues. Items included: "occupation offers supportive management that stands behind employees", "workers on this job are treated fairly by the company", "workers on this job have supervisors who back up their workers with management", "workers on this job have supervisors who train their workers well" (1 = *not at all*, 7 = *very much*).

3d. Control variables

As discussed, fixed effects models account for time invariant individual differences that may bias the predictor variables. To account for time variant variables that may affect the predictor variables, I included a set of 15 individual and geographic control variables. The control variables are listed in Table 2. The first set of controls deal with time variant individual differences such as: 1) whether individuals are married (1=*yes*, 0=*no*), 2) age, 3) number of

children living at home, 4) income (1=<*$1,000*, 12=*$25,000*), 5) political orientation (1=*strongly republican*, 7=*strongly democrat*), 6) religiosity (1=*not at all religious*, 4=*very religious*), 7) religious identification (1=*Protestant*, 0=*other*), and 8) degree attainment (college degree, high school degree, etc.). In addition, I also controlled for the region of the US where respondents were living at the time of the interview. The regions were attained based on the US Census designated regions: Northeast, Midwest, South, and West (US Census Bureau, 2010). Control variables were chosen based on previous research where both the GSS and O*NET were used simultaneously (Dierdorff & Ellington, 2008), and on research looking at how occupations influence individuals' psychological states (Sorenson, 2005).

To address issues of multi-collinearity with the covariates, I created composite scores for items that tapped into the same underlying dimension. For example, to control for religiosity, I averaged three items that represent how religious an individual is: how much they pray, attend church, and their views on the Bible.

Part 4: Study 1 Results

4a. Autonomy occupation characteristics (H1 and H2)

Hypothesis 1: Autonomous occupation characteristics will increase the extent to which individuals in that occupation value autonomy.

Hypothesis 2: The relationship between autonomous occupation characteristics and the valuing of autonomy by individuals in that occupation is moderated by a) occupation tenure b) occupation mobility and c) social support.

Information regarding the missing values in the sub-sample used to test these hypotheses is presented in Table 6. Overall, this set of analyses used 17% (N=1,041) of the total observations from the original panel dataset (N=6,000), yielding 347 observations per panel wave. Means and standard deviation of variables used in this set of hypotheses are presented in Table 7. The correlation table, along with reliability scores where appropriate, is presented in

Table 8. To test Hypotheses 1 and 2, I ran a fixed effects panel model (see Table 9). In Model 1, only the control variables were included as predictors. Religiosity was the only significant predictor of autonomy value, such that those who are more religious are less likely to value autonomy (b = -.030, SE = .10, F = 1.21). In Model 2, I included autonomous occupation characteristics. There was not a significant main effect of autonomous occupation characteristics on autonomy value (b = .005, SE = .213, F = 1.07), thus H1 was not supported. Model 3 includes autonomous occupation characteristics, along with the interaction terms for occupation tenure, occupation mobility, and social support. There were no significant main effects for occupation mobility (b = .520, SE = 1.067), or social support (b = -0.054, SE = 1.917). There was a marginally significant main effect for occupation tenure, suggesting that the longer individuals stay in their occupation, the less likely they are to value autonomy (b = -2.031, SE = 1.063, $p <$ .10, F = 1.82).

The interaction terms yielded insignificant findings for occupation mobility and social support, suggesting that these constructs do not moderate the effect of autonomous occupation characteristics on autonomy values (See Table 9 for complete results). The interaction between occupation tenure and occupation characteristics was significant (b = 0.582, SE = 0.349, $p <$ .05), lending support for H2a. Graphical representation for the interaction is presented in Figure 8. As hypothesized, high autonomy occupation characteristics and high occupation tenure are positively associated with autonomy values. In other words, individuals in occupations high in autonomy characteristics and who have been working in that occupation for a longer period of time are more likely to prioritize autonomy values. In contrast, individuals in occupations with high autonomy occupations, but who have low occupation tenure, are less likely to value autonomy. Also of note is that for individuals in low autonomy occupations, higher occupation

tenure is negatively associated with autonomy values. In other words, individuals who are not required to be autonomous in their occupation, and who have been employed in the occupation for longer periods of time are less likely to value autonomy (Figure 8).

4b. Skill and task variety occupation characteristics (H4 and H5)

Hypothesis 4: Skill and task variety occupation characteristics will change the attitudes that individuals in that occupation have regarding meaning in their lives. Higher skill and task variety occupation characteristics lead to positive attitudes regarding meaning.

Hypothesis 5: The relationship between skill and task variety occupation characteristics and individuals' attitudes regarding meaning in their lives is moderated by a) occupation tenure b) occupation mobility and c) social support.

Information regarding the missing values in the sub-sample used to test these hypotheses is presented in Table 10. This set of analyses used 35% (N=2,133) of the larger panel dataset (N=6,000), yielding 711 observations per panel wave. Means and standard deviation of variables used to test these hypotheses are presented in Table 11. The correlation table, and reliability scores where appropriate, is presented in Table 12. Tests of hypotheses 4 and 5 are presented in Table 13. Model 1 includes only the control variables, showing that respondents' geographic location is the only significant predictor of experience meaningfulness. Specifically, individuals who live in Southern states are less likely to score high on experience meaningfulness (b = -0.47, SE = 0.21, F = 1.13). In Model 2, I included skill/task variety occupation characteristics. Results showed that there was not a significant main effect of skill/task variety on experience meaningfulness (b = -0.073, SE = 0.106, F = 1.09), thus H4 was not supported. When I included the interaction terms for occupation tenure, occupation mobility, and social support in Model 3, results indicated that there was no significant main effect for each of these moderating variables on experience meaningfulness. Furthermore, these variables did not significantly moderate the

relationship between skill and task variety occupation characteristics and individuals' experienced meaningfulness (See Table 13 for complete results).

4c. Safety occupation characteristics (H6 and H7)

Hypothesis 6: Safety occupation characteristics will positively increase the trust propensities of individuals in that occupation.

Hypothesis 7: The relationship between safety occupation characteristics and the trust propensities of individuals in that occupation is moderated by a) occupation tenure b) occupation mobility and c) social support.

Information regarding the missing values in the sub-sample used to test these hypotheses is presented in Table 14. A total of 1,983 observations were included in these analyses, which represents 33% of the larger dataset (N=6,000). There were 661 observations per panel wave. Means and standard deviation of variables used to test these hypotheses are presented in Table 15. The correlation table, with reliability scores where appropriate, is presented in Table 16. Tests of hypotheses 6 and 7 are presented in Table 17. Given that the dependent variable ("Can people be trust?", 1 = *no*, 2 = *depends*, 3 = *yes*) is categorical, and the independent variable is continuous, I chose to conduct an ordered probit regression model. I chose a probit model over a logit model based on the theoretical assumption I am making regarding the error terms for the model: that the error terms will follow the normal distribution curve rather than the standard logistic distribution. I based this assumption on the nature of the dependent variable trust propensity, which has categories that are more proportional rather than binary (Gill, 2001). In addition, I chose the ordered probit model over a multinomial probit model because I believe that the dependent variable (trust propensity) has an order to it (1 = *no*, 2 = *depends*, 3 = *yes*) rather than being completely unstructured.

Model 1 includes only the control variables. Results showed significant effects for a number of covariates such as age ($b = 0.01$, $SE = 0.003$), marital status ($b = 0.41$, $SE = 0.09$), and

educational attainment (b = 0.36, SE = 0.16, Wald χ^2 = 231.00). Model 2 includes safety occupation characteristics as a predictor. As a reminder, safety occupation characteristics are scored such that higher scores indicate less safety. Results showed that safety is positively related to individuals' trust propensities (b = -0.447, SE = 0.112, Wald χ^2 = 220.51), thus lending support to H6. In Model 3, I added the interaction terms for occupation tenure, occupation mobility, and social support. Results showed that occupation mobility had a significant main effect on trust propensities, such that individuals with less occupation mobility are also less likely to trust others (b = -1.18, SE = 0.50). The moderating relationship between occupation mobility and occupation characteristic, however, was not significant (b = .144, SE = 0.22, Wald χ^2 = 98.00).

4d. Control occupation characteristics (H9 and H10)

Hypothesis 9: Occupation control characteristics will increase the extent to which individuals in that occupation value obedience.

Hypothesis 10: The relationship between occupation control characteristics and individuals' valuing of obedience is moderated by a) occupation tenure b) occupation mobility and c) social support.

Information regarding the missing values in the sub-sample used to test these hypotheses is presented in Table 18. There were 1,080 observations in this set of analyses, representing 18% of the larger panel dataset (N=6,000). There were 360 observations per panel wave. Means and standard deviation of variables used to test these hypotheses are presented in Table 19. The correlation table and reliability scores for composite items are presented in Table 20. Tests of hypotheses 9 and 10 are presented in Table 21. Model 1 includes only the control variables, and demonstrates that religiosity (b = 0.19, SE = 0.09), religious identification (b = -0.27, SE = 0.13), and income (b = -0.05, SE = 0.02, F = 1.51) significantly predict obedience values. Model 2 includes control occupation characteristics as a predictor. Results suggests that control

occupation characteristics had a marginally significant effect on individuals' obedience values (b = 0.389, SE = 0.216, F = 1.86), such that the more controlling an occupation is, the more likely will individuals in that occupation value obedience. Thus, there was marginal support for H9. Model 3 includes the moderating variables occupation tenure, occupation mobility, and social support. There was no significant main effect for these variables, nor were the interaction terms significant (see Table 21 for complete results).

Part 5: Study 1 Discussion

Table 48 summarizes the findings from Study 1. Some implications from the findings are worth noting. First, the hypothesized main effect of occupation characteristics on psychological characteristics received little empirical support. Aside from the significant main effect of safety occupation characteristics on trust propensities, and marginally significant effect of control occupation characteristics on obedience values, there were no other significant main effects of occupation characteristics on psychological characteristics. Second, the moderating roles of occupation tenure, occupation mobility, and social support received minimal support. The case where there was a significant interaction effect was H2a: occupation tenure moderated the relationship between autonomy occupation characteristics and autonomy values. This moderating relationship was in the expected direction. Individuals in occupations with high autonomy occupation characteristics, and who had high occupation tenure, were more likely to value autonomy compared to those with high autonomy occupation characteristics and low occupation tenure.

Some limitations to the study may explain the lack of consistent empirical support for the hypotheses. First, with regards to the GSS data, I am limited in the questions that were asked to respondents and thus in the ways I operationalized my constructs. Though I argue that the proxy

measures I used were valid measures, some measures are more limited than others. For example, my operationalization of occupation tenure is limited in that I can only measure how long individuals stayed in their occupation across the three panel waves. This is because in the GSS panel survey, respondents are not asked how long they have stayed in their occupation over the course of time. This measure of occupation tenure may have thus impacted the lack of results that I found regarding the moderating role of occupation tenure. I am able to address this issue in Study 2, however, because in the 2002 and 2006 GSS database respondents are specifically asked how long they have worked in their occupation over time. Second, with regards to the O*NET data, the data is provided in aggregated form. For example, the O*NET would send surveys to 15 secretaries and then aggregate their answers to each question. The O*NET data, however, does not provide inter-rater reliability scores (e.g., ICC(1), ICC(2), or $_{r}$wg scores) and thus, it is not clear where respondents diverged in their assessment of occupation characteristics. This point notwithstanding, the O*NET data is the only database that provides information for all the occupations in the US (Peterson et al., 2001). This benefit should be considered in conjunction with the O*NET's limitations.

The third limitation concerns the re-coding of GSS respondent's occupation codes. As mentioned, two research assistants and I went through each of the 6,000 observations, and manually re-coded the 1980 COC occupation codes to the updated 2010 OSOC codes. Due monetary and time constraints, I was not able to have a separate research assistant perform the coding procedure as well, and then check for inter-rater reliability. It should be noted, however, that in most cases the coding was straightforward. Respondents would give their title—(e.g., janitor, lawyer, etc.)—which easily and unambiguously linked to an updated 2010 OSOC code. Admittedly, there were cases when the coding was less straightforward. For example, an

occupation title could have been “Non-profit manager”, which does not have an exact match in the 2010 OSOC database. In these cases, the instruction was to use the 2010 OSOC code that came up first in O*NET search result engine. For future studies, there are two ways to check the reliability of the coding system. First, I could have another research assistant code a subset of the panel dataset (about 2,000 cases) and then perform an inter-rater reliability test (most likely the Cohen’s kappa). Second, I could re-run the analyses using the second or third 2010 OSOC code that is returned in the O*NET search result engine, rather than the code that came up first. If this yields similar results, then I can have confidence in the validity of the coding system. These points notwithstanding, it is important to note that compared to studies that have linked the GSS and O*NET datasets together, mine is the first to do it with GSS respondent’s actual self-reported occupation titles (See Appendix B). Compared to previous studies, this is the more accurate way to link the GSS and O*NET together.

The fourth limitation concerns the use of single-item indicators to measure my constructs of interest. The moderator occupation mobility, along with all the psychological mediators (e.g., trust propensity, obedience values, autonomy values, etc.), were measured using single-item indicators. The primary reason for this was that the GSS, in its effort to cover as many topics as possible, does not usually contain additional measures to assess the same construct. As discussed, the GSS uses a split-ballot design in order to maximize the number of topics that are covered in each GSS survey year. Though ideally I would like to have had multiple items measuring my constructs of interest, there are reasons to believe that this limitation does not pose a serious threat to the results. First, the items in the GSS have been well established and vetted by social science scholars. Indeed, each GSS survey is thoroughly examined by scholars to ensure quality of the design—e.g., question wording choice, the order of questions, the length of

the questions, the options that are given to respondents. Second, researchers note that in some situations, single-item indicators may be appropriate for research, such as when the indicator has a high degree of validity and reliability (Aaker & Bagozzi, 1979; Anderson & Gerbing, 1988; Hayduk, 1996). Given the credibility of the GSS survey, and its consistent use in social science discipline such as sociology and political science, I believe that each of the items that I used to measure my constructs of interest have strong face validity.

Though there were limitations to this study, there were also strengths that are worth noting. One strength is the longitudinal nature of the data, which allows me to access changes in individuals' psychological characteristics over time. In addition, another strength of the study is that it uses a large and representative sample of men and women in the US (GSS and O*NET data). Indeed, a general strength of the GSS is that it is a stratified random sample of US adults, which permits researchers to be better able to make inferences about the US population as whole (National Opinion Research Center). Furthermore, by integrating data from the O*NET to assess occupation characteristics, another strength of the study is that it addresses issues of common source biases (Podsakoff, et al., 2003). As Humphrey et al. (2007) noted in their meta-analysis, most of the studies on the JCM have been conducted with employees evaluating both the work and outcome variables. Given that this study used a unique group of respondents—the O*NET respondents—to assess occupation characteristics, and a different set of respondents—GSS respondents—to assess psychological characteristics, common source issues are mitigated.

Chapter 7: Study 2

The purpose of Study 2 was twofold. First, using a different dataset, I build upon the findings in Study 1 and examine the relationship between occupation characteristics and psychological characteristics, and the moderating role of occupation tenure, occupation mobility, and social support. Two, I include non-work outcomes into my model to examine the full moderated mediation models.

Part 1: Data (GSS)

Study 2 is a cross-sectional study using data from the 2002 and 2006 GSS survey. I use these specific survey years because they contained a section on "Quality Working Life," which asked respondents questions regarding their occupation conditions and characteristics.

In 2002, 2,765 respondents were surveyed from February 1, 2002 to April 30, 2002, with a response rate of 70%. In 2006, 4,510 respondents were surveyed from March 7th, 2006 to August 7th, 2006, with a response rate of 71%. To create my dataset, I merged the 2002 and 2006 databases together. This yielded a total of 7,275 respondents (44% male, 75% white, average age = 46.81 [*SD* = 17.08], other key demographic characteristics are presented in Table 23).

GSS survey design and weights. As discussed in Study 1, the GSS employs a split-ballot design, such that respondents are given different versions of the GSS survey (See Table 22 for a breakdown of survey versions by year). In the 2002 and 2006 GSS dataset, survey weights are also provided for research use. The weights calculate the probability that an individual will be selected for the GSS survey, in addition to the probability that they would be given a specific version of the GSS survey. The survey weights allow researchers to make inferences about the US population. All hypotheses testing was conducted in Stata using the survey prefix command

(-svy). This allows users to identify the survey design characteristics of the data and to apply appropriate survey weights in the analyses. For this study, I identified the data as stratified based on US Census geographic regions (the primary sampling unit) and weighted by the GSS provided weights (see page 101 for a detailed discussion of the GSS sampling design).

Part 2: Analytical strategy

As with Study 1, in Study 2 I used listwise deletion to deal with missing data. Thus, the sample will vary from hypotheses to hypotheses. The details regarding missing data are detailed before I discuss the results for each set of hypotheses.

To test the hypotheses regarding the relationship between occupation characteristics, psychological characteristics, moderating variables, and non-work outcomes, I took the following steps. First, I ran linear regression models with the control variables as the predictors and the mediators (the psychological characteristics) as the dependent variables (Model 1). In the second model, I included the occupation characteristic of interest (Model 2). In the third model, I added the interaction terms (Model 3). At each step, changes in R^2 and F statistics are provided.

To test the full first-stage moderated mediation models, I first examined whether the interaction term was significant in Model 3. If the interaction was significant, I then proceeded to compute the conditional indirect effects of occupation characteristics (my independent variable) on non-work outcomes (my dependent variable). I did so by running two regression equations: 1) the psychological characteristics (mediators) as the dependent variable and 2) the non-work outcomes as the dependent variables. The equations can be expressed as follows:

$$\text{Psychological characteristic} = b_0 + b_{(\text{occ charact})} + b_{(\text{occ tenure})} + b_{(\text{occ mobility})} + b_{(\text{social support})} + b_{(\text{occ charact x occ tenure})} + b_{(\text{occ charact x occ mobility})} + b_{(\text{occ charact x social support})} + e$$

$$\text{Non work outcome} = b_0 + b_{(\text{psyc characteristics})} + b_{(\text{occ charact})} + b_{(\text{occ tenure})} + b_{(\text{occ mobility})} + b_{(\text{social support})} + b_{(\text{occ charact x occ tenure})} + b_{(\text{occ charact x occ mobility})} + b_{(\text{occ charact x social support})} + e$$

The conditional indirect effect of occupation characteristics on non-work outcomes can be ascertained from the two regression equations, and be expressed as:

$$b(b_{(\text{occ charact})} + b_{(\text{occ charact x occ tenure})} + b_{(\text{occ charact x occ mobility})} + b_{(\text{occ charact x social support})})$$

Bootstrap confidence intervals, based on 1,000 resamples, were then computed for the conditional indirect effect coefficients.

In cases when the interaction term was not significant, the reason I chose not to test the full moderated mediation models was because the relationship between occupation characteristics and non-work outcomes is dependent on the significant interaction between occupation characteristics and the first-stage moderator (occupation tenure, occupation mobility, social support) (see Edwards & Lambert, 2007, and Preacher et al., 2007). In other words, if *X* were occupation characteristics, *Y* were non-work outcomes, *M* were psychological mediators, and *W* were the moderators, "there is no single indirect effect of *X* on *Y* through *M* that one can meaningful describe or interpret, for *X*'s indirect effect is a function of *W*" (Hayes, 2012: 8).

Part 3: Measures

3a. Occupation characteristics

To examine the different dimensions of occupation characteristics, I examined the 34-item "Quality Working Life" section of the GSS. I first went through the items and assessed the face validity of the items in terms of their descriptions of a) the context of the occupation and b) the requirements of the occupation. Two items were dropped because they did not match any of the five occupation characteristics in which I was interested: "workers need strong unions to protect their interests", and "my main satisfaction comes from my job". For the remaining items, I categorized them based their similarity to one another. For example, items that dealt with occupation safety were categorized together, while items dealing with autonomy were

categorized together. I created a total of 6 different factors: 5-factors to assess occupation characteristics and 1 factor to assess social support.

Autonomy occupation characteristics. Occupation autonomy characteristics was assessed with the following 4-items: “I have a lot of say about what happens on my job”, “I participate with others in helping set the way things are done on your job”, “I often take part with others in making decisions that affect me”, and “I am given a lot of freedom to decide how to do my own work” (1 = *strongly disagree*, 4 = *strongly agree*).

Skill and task variety occupation characteristics. Skill and task variety occupation characteristics were measured using the following 4-item scale: “I get to do a number of different things on my job”, “I have an opportunity to develop my own special abilities”, “my job lets me use my skills and abilities”, and “my job requires that I keep learning new things” (1=*strongly disagree*, 4=*strongly agree*).

Safety occupation characteristics. Safety occupation characteristics was measured using a 4-item scale which included “there are no significant compromises or shortcuts taken when worker safety is at stake”, “the safety and health conditions where I work are good”, “the safety of workers is a high priority with management where I work”, and “where I work, employees and management work together to ensure the safest possible working conditions” (1=*strongly disagree*, 4=*strongly agree*).

Control occupation characteristics. Control occupation characteristics was measured using the following 7-items: “on my job, I know exactly what is expected of me”, “conditions on my job allow me to be about as productive as I could be”, “the place where I work is run in a smooth and effective manner”, “I have enough information to get the job done”, “I receive enough help and equipment to get the job done”, “I have too much work to do everything well”,

and “how often are there not enough people or staff to get all the work done” (1=*strongly disagree*, 4=*strongly agree*). This is similar to other measures of control, which asks respondents the extent to which they know the rules that govern their job, and what is expected of them on the job (e.g., Aiken & Hage, 1968; Cardinal, 2001).

Work-family conflict occupation characteristics. Work-family conflict characteristics was measured with the following 5-items: “How often do the demands of your family interfere with your work on the job”, “How often do the demands of your job interfere with your family life”, “How hard is it to take time off during your work to take care of personal or family matters”, “I have enough time to get the job done”, and “I have the training opportunities I need to perform my job safely and competently”. (1=*never/very hard/not at all true/strongly disagree*, 4=*strongly agree/often/not at all hard/very true*).

4b. Psychological characteristics

Autonomy, obedience values, experienced meaningfulness, and trust propensities. These constructs were measured using the same items as in Study 1.

Attitudes towards women working. This was measured with the following 3-items: “better for man to work, woman tend home”, “preschool kids suffer if mother works”, “mother working doesn’t hurt children” (reverse-score) (1= *strongly disagree*, 2=*agree*, 3=*disagree*, 4= *strongly agree*). Higher scores indicate negative attitudes towards women working.

4c. Non-work outcomes

Social tolerance. Social tolerance was measured using items that asked respondents whether or not certain groups in society that have been traditionally viewed as controversial should be allowed to do three activities: speak in public, teach at schools, and have their books/writings placed in public libraries. There were a total of five groups: racists, communist,

homosexuals, militarists, and atheists. Respondents' answers were coded as 1=*allow* and 0=*not allow*, and summed across the different groups and contexts. The range of scores was from 0 (groups should not be allowed to do any of the activities listed) to 15 (groups should be allowed to do all the activities listed). This served as a continuous measure of social tolerance.

Safety behaviors (gun ownership). Gun ownership was measured with a categorical item that asked respondents if they "have a gun in the home" (1=*yes*, 2=*no*, 3=*refused*). For this study, I recoded "refused" as missing, and dummy coded responses so that 1=*yes*, and 0=*no*.

Deference to authority. A group of individuals who have both perceived and actual authority in society are police officers (Tyler & Wakslak, 2004). Deference to authority refers to instances when individuals show respect for, support, or accept the actions/thoughts/directives of those with authority in society. To measure deference to authority, I used items that asked respondents: "Would you approve of a policeman striking a citizen" in the following four situations: 1) citizen attacked a policeman with fists, 2) citizen said vulgar or obscene things to the policeman, 3) citizen was questioned as a murder suspect, 4) citizen attempted to escape custody. In addition, they were asked if they "ever approve of a policeman hitting a citizen". Answers to each question were coded as 1=*yes*, 0=*no*. A deference to authority measure was created by summing the number of times respondents answered "yes" to the 5 items. My rationale in using this measure was that those who showed deference to authority would be more likely to accept the police officer's actions across the different scenarios.

Attitudes about racial groups. Respondents were asked to think about Whites and Blacks as distinct social groups, and asked whether they think that "people in these groups tend to be": "unintelligent or intelligent" (1=*unintelligent*, 7=*intelligent*), "hardworking or lazy" (1=*hardworking*, 7=*lazy*), and "rich or poor" (1=*rich*, 7=*poor*). Research on racial stereotypes

has shown that regardless of whether individuals' attitudes towards racial groups are positive and/or negatively valence, *any* generalizations made about social groups constitute stereotypical thinking (Shih et al., 1999). Thus, to create a general measure of stereotypical thinking about racial groups, I recoded respondent's answers so that positively or negatively valenced attributions made about Whites and Blacks (e.g., intelligent or unintelligent, hardworking or lazy, rich or poor) were given higher scores, while neutral answers were given lower scores. For example, for each racial group, respondents' answers were recoded on a continuous scale so that 1=*no stereotypical thinking*, 4=*positive or negative stereotypical thinking*.

4d. Moderators

Occupation tenure. Respondents were asked how long they have been at their current occupation in years. This was used to measure occupation tenure.

Occupation mobility. Occupation mobility was measured using the same item as Study 1.

Social support. Social support was measured using an 8-item scale (see Table 2 for complete list). Sample items included: "the people I work with take a personal interest in me", "my supervisor is concerned about the welfare of those under him or her", and "I trust the management at the place where I work" (1=*strongly disagree*, 4=*strongly agree*).

4e. Control variables

The control variables that are used in this study are based on the control variables used in Study 1. Because Study 1 used a fixed effects panel model, which accounts for time-invariant individual differences, I also added additional controls to Study 2 to capture the time-invariant variables. These time-invariant variables included: 1) race (1=*White*, 0=*other*), 2) gender (1=*male*, 0=*female*), 3) geographic mobility since age 16 (1=*respondent lives in different state*

compared to when he/she was 16, 0=*lives in same state*), 4) respondent was born in US (1=*born in US*, 0=*not born in US*), and 5) grandparents were born in US (1=*paternal and maternal grandparents born in US*, 0=*no*). In addition to these time-invariant variables, I added another control variable regarding religion that was available in the cross-section data but not in the panel data: "how fundamentalist is the respondent currently", which I dummy coded to be moderately fundamentalist (1=*yes*, 0=*no*) and not at all fundamentalist/liberal (1=*yes*, 0=*no*). Table 2 lists the covariates used in Study 2.

Part 4: Study 2 results

4a. Confirmatory factor analysis of occupation characteristics

In Study 1, I relied on the O*NET's established and validated Content Model to create measures for occupation characteristics. In Study 2, I used items from the GSS to measure occupation characteristics, and the moderator social support. To ensure that these measures adequately captured the constructs of interest, I performed a confirmatory factor analysis (CFA) on my theorized 5-factor structure for occupation characteristics, and the construct for social support. I used Lisrel 8.7 (Jöreskog & Sörbom, 2004) to conduct a CFA (See Table 24). As a reminder, one of the characteristics, social support, serves as the moderator. My hypothesized six-factor structure fit the data well ($\chi^2_{[449]} = 8{,}456$, $p < .01$, RMSEA = .07, NNFI = .93, CFI = .94, SRMR = .07) (See Table 24). The 6-factor structure also demonstrated better fit to the data compared to more parsimonious models, including models that a) combined autonomy and skill/task variety ($\chi^2_{[455]} = 9{,}560$, $\Delta\chi^2_{[6]} = 1{,}104$, $p < .01$, RMSEA = .08, NNFI = .92, CFI = .93, SRMR = .08) or b) combined all 6 factors into 1 factor ($\chi^2_{[464]} = 17{,}096$, $\Delta\chi^2_{[15]} = 8{,}640$, $p < .01$, RMSEA = .12, NNFI = .86, CFI = .87, SRMR = .09).

4b. Autonomy occupation characteristics (H1-H3)

Hypothesis 1: Autonomous occupation characteristics will increase the extent to which individuals in that occupation value autonomy.

Hypothesis 2: The relationship between autonomous occupation characteristics and the valuing of autonomy by individuals in that occupation is moderated by a) occupation tenure b) occupation mobility and c) social support.

Hypothesis 3: The positive relationship between autonomous occupation characteristics and social tolerance is mediated by individuals' valuing of autonomy, and moderated at the first stage by a) occupation tenure b) occupation mobility and c) social support.

Information regarding the missing values in the sub-sample used to test these hypotheses is presented in Table 25. Means and standard deviation of variables used in this set of hypotheses are presented in Table 26. The correlation table and reliability of composite scores are presented in Table 27. To test H1 and H2, ordinary least squares regressions (OLS) was conducted (see Table 28). In Model 1, only the control variables were included as predictors. Results showed age, gender, religiosity, and years of education as significant predictors of autonomy values. In Model 2, I included autonomous occupation characteristics. The main effect was insignificant (b = .094, SE = .078, F = 3.71), thus H1 was not supported. Model 3 includes the interaction terms for occupation tenure, occupation mobility, and social support. There were no significant main effects for occupation tenure (b = -.046, SE = .029), occupation mobility (b = .304, SE = .344), or social support (b = -.535, SE = .310).

The interaction terms for occupation tenure (b = .017, SE = .009) and social support (b = .202, SE = .097, F = 3.32) were significant, lending support for H2a and 2c. Graphical representation for the interaction terms is presented in Figure 10. As hypothesized, high autonomy occupation characteristics and high occupation tenure are positively associated with autonomy values. In other words, individuals in occupations high in autonomy characteristics and who have been working in that occupation for a longer period of time are more likely to prioritize autonomy as a value. In contrast, individuals in occupations with high autonomy

occupations, but who have low occupation tenure, are less likely to value autonomy. Also of note is that for individuals in low autonomy occupations, higher occupation tenure is negatively associated with autonomy values. In other words, individuals who are not given autonomy in their occupation and who have been employed in the occupation for longer periods of time are less likely to value autonomy (Figure 10a).

With regard to social support, a similar trend is seen as that with occupation tenure: that individuals in high autonomy occupations are more likely to value autonomy if social support is also high. For those in occupations with low autonomy characteristics, the level of social support has less of an influence in impacting individuals' autonomy values. Overall, the moderating relationships for occupation tenure and social support lend support to my hypotheses: that high autonomy occupation characteristics is positively associated with individuals' valuing autonomy especially if a) individuals have been employed in the occupation for a longer period of time and b) individuals receive social support from others while executing their occupation duties and tasks. (Figure 10b)

To test Hypothesis 3, a bootstrap procedure using 1,000 resamples was used. Analyses were conducted at one standard deviation above and below occupation tenure and social support. Results showed that for both occupation tenure and social support, the first stage moderated mediation models were not significant. Thus, the indirect effect of autonomy occupation characteristics on social tolerance, through autonomy values, was not supported. (See Table 29 for complete results).

4c. Skill/task variety occupation characteristics (H4 and H5)

Hypothesis 4: Skill and task variety occupation characteristics will change the attitudes that individuals in that occupation have regarding meaning in their lives. Higher skill and task variety occupation characteristics lead to positive attitudes regarding meaning.

Hypothesis 5: The relationship between skill and task variety occupation characteristics and individuals' attitudes regarding meaning in their lives is moderated by a) occupation tenure b) occupation mobility and c) social support.

Information regarding the missing values in the sub-sample used to test these hypotheses is presented in Table 30. Means and standard deviation of variables used to test these hypotheses are presented in Table 31. The correlation table and reliability scores, where appropriate, are presented in Table 32. Tests of hypotheses 4 and 5 are presented in Table 33. In Model 1, only the controls are included. Results showed that none of the control variables were significant predictors of experience meaningfulness. Model 2 shows that skill and task variety occupation characteristics did not have a significant main effect on individuals' experienced meaningfulness (b = -.170, SE = .032, F = 5.47). Model 3 further shows that occupation tenure, occupation mobility, and social support did not significantly moderate the relationship between skill and task variety occupation characteristics and individuals' experienced meaningfulness.

4d. Safety occupation characteristics (H6 – H8)

Hypothesis 6: Safety occupation characteristics will positively increase the trust propensities of individuals in that occupation.

Hypothesis 7: The relationship between safety occupation characteristics and the trust propensities of individuals in that occupation is moderated by a) occupation tenure b) occupation mobility and c) social support.

Hypothesis 8: The negative relationship between safety occupation characteristics and safety behaviors (specifically gun ownership) is mediated by individuals' trust propensities, and moderated at the first stage by a) occupation tenure b) occupation mobility and c) social support.

Information regarding the missing values in the sub-sample used to test these hypotheses is presented in Table 34. Means and standard deviation of variables used to test these hypotheses are presented in Table 35. The correlation table and reliability score for composite measures are presented in Table 36. Tests of hypotheses 6 and 7 are presented in Table 37. As with Study 1,

ordered probit regression was conducted to test these sets of hypotheses given the ordered nature of the mediating variable trust propensity ("Can people be trust?" 1=*no*, 2=*depends*, 3=*yes*). Model 2 shows there was no significant direct effect of safety occupation characteristics on trust propensity (b = .320, SE = .067, F = 6.12). Model 3 demonstrates that occupation tenure had a marginally significant main effect on trust propensities, such that higher occupation tenure is associated with lower trust propensities (b = -.050, SE = .028). In addition, results showed a significant interaction between safety occupation characteristics and occupation tenure (b = .017, SE = .008, F = 4.93, $p < .05$). Graphical representation for the significant interaction is presented in Figure 11, showing that as occupation tenure increases, the higher the likelihood that safety occupation characteristics positively impact trust propensities. In other words, individuals in occupations with high safety characteristics are also more likely to report having "trust in others" if they have been employed in that occupation for a longer period of time. The interactions for occupation mobility and social support were not significant. Taken together, there was support for hypothesis 7a.

Given that both the mediator (trust propensity) and dependent variable (gun ownership) were categorical, testing the moderated mediation model in Stata was not possible. Typically, models with categorical mediators and dependent variables can be tested using Mplus. However, Mplus does not provide comparable survey weight analyses as is provided in Stata (Chantala et al., 2011). Thus, I made the choice to use the survey design capabilities of Stata, at the sacrifice of testing the full moderated mediation model. I did run an ordered probit regression model with gun ownership as the dependent variable, and all predictor variables (along with the interaction terms) entered into the model simultaneously (see Table 38). Results showed that individuals with high trust propensities—i.e., individuals who are more likely to trust others—are less likely

to own a gun. Though I cannot test the indirect effect of safety occupation characteristic on gun ownership, the individual paths are in the expected directions.

4e. Control occupation characteristics (H9 – H11)

Hypothesis 9: Occupation control characteristics will increase the extent to which individuals in that occupation value obedience.

Hypothesis 10: The relationship between occupation control characteristics and individuals' valuing of obedience is moderated by a) occupation tenure b) occupation mobility and c) social support.

Hypothesis 11: The positive relationship between occupational control characteristics and deference to authority is mediated by obedience values, and moderated at the first stage by a) occupation tenure b) occupation mobility and c) social support.

Information regarding the missing values in the sub-sample used to test these hypotheses is presented in Table 39. Means and standard deviation of variables used to test these sets of hypotheses are presented in Table 40. The correlation table and, where appropriate, reliability scores are presented in Table 41. Tests of Hypotheses 9 and 10 are presented in Table 42. In Model 1, control variables are used as predictors of obedience values. Results showed significant effects for race, political identification, fundamentalism, education attainment, and grandparents' place of birth. As seen from the results shown in Model 2, occupation control characteristics had a marginally significant effect on obedience values, such that individuals in controlling occupations were more likely to value obedience ($b = .157$, $SE = .087$, $p < .10$, $F = 6.18$). Thus, I found partial support for Hypothesis 9. Results from Model 3 failed to support Hypothesis 10, showing no significant main effect or interaction effect of occupation tenure, occupation mobility, and social support. As a result, full moderated mediation analyses were not conducted.

4f. Work-family conflict occupation characteristics (H12 – H14)

Hypothesis 12: Work-family conflict characteristics will change the attitudes individuals in that occupation have about women working. Higher levels of work-family conflict occupation characteristics lead to negative attitudes regarding women working.

Hypothesis 13: The relationship between work-family conflict characteristics and attitudes regarding women working is moderated by a) occupation tenure b) occupation mobility and c) social support.

Hypothesis 14: The positive relationship between work-family conflict characteristic and racial stereotypes is mediated by attitudes regarding women working, and moderated at the first stage by a) occupation tenure b) occupation mobility and c) social support.

Information regarding the missing values in the sub-sample used to test these hypotheses is presented in Table 43. Means and standard deviation of variables used to test these hypotheses are presented in Table 44. The correlation table and reliability score for composite measures are presented in Table 45. Tests of hypotheses 12 through 14 are presented in Table 46. In Model 1, only the control variables were included as predictors. Results showed significant effects for age, male, religiosity, fundamentalism, educational attainment, and years of education. Model 2 shows a significant main effect for work-family conflict characteristics on attitudes regarding women working, such that individuals who experienced more work-family conflict are also more likely to hold negative attitudes regarding women working (b = .154, SE = .065, $p < .05$, F = 2.69,). H12 was thus supported.

In Model 3, results showed significant main effects of occupation tenure (b = .044, SE = .013) and social support (b = .264, SE = .235), suggesting that individuals with high occupation tenure and high social support are more likely to hold negative attitudes regarding women working. The interaction terms showed a marginally significant effect for occupation tenure (b = -.018, SE = .006, $p < .10$), and a significant effect for occupation mobility (b = -.0156, SE = .073, $p < .05$, F = 3.24). Graphical representation for the interaction effects is presented in Figure 7. As Figure 12a demonstrates, regardless of occupation tenure, individuals in occupations with high work-family conflict are more likely to hold negative attitudes about women working. Figure 12b shows the relationship between work-family conflict and occupation mobility on

attitudes regarding women working. As expected, individuals with the most negative attitudes about women working were those in occupations with high work-family conflict and low occupation mobility. In other words, if individuals are in occupations where they are constantly experiencing work family conflict, and have lower options to the exit the occupation, then the more likely are they to view women working negatively. In general, the findings suggest that high work-family conflict is positively associated with negative attitudes about women working.

I next ran tests for the first stage moderated mediation models for occupation tenure and occupation mobility. The results are presented in Table 47. I ran separate models for each racial group (Whites and Blacks). As demonstrated in Tables 47a and 47b, the indirect effects of work-family conflict on racial stereotypes towards Blacks was not significant. When the dependent variable was stereotypes towards Whites (Tables 47c and 47d), there was a significant indirect effect for work-family conflict at one standard deviation above the mean for both occupation tenure (effect = .046, CI: .004, .088) and occupation mobility (effect = .042, CI: .000, .084). The positive indirect effect suggests that for individuals in occupations with high work-family conflict, they are more likely to hold stereotypes regarding Whites. This is in addition to the fact that they are also more likely to hold negative attitudes regarding women working. This lends support for H14, but only when the target group is Whites.

Part 5: Study 2 discussion

The results from Study 2 suggest some general trends. First, as with the results from Study 1, the hypothesized main effect of occupation characteristics on psychological characteristics received little empirical support. Aside from the effect of work-family conflict on attitudes about women working, and the marginally significant effect of control occupation characteristics on obedience values, there were no other significant main effects of occupation

characteristics on psychological characteristics. This suggests that there are important boundary conditions that influence the extent to which occupation characteristics influence individuals' psychological characteristics. In other words, individuals may be shaped and molded by their occupations, but the extent to which this occurs is dependent on contextual factors and features. Specifically, occupation tenure is an important moderating variable that influences the degree of plasticity. From a theoretical standpoint, this does not run contrary to the crux of plasticity's argument. Indeed, in many studies on plasticity researchers have shown that features such as a supportive context (Johnson, 2003) and time (May et al., 2006) may affect the degree of plasticity.

This leads to the second theme worth noting: the moderating role of occupation tenure, occupation mobility, and occupation support. Across Study 1 and 2, occupation tenure received the most consistent support. In Study 1, occupation tenure moderated the relationship between autonomous occupation characteristics and autonomy values. In Study 2, in 3 of the 5 hypothesized models (autonomy, safety, work-family conflict), the interactive effects of occupation characteristics and occupation tenure received support—suggesting that occupation characteristics impact psychological characteristics to a greater extent if individuals have been employed in that occupation for a longer period of time. One reason for why the moderating role of occupation tenure received more consistent support in Study 2 is that a more accurate measure of occupation tenure was provided in the GSS cross-sectional data. In this measure, respondents reported the number of years they had been at their occupation. In Study 1, occupation tenure was measured over the course of the 3 panel waves only (2006, 2008, and 2010), and thus represented a more restrictive measure of occupation tenure. This point notwithstanding, it is interesting that in both Study 1 and Study 2, results indicated that occupation tenure moderated

the relationship between autonomous occupation characteristics and autonomy values (H2a). I discuss the implications of this in Chapter 8.

With regards to the moderating roles of occupation mobility and social support, there was less consistent support for these variables in both Study 1 and 2. In Study 2, occupation mobility moderated the relationship between work-family conflict and attitudes about women working, while social support moderated the relationship between autonomy occupation characteristics and autonomy value. One potential explanation for the limited significant findings is that occupation mobility and social support have less predictive power as moderating variables, compared to occupation tenure. I argued in Chapter 4 that individuals with high occupation mobility are less susceptible to plasticity because of their capacity to leave and enter occupations that do not fit. In turnover research, Hom et al. (2012) noted that individuals who have options to leave their job would also be more likely to have quitting intentions. Quitting intentions then spurred individuals actually quitting their jobs. In re-visiting my theory, a more proximal moderating variable to occupation mobility may thus be an "intention to quit" or a "leaving mindset" which affects the degree of plasticity. In other words, individuals who have high occupation mobility, and who have intentions to leave their occupation, are going to be less susceptible to plasticity because they are a) prepared to leave their occupation and/or b) disengaged from their occupation. Thus, in re-visiting the theory, perceived occupation mobility may be a more accurate in capturing the construct.

With regards to supportive social context, the lack of significant moderating effects is admittedly more surprising. From a theoretical standpoint, one issue may be the conceptualization of a supportive context. As I discussed in Chapter 4, support from individual's co-workers—peers, direct reports, managers, etc.—may encourage plasticity because individuals

may become encouraged to continue fulfilling their occupation duties/demands. The context, however, may need to be widened to include individuals' non-work context as well. In other words, receiving support from one's co-workers and peers may not be enough to lead to plasticity. Instead, individuals may need to receive support, to hear words of encourage, etc., from their family and friends. Indeed, this latter group may even be more essential to plasticity.

The third general trend to note is that the non-work outcomes that are indirectly affected by occupation characteristics are those that are most directly related to the psychological characteristics (i.e., the mediators). Specifically, the only moderated mediation model that received support was H14, which hypothesized that the positive relationship between work-family conflict occupation characteristics and racial stereotypes (towards Whites) would be mediated by attitudes regarding women working. One explanation for this is that racial stereotypes and attitudes about women working both represent forms of stereotypical thinking, and thus are indicators of an underlying higher order construct (stereotypical beliefs). The non-work outcomes that could be examined in future research could be those most directly related to the psychological mediators of interest. Overall, the implication of this for my theory, then, is that the non-work outcomes that are indirectly influenced by occupation characteristics are those that are directly relevant or related to the mediating psychological characteristic. It is also interesting to note that the full moderated mediation model was only significant for stereotypes towards Whites and not Blacks. One reason for this may be that within US society, there is a strong explicit understanding that prejudicial thinking towards any group is immoral and illegal (e.g., Civil Rights Act, Schuman et al., 1997), with much attention being focused on Blacks due to the long history of discrimination (Crosby et al., 1980). This push, however, has not eradicated stereotypical thinking towards Blacks, but rather minimized explicit stereotyping, or overt

racism, towards Blacks (Greenwald et al., 1998). Individuals' implicit stereotypes towards Blacks, however, may still persist despite the social initiative. Perhaps one reason why the stereotypes towards Blacks model was not significant, then, was that people were reluctant to give their explicit beliefs/opinions towards Blacks rather than Whites.

Another point concerns the controls that were used, and how they affected the results. My goal in this dissertation was to use a consistent set of controls in Study 1 and Study 2. As demonstrated in Table 17, for example, only 6 of the 25 controls were significant in Model 3. From a theoretical standpoint, this suggests that the controls that are pertinent to one set of hypotheses may or may not be pertinent to the other hypotheses. In examining each of hypotheses, rather than aiming to have consistent sets of controls, it may be necessary to understand from a theoretical standpoint why some controls may be important for the focal variables—and thus control for those variables accordingly.

There were strengths to the study that are worth noting. Using a nationally representative dataset (GSS), Study 2 demonstrated relationships between occupation characteristics, psychological characteristics, non-work outcomes, and the moderating roles of occupation tenure, occupation mobility, and social support. The use of survey weights in this study also permits researchers to be better able to make inferences about their findings to the US population (Winship & Radbill, 1994). In generalizing the hypothesis that received support in Study 1 and 2, then, I can be more confident in stating that occupation tenure moderates the relationship between autonomous occupation characteristics and autonomy values.

There were also limitations to the study. First, because GSS respondents were asked to self-report their occupation characteristics, psychological characteristics, and non-work outcomes, there are issues of common source biases (Podsakoff, et al., 2003). Second, given the

cross-sectional nature of the data, there are issues regarding endogeneity due to possible self-selection and sorting. For example, the psychological characteristics that I argued are influenced by occupation characteristics may themselves have led individuals to self-select into certain occupations in the first place. Thus, the differences in these psychological characteristics—and subsequent non-work outcomes—could be a function of individual differences that existed *before* the individual entered their occupation, rather than on occupation characteristics themselves. Though this is a weakness in Study 2, it is addressed in Study 1 where I used a panel dataset to examine the shaping effect of occupations on individuals.

Chapter 8: General Discussion

Occupations occupy a central role in the lives of most adults. The average American spends an average of 8.6 hours a day working; this is more than they do sleeping (7.6), doing leisure/sports activities (2.6), or caring for others (1.2) (American Time Use Survey, 2011). In addition, the average retirement age is now at 67; up from 66 in 2011, 64 in 2005, and 60 in 1995. The centrality of occupations to adult life is a function of more than just the sheer number of hours that individuals spend working. The essence of occupations themselves may hold the power to influence individuals on a deep and fundamental level. The business ethicist Al Gini (1998) argued that individuals' occupations determine their livelihood, so much so that "perhaps Rene Descartes is wrong. Perhaps it isn't *cogito, ergo sum* ('I think therefore I am'), but rather *laboro, ergo sum* ('I work therefore I am')" (714). Why do occupations have the power to influence individuals so deeply?

In this dissertation, I adopt the plasticity framework to suggest that occupations influence individuals because occupation characteristics can lead to the emergence, suppression, or development of individuals' psychological characteristics. Development of these psychological characteristics may then transcend the workplace boundary to influence individuals' nonwork lives. To support these arguments, I first re-examined a prominent theory in organizational behavior that has looked at the ways in which occupations influence individuals: the Job Characteristics Model (JCM) (Chapter 2). The JCM theorized and showed that occupations affect individuals because job characteristics can produce critical psychological states, which then impact organizationally relevant outcomes. I examined the core assumptions underlying the model, and provided theoretical clarification points that aim to update ambiguities in the model. Specifically, I

provided updates to two important elements in the JCM: the job characteristics (theoretical clarification 1) and the critical psychological states (theoretical clarification 2).

With these clarification points, I then presented an alternative model that could explain how occupations influence individuals: the plasticity perspective (Chapter 3). I presented a diverse stream of research from life-span, neuroscience, and psychology to support the main argument of plasticity: that individual attributes are shaped by the demands of the environment. From the plasticity perspective, I then made the case for how occupations can be viewed as a demanding environment that requires individuals to think, feel, and act in a specific manner. In response to these demands, individuals develop psychological characteristics that then facilitate their performance of the occupation demands. I then integrated research from the work-family stream to argue that the psychological characteristics that are developed in individuals' occupations transcend the workplace boundary to influence individuals' lives more generally. In summary, occupation characteristics place a demand on individuals—psychologically, emotionally, behaviorally—and through these demands psychological characteristics are shaped and transformed (theoretical proposition 1). Occupation tenure, occupation mobility, and social support are important boundary conditions that moderate the effects of occupation characteristics on psychological characteristics (theoretical proposition 2). The effects of this transformation are then manifest beyond the confines of the nine to five workday cycle, influencing individuals' nonwork lives (theoretical proposition 3).

Building from these theoretical propositions, I then presented specific hypotheses regarding the effects of occupation characteristics on psychological characteristics and

nonwork outcomes (Chapter 4). I presented a total of 14 hypotheses organized around 5 occupation characteristics: autonomy, skill/task variety, safety, control, and work-family conflict. I explored different psychological characteristics that I believed are influenced by these occupation characteristics: autonomy value, experienced meaningfulness, trust propensities, obedience value, and attitudes about women working. I also explored different nonwork outcomes that may be impacted including: social tolerance, safety behaviors (specifically gun ownership), deference to authority, and stereotypes about racial groups.

I examined my hypotheses across two archival studies. Results from my studies suggests that occupation characteristics do indeed have a transformative effect, but not to the extent that was theorized in my model. Specifically, individuals' values are susceptible to shaping, whereas their attitudes (e.g., trust propensities, attitudes about women working, and experienced meaningfulness) are less likely to be shaped by occupation characteristics. In addition, the indirect effects of occupation characteristics on non-work outcomes are limited and confined to those outcomes that are most directly related to the psychological mediator (e.g., work-family conflict occupation characteristics indirectly affect racial stereotypes, through attitudes about women working).

Study 1 used a panel dataset compiled from two US nationally representative datasets: the General Social Survey (GSS) and the Occupation Information Network (O*NET). Using the panel dataset, I was able to assess whether the changes in individuals' psychological characteristics—specifically their autonomy values, experienced meaningfulness, trust propensities, and obedience values—over time are

attributable to their occupation characteristics. Study 2 used a cross-section dataset from the 2002 and 2006 GSS. Using the dataset, I tested the full moderated mediation model, with occupation characteristics indirectly affecting non-work outcomes through psychological characteristics, and the moderating roles of occupation tenure, occupation mobility, and social support. In sum, the results from my dissertation provide some evidence that occupation characteristics can shape and transform individuals' values—specifically their autonomy and obedience values. Furthermore, the non-work outcomes that are indirectly affected by occupation characteristics—e.g., racial stereotypes—are those that are most directly related to the psychological mediator—e.g., attitudes about women working.

It should also be noted that individually, each study found support for different sets of hypotheses (See Table 48). Across the two studies, I was able to replicate the findings for H2a, which states that the relationship between autonomous occupation characteristic and individuals' valuing of autonomy is moderated by occupation tenure. Thus, the findings from this study would suggest that with regards to autonomy, autonomy occupation characteristics determine individuals' autonomy values, with this relationship being moderated by occupation tenure. In addition, across the two studies I found marginal support for H9, which hypothesized that occupation control characteristics would positively predict individuals' valuing of obedience. Consistent support for these two hypotheses yields interesting implications.

Theoretical and practical implications

The first implication concerns the occupation characteristic to psychological characteristic relationship. In developing my theory on plasticity and occupations, I

remained purposefully open to different psychological characteristics that could be influenced by occupation characteristics. Indeed, compared to the more traditional paradigm of human design, plasticity is still a relatively new paradigm from which to examine notions of individual change and development. Moving forward, it may be important to establish boundary conditions regarding what types of psychological characteristics can be shaped and molded by occupation characteristics. Across my two studies, I found that values—defined as abstract and trans-situational notions of what is good, right, and desirable (Graham et al., 2009; Knafo, Roccas, & Sagiv, 2011)—can be transformed as a function of occupation characteristics. One reason why values may be particularly susceptible to transformation is because individuals generally strive for value consistency in their lives (Cialdini, Trost, & Newsom, 1995). For individuals working in occupations with certain occupation demands and duties, individuals may develop values that align with the demands and duties, and in so doing maintain a consistent set of values that operate in the occupation and non-work domains. Moving forward, my aim is to examine other values that are impacted by occupation characteristics, and the carry-over effects of this on individuals' non-work lives. Indeed, organizational scholars have examined values within the context of occupations, and found that value congruence between individuals and organizations can have important consequences on outcomes such as job satisfaction (Liedtka, 1989), organizational commitment (Posner & Schmidt, 1993), and turnover (Finegan, 2000). The implication from this dissertation, however, would suggest that value congruence is a dynamic process, such that individuals' values can be adjusted and transformed to meet the demands of the occupation.

The second implication concerns the role of occupation tenure as a moderator. Across the two studies, occupation tenure received support. From a neuroscience perspective, this is not surprising. Indeed, most studies in neuroplasticity focus on time as an important variable that influences the degree of plasticity (May et al., 2006). One potential reason for neuroplasticity's focus on time as an important moderating variable is that time is a variable that can trump the other moderating variables. For example, even if individuals receive social support while engaging in their occupation, if the individual is only in the occupation for a short amount of time, then the effects of plasticity may not be manifested. The same argument can be made for occupation mobility—even if individuals have high occupation mobility, unless they actually act on their mobility potential (e.g., change/leave their occupations when they feel it is no longer a fit) (Hom et al., 2012), the time that individuals spend in the occupation may have a more direct effect on plasticity. These points notwithstanding, it is important to note that occupation mobility and social support received scattered support across Study 1 and 2. The lack of consistent support could be due to the operationalization of these constructs rather than the theory. Given that social support was operationalized using two different measures, however, this point may be less pertinent to social support compared to occupation mobility.

Another explanation for why occupation tenure received more consistent support compared to the other moderators that occupation tenure is capturing other causal mechanisms. For example, individuals employed in an occupation for an extended period of time may be repeatedly engaging in their occupation tasks/duties. It may thus be the repeated engage in the occupation, rather than occupation tenure itself, that leads to the

development of psychological characteristics. An important future step is to examine other causal processes that may be subsumed under the umbrella of "occupation tenure", such as increased satisfaction with the occupation that positively correlates with occupation tenure.

The third implication concerns research on the specific literatures on job characteristics and work-life stream. To the literature on job characteristics, I re-focused attention to the core assumptions underlying the critical psychological states. Furthermore, I addressed calls made by job characteristics researchers (Parker & Ohly, 2008) to examine how job characteristics can affect nonwork outcomes. To the work-life research stream, researchers examining the work-life relationship have theorized and found extensive evidence for the effects of work on nonwork outcomes. What has been missing, however, is an understanding of how the nature of occupations themselves account for the cross-domain effects of work on nonwork outcomes. In this dissertation, I used the plasticity framework to integrate the job characteristics model to the work-life stream. In so doing, I provided a theoretical rationale for how occupation characteristics—and more specifically the transformed psychological characteristics that emerge as a function of occupation characteristics—are one source for the occupation to nonwork interface.

And fourth, this dissertation has implications for the field of organizational behavior in general. Though there are exceptions (e.g., Salancik and Pfeffer's social information processing perspective, the learning and development perspective in job design; Crouter, 1984), many organizational behavior theories tend to depict attributes of the individual as untouchable by the surrounding context. For example, Ashforth and

Saks (1996) note that because central aspects of the self (e.g., values and personality) are resistant to change, "socialization primarily influences what Schein [1971] referred to as the more 'labile' self" (153). The plasticity view to human design, which has found support from a diverse array of social science disciplines, and one in which I adopt here, would suggest that individual attributes are constantly being shaped and transformed by the external context. This more plastic view of human design could thus be another lens for organizational scholars. Indeed, the plasticity lens speaks to the repeated calls made by scholars to put the "organizations back into organizational behavior" (Mowday & Sutton, 1993) by appreciating more fully and seriously how the organizational context can shape individual thought and action. An adjustment to the fundamental assumptions regarding human design—the acknowledgement that individuals are plastic and not plaster—may thus be necessary to fully appreciate the effects that organizations can have on individuals' lives both within and outside the organization.

To this latter point, this dissertation also urges organizational researchers to look beyond the organizational confines. Though it is unsurprising that scholars focus on how organizational elements (e.g., culture, strategy, leaders, etc.) impact organizational outcomes (e.g., employee performance, profits, competitive advantage, etc.), it is important to acknowledge that organizations are powerful social actors who influence highly important social issues. Davis and Cobb (2010), for example, found that within the United States, the relative size of the largest employers was directly linked to changes in social inequality. Organizations as players in, and perhaps even sources for, social issues like inequality and social stratification has been a largely unexamined topic in the organizational sciences. This is despite the fact that organizations are sites for the

distribution of tangible goods such as wages and fringe benefits, in addition to intangible goods such as pride, social standing (vis-à-vis occupational positions), self-esteem, and so forth. In this dissertation, I focused on occupation characteristics as one source for the stratification of psychological needs and cognition, which may then impact stratification at the societal level (e.g., higher cognitive development at work increases one's social standing in life). It is thus imperative that organizational researchers continue to examine how features of the organization—its culture, leaders, policies, identity, etc.—can affect society writ large.

Beyond the theoretical contributions, the findings from this paper have practical implications. On a realistic level, it is impossible for all occupations to shape individuals in a positive manner. For example, some occupations may require individuals to engage in "dirty work" (Ashforth et al., 2007), with the taint of such work having a detrimental impact on individuals' personal lives. Though to some extent it is within the hands of the worker to *job craft* (Wrzesniewski & Dutton, 2001), or to try to create more meaning and challenge in his or her occupation, as organizational behaviorists we are fully aware of the powerful effect that situations have on individuals. Organizations should recognize the potentially harmful effects that work can have on individuals, and take steps to ameliorate this. For example, occupations that are highly monotonous could provide employees with nonwork related activities whereby cognitive challenge is exercised. For if it does hold that the work we do transforms us in fundamental and meaningful ways, then it may be our responsibility and duty as organizational scholars to ensure that this transformation is as humane as possible.

Limitations and Future Research

There are limitations to this dissertation that future research can address. The first deals with the issues of self-selection/self-sorting and attrition. For example, individuals who have certain psychological attributes are selecting themselves into an occupation, or leaving occupations where they do not have a required psychological attribute. To be clear, at no point in this dissertation do I reject the importance of the aforementioned processes. On the contrary, I see them as telling different parts of the overall story. Self-selection may account for why individuals enter an occupation in the first place, and attrition for why some individuals end up staying in an occupation, but individuals can still be transformed in ways that they did not expect, desire, or even notice. My model suggests that psychological characteristics can emerge and be developed in the service of occupation characteristics, which is not contrary to self-selection or attrition processes. Nonetheless, any subsequent empirical research will need to address the issue of endogeneity that arises from these processes. I was able to do so using the panel dataset in Study 1. I was not, however, able to test the full moderated mediation model linking occupation characteristics to nonwork outcomes. Future research could aim to conduct longitudinal studies that track individuals through time and monitor their occupation characteristics, psychological characteristics, and nonwork outcomes. Such longitudinal investigations would need to show that, ceteris paribus, individuals' nonwork lives are influenced by their occupation characteristics.

The second limitation concerns the occupation characteristics and psychological characteristics that are addressed in this paper. As I mentioned, unlike what was done in the JCM, my intention is not to create a typology of occupation characteristics. Indeed, my conceptualization of occupation characteristics is such that it leaves it into the hands

of researchers to determine which occupation characteristics are important to study within their occupation of interest. This point notwithstanding, I did focus on five occupation characteristics that I believed were well-represented in current organizational behavior literature. Because I focused on these five occupation characteristics, I also only focused on a subset of psychological characteristics. Future research should explore the gamut of occupation characteristics and corresponding psychology characteristics. For example, researchers have shown that models of agency—an individuals' understanding of what selves (or agent) are, what a self's ends are, and what a self's means of attaining those ends might be—are determined by surrounding material conditions (Stephens, Markus, & Townsend, 2007: 814). Future research could thus explore whether the material objects with which a person works (e.g., abstract data, concrete materials, social goods, etc.) will determine the model of agency that the person ultimately adopts. In addition, another interesting extension would be to focus on different levels of analyses aside from the occupation level. For example, I theorized that social support would be an important moderator that influences the degree of plasticity. Within occupations, professions may be an important context to examine plasticity. Professions have a strong socialization component to them (Heckman, Bigley, & Steensma, 2007) wherein one can see more clearly the role of plasticity.

CONCLUSION

Though there are those to whom occupation has no impact, a more common phenomenon noted by scientists and philosophers alike is that occupations can change dramatically the individual. Adam Smith (1776/1937), for instance, observed that for the individual whose occupation is comprised of a few simple operations, the result is that

the individual becomes “incapable of not only relishing or bearing a part in any rational conversation, but of conceiving any generous, noble, or tender sentiment, and consequently of forming any just judgment concerning many even of the ordinary duties of private life” (461). It is time that organizational scholars acknowledge seriously the transformative effects of occupations on individuals, and in so doing, appreciate more deeply and fully how the individual and his or her occupation co-exist, interact, and mutually transform one another for better or worse.

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Appendix A: List of theoretical clarifications, theoretical propositions, and hypotheses

Theoretical clarifications to job characteristics model

Theoretical clarification 1: A critical psychological state is the experiential manifestation of satisfied psychological needs. In other words, critical psychological states are the feelings individuals have when they experience psychological need satisfaction.

Theoretical clarification 2: Job characteristics are conceptualized at the occupation level, and referred to as occupation characteristics. Occupations are conceptualized as enclosed groups in society, with individual members belonging to the occupation. Occupation characteristics are a) the descriptive elements that illustrate the context (social or physical) in which the occupation occurs and b) the behavioral, emotional, and/or cognitive requirements that occupation members must fulfill in order to be members of the occupation.

Theoretical propositions

Theoretical proposition 1: Occupation characteristics engender the development of psychological characteristics that aid individuals in the performance of the occupation.

Theoretical proposition 2: The relationship between occupation characteristics and psychological characteristics will be moderated by (a) occupation tenure, (b) occupation mobility, and (c) social support.

Theoretical proposition 3: The development of psychological characteristics as a function of occupation characteristics influences non-work outcomes. Occupation tenure, occupation mobility, and social support moderate the relationship from occupation characteristics to psychological characteristics.

List of hypotheses

Autonomy occupation characteristics (H1-H3)

Hypothesis 1: Autonomous occupation characteristics will increase the extent to which individuals in that occupation value autonomy.

Hypothesis 2: The relationship between autonomous occupation characteristics and the valuing of autonomy by individuals in that occupation is moderated by a) occupation tenure b) occupation mobility and c) social support.

Hypothesis 3: The positive relationship between autonomous occupation characteristics and social tolerance is mediated by individuals' valuing of autonomy, and moderated at the first stage by a) occupation tenure b) occupation mobility and c) social support.

Skill/task variety occupation characteristics (H4-H5)

Hypothesis 4: Skill and task variety occupation characteristics will change the attitudes that individuals in that occupation have regarding meaning in their lives. Higher skill and task variety occupation characteristics lead to positive attitudes regarding meaning.

Hypothesis 5: The relationship between skill and task variety occupation characteristics and individuals' attitudes regarding meaning in their lives is moderated by a) occupation tenure b) occupation mobility and c) social support.

Safety occupation characteristics (H6-H8)

Hypothesis 6: Safety occupation characteristics will positively increase the trust propensities of individuals in that occupation.

Hypothesis 7: The relationship between safety occupation characteristics and the trust propensities of individuals in that occupation is moderated by a) occupation tenure b) occupation mobility and c) social support.

Hypothesis 8: The negative relationship between safety occupation characteristics and safety behaviors (specifically gun ownership) is mediated by individuals' trust propensities, and moderated at the first stage by a) occupation tenure b) occupation mobility and c) social support.

Control occupation characteristics (H9-H11)

Hypothesis 9: Occupation control characteristics will increase the extent to which individuals in that occupation value obedience.

Hypothesis 10: The relationship between occupation control characteristics and individuals' valuing of obedience is moderated by a) occupation tenure b) occupation mobility and c) social support.

Hypothesis 11: The positive relationship between occupational control characteristics and deference to authority is mediated by obedience values, and moderated at the first stage by a) occupation tenure b) occupation mobility and c) social support.

Work-family conflict occupation characteristics (H12-H14)

Hypothesis 12: Work-family conflict characteristics will change the attitudes individuals in that occupation have about women working. Higher levels of work-family conflict occupation characteristics lead to negative attitudes regarding women working.

Hypothesis 13: The relationship between work-family conflict characteristics and attitudes regarding women working is moderated by a) occupation tenure b) occupation mobility and c) social support.

Hypothesis 14: The positive relationship between work-family conflict characteristic and racial stereotypes is mediated by attitudes regarding women working, and moderated at the first stage by a) occupation tenure b) occupation mobility and c) social support.

Appendix B: Alternative steps employed to link GSS and O*NET data

Option 1. The first option I explored was based on research from Dierdorff and Ellington (2008), who merged both the O*NET and GSS by matching the occupation titles between the 1980 Census Occupation Codes (COC; used in the GSS data) with the 2010 O*NET-SOC Codes (OSOC; used in the O*NET data). For example, in the 1980 COC code structure, a code of "19" is associated with the occupation title: "general managers; financial managers; funeral directors". What the authors did was use the 1980 COC titles, found the corresponding title in the O*NET database (which was "Management occupations"), and then give respondents the associated OSOC code (11-0000). The issue with this is that the 1980 COC groupings are quite broad, and thus it is hard to find the exact match in the updated 2010 OSOC codes. In the example above, the 1980 COC code "19" encompasses a broad group of managers (e.g., funeral director, financial manager, etc.), whereas the 2010 OSOC codes includes a much more detailed coding system for the category of manager (e.g., operations manager, construction manager, business and power plant manager). Thus, there is imprecision in terms of accurately matching O*NET data with the GSS data using this option.

Option 2. The other option I explored was based on research by Weeden and Grusky (2005), whereby I created a forward coding algorithm to update the 1980 COC codes. The first step was to forward code the 1980 COC codes to 1990 COC codes. A Bureau of Labor Statistics (BLS) technical report was used in this forward coding procedure. A total of 35 changes were made to the 1980 COC occupation codes.

The second step was to forward code the 1990 COC codes to 2000 COC codes. As demonstrated in Table 7, most 1990 COC codes did not have a one-to-one match with a 2000 COC code. Instead, it was often the case that a 1990 COC code (e.g., "Manager", 19) split into many different 2000 COC codes (e.g., 1= "Chief executives", 23= "education administrators", etc.). A technical report by the BLS provided in-depth information regarding what percentage of individuals

in a 1990 COC code went into a 2000 COC code (e.g., 8% of individuals classified as "Managers" in 1990 COC codes were re-classified as "Chief executives" in 2000 COC codes). Using the percentage breakdowns from the BLS report, along with a forward coding procedure by Weeden and Grusky (2005), I multiplied each 1990 COC code by the percentage in which it contributed to the 2000 COC 2000 COC codes. I then weighted each case accordingly in order to retain the original GSS sample size (N=6,000).

The third step was to forward code the 2000 COC codes to 2010 SOC codes. To accomplish this, I replied on another BLS technical documentation, which maps out 2000/2002 COC[1] codes to 2010 SOC codes. In some instances, there was a 1-1 match for 2000 COC to 2010 SOC codes. In cases when there was not a 1-1 match, I averaged all the 2010 SOC codes that were associated with the 2000 COC code.

The fourth step was to update the 2010 SOC codes to the 2010 O*NET-SOC codes. I again found a technical documentation from the BLS that provided information for this forward coding. As with the previous step, there were some instances were there was a 1-1 match for 2010 SOC to 2010 ONET*SOC codes. In cases when there wasn't a 1-1 match, I averaged all 2010 ONET*SOC codes that were associated with 2010 SOC. Once the GSS 1980 COC codes were assigned an updated 2010 O*NET-SOC code, I merged the O*NET data with the GSS data.

As with option 1 described above, the main issue with option 2 was lack of precision in updating the 1980 COC codes. As discussed, in some of the forward coding steps, I had to average occupations together because I did not have enough information to assign individuals more precise codes.

[1] In the BLS documentation, the forward codes are based on 2002 COC codes. Based on BLS information, it appears as though the 2000 COC codes are the same as the 2002 COC codes.

Figure 1: Overview of theoretical model

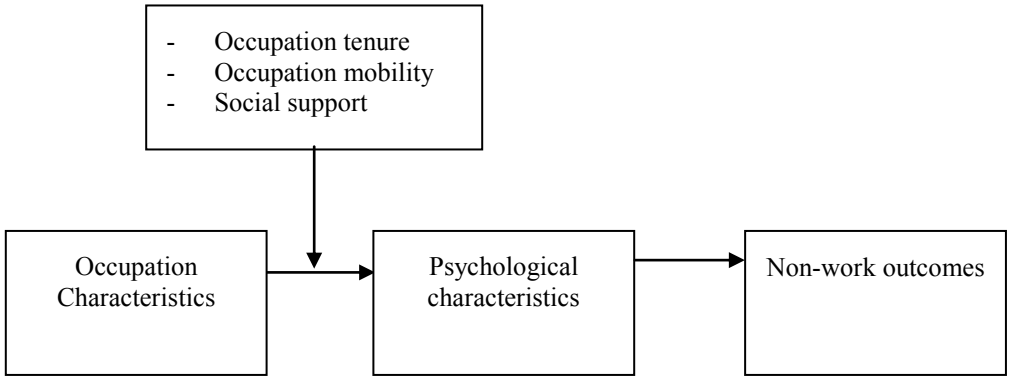


Figure 2: Job characteristics model (JCM) (Hackman & Oldham, 1976)

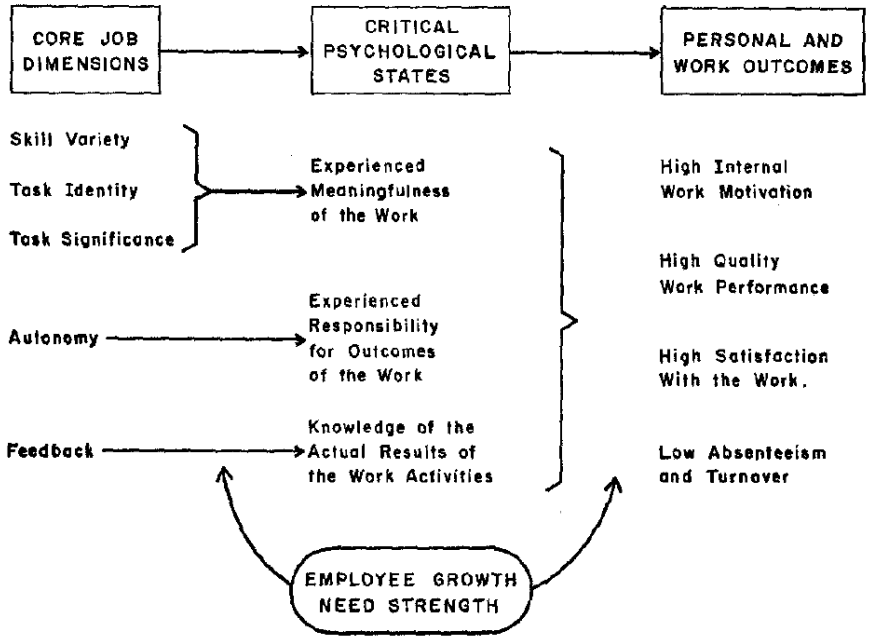


Figure 3: Neuro-culture interaction model (NCIM) (Kitayama & Uksul, 2011)

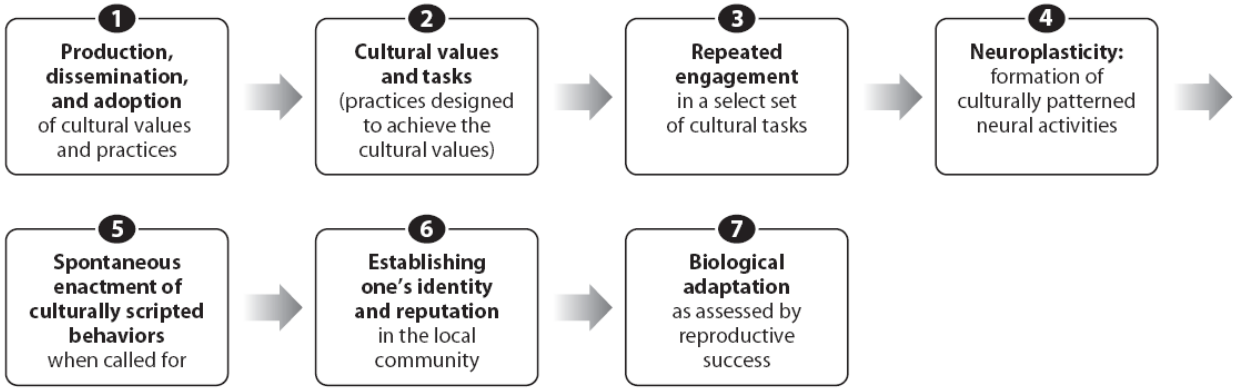


Figure 4: Hypothesized models (a-e)

Figure 4a: Hypotheses 1-3

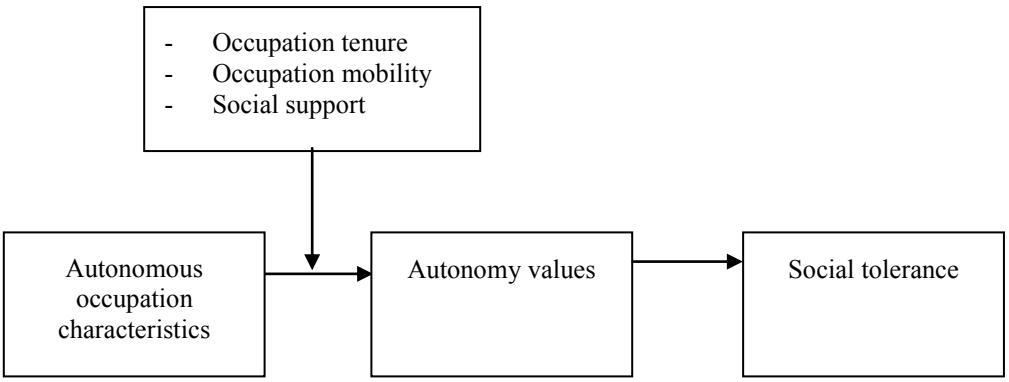


Figure 4b: Hypotheses 4-5

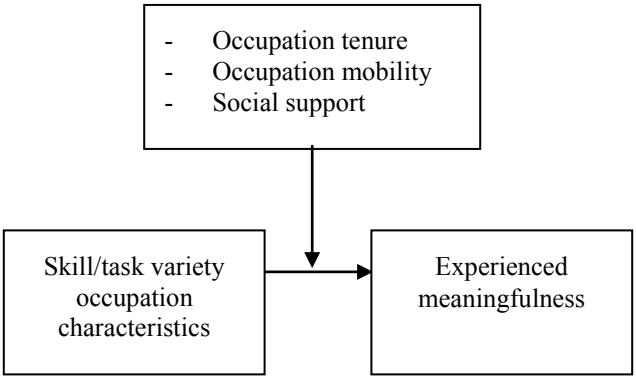
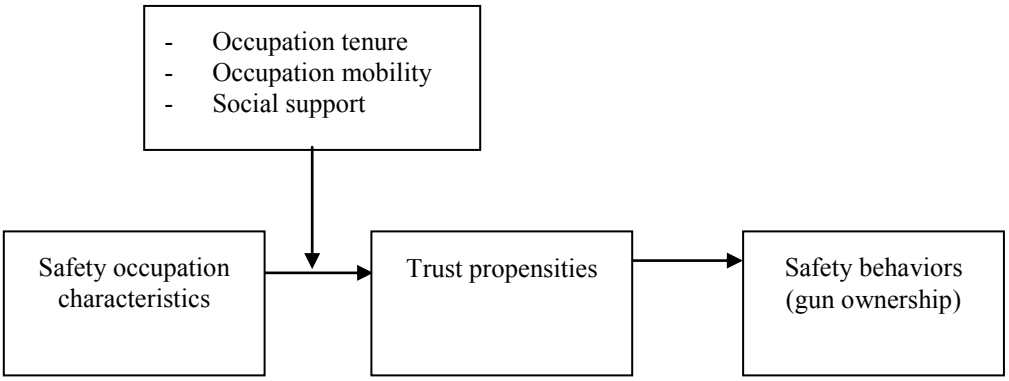


Figure 4c: Hypotheses 6-8



(continued)

Figure 4d: Hypotheses 9-11

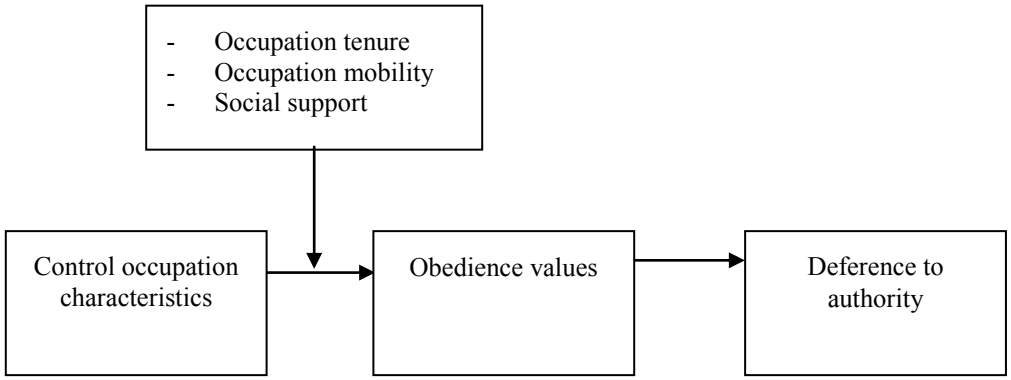


Figure 4e: Hypotheses 12-14

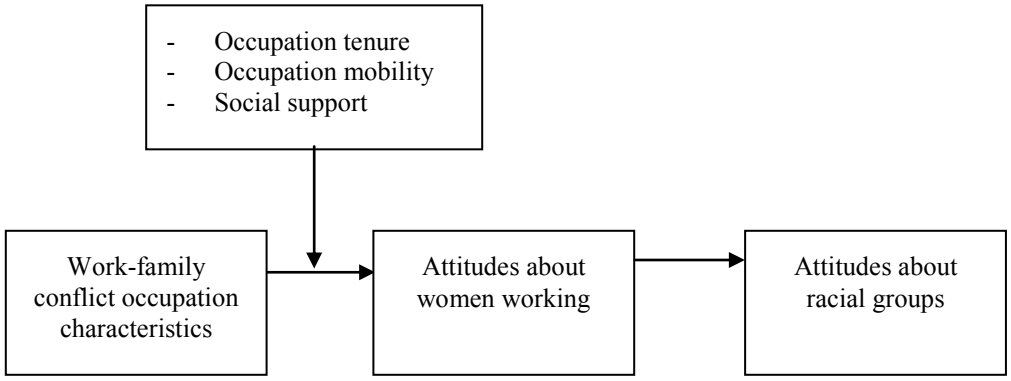


Figure 5: Model with all hypotheses (a-e)

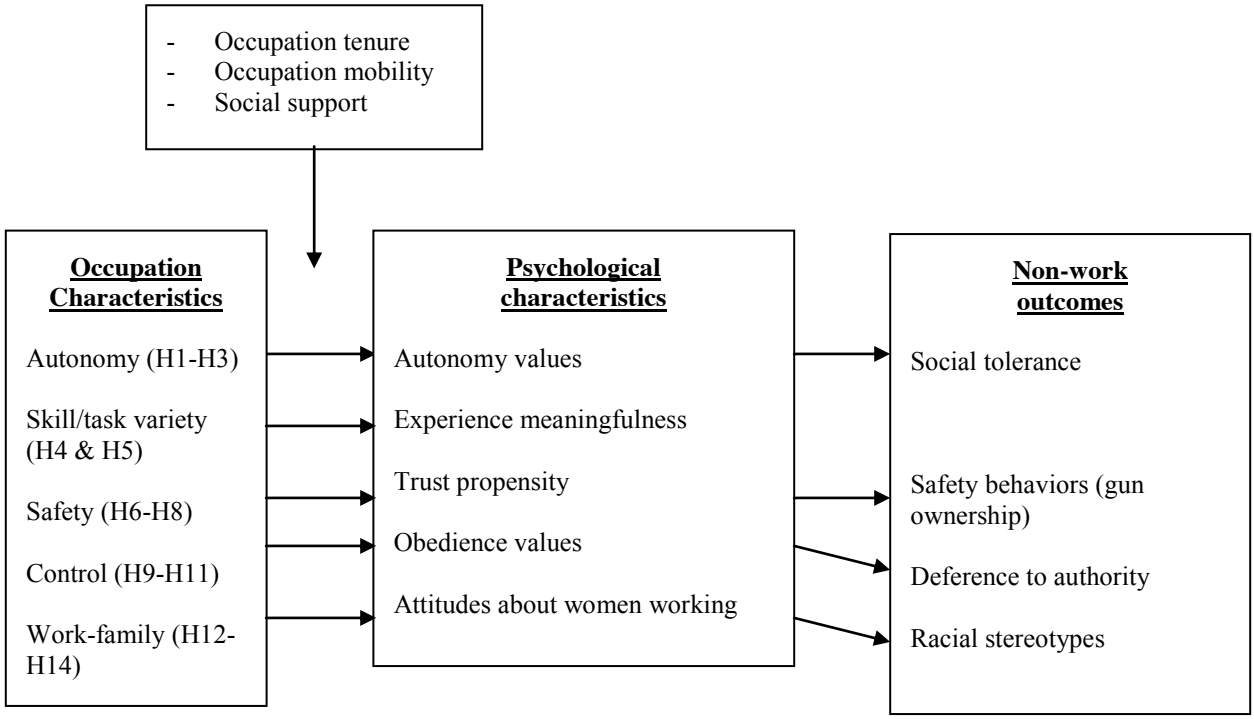


Figure 6: O*NET Content Model

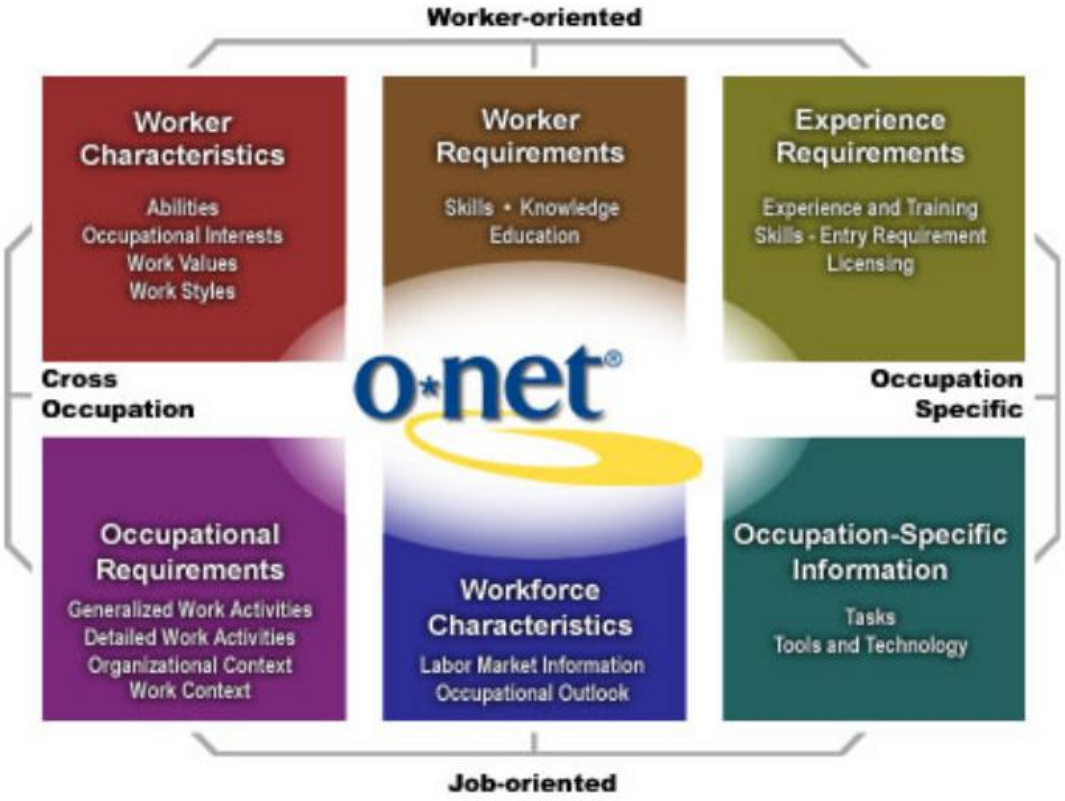
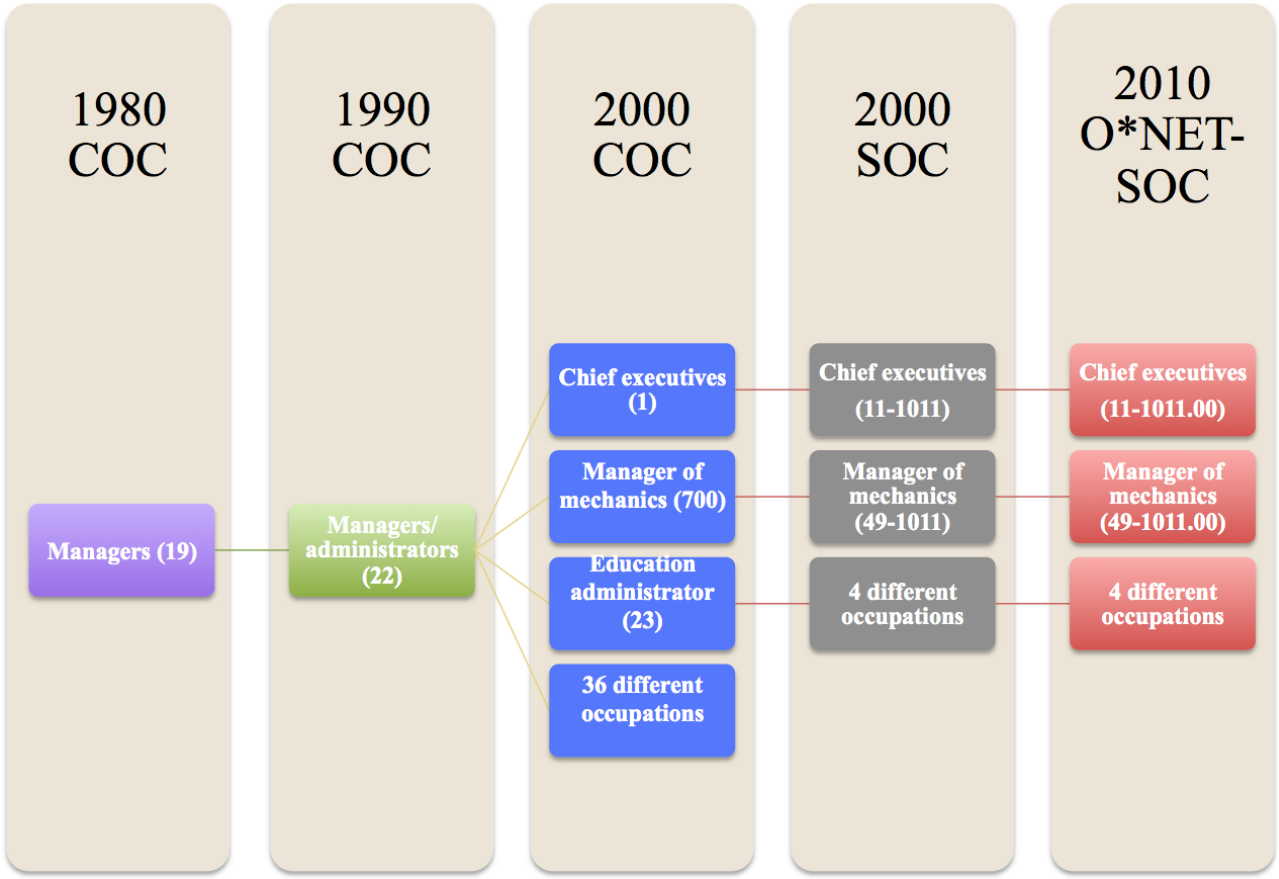


Figure 7: Example of changes to 1980 Census Occupation Codes (COC)



Note: (numbers in parentheses) denote occupation codes for specified years.

Figure 8: Graph of H2a (Study 1)

Relationship between autonomous occupation characteristics and autonomy value, moderated by occupation tenure

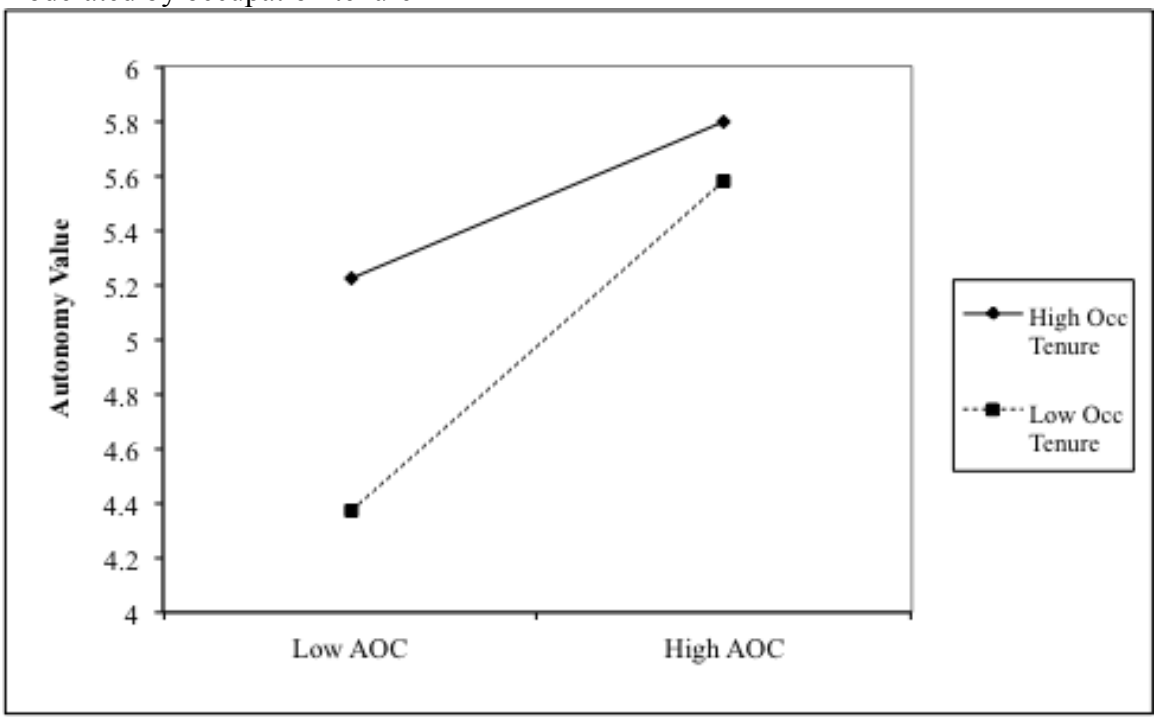


Figure 9: Graph of H2a and H2c (Study 2)

Figure 9a: Relationship between autonomous occupation characteristics and autonomy value, moderated by occupation tenure

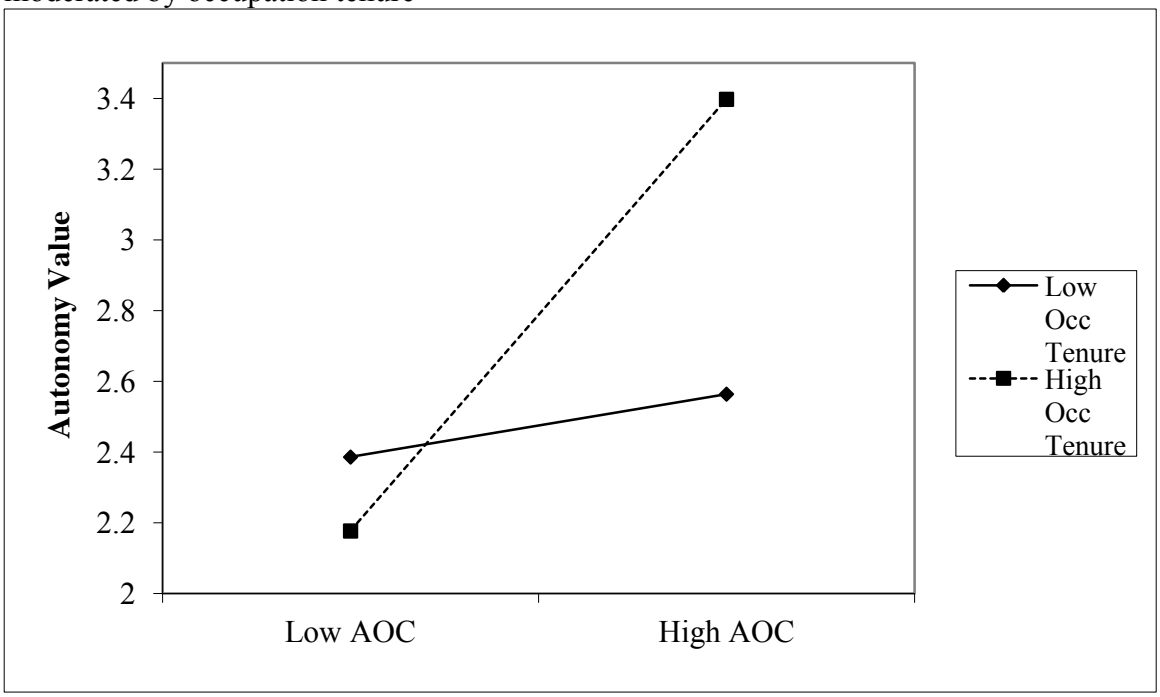


Figure 9b: Relationship between autonomous occupation characteristics and autonomy value, moderated by social support

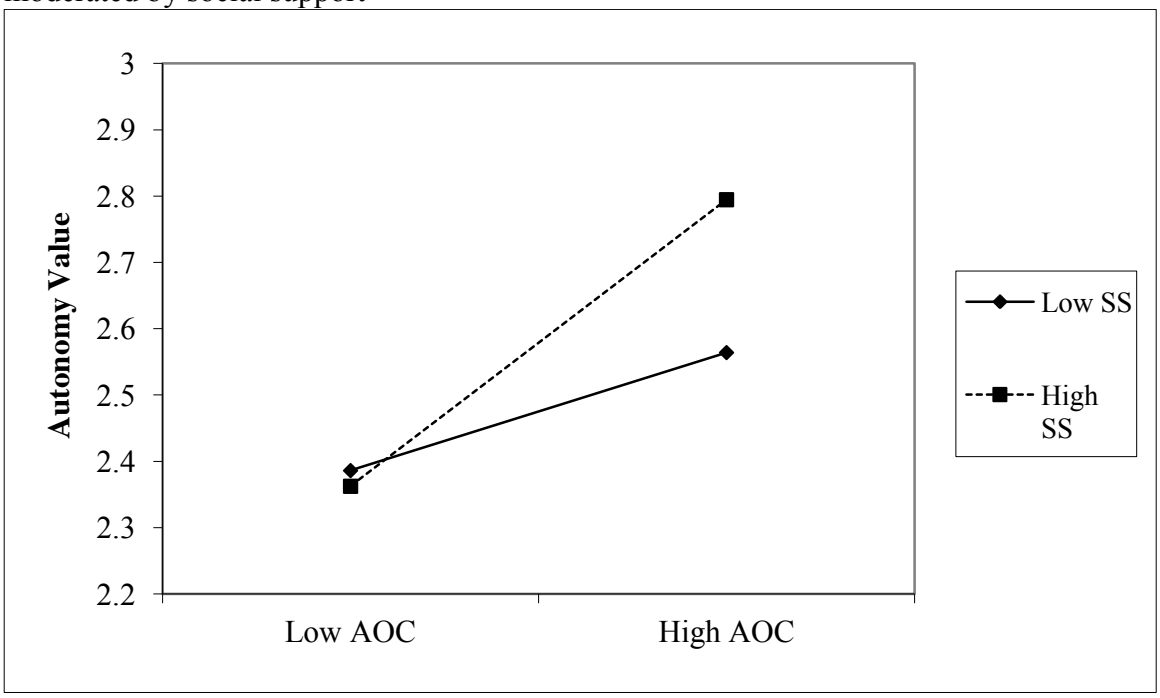


Figure 10: Graph of H13a and H13b (Study 2)

Figure 10a: Relationship between work-family conflict occupation characteristics and attitudes about women working, moderated by occupation tenure

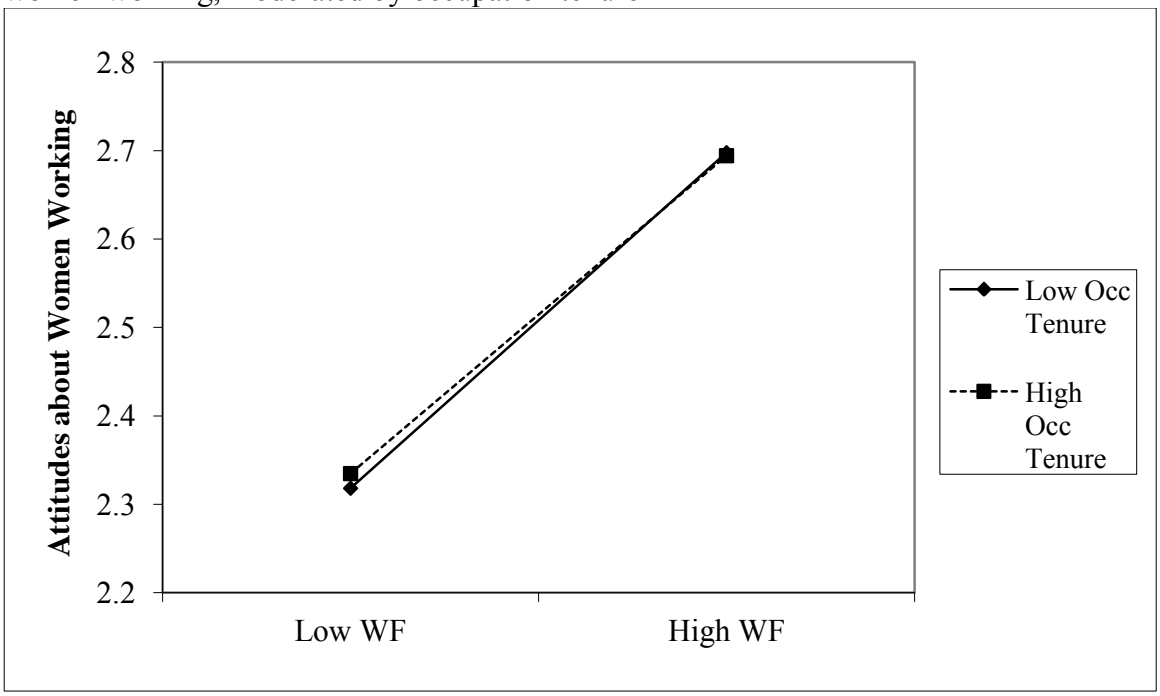
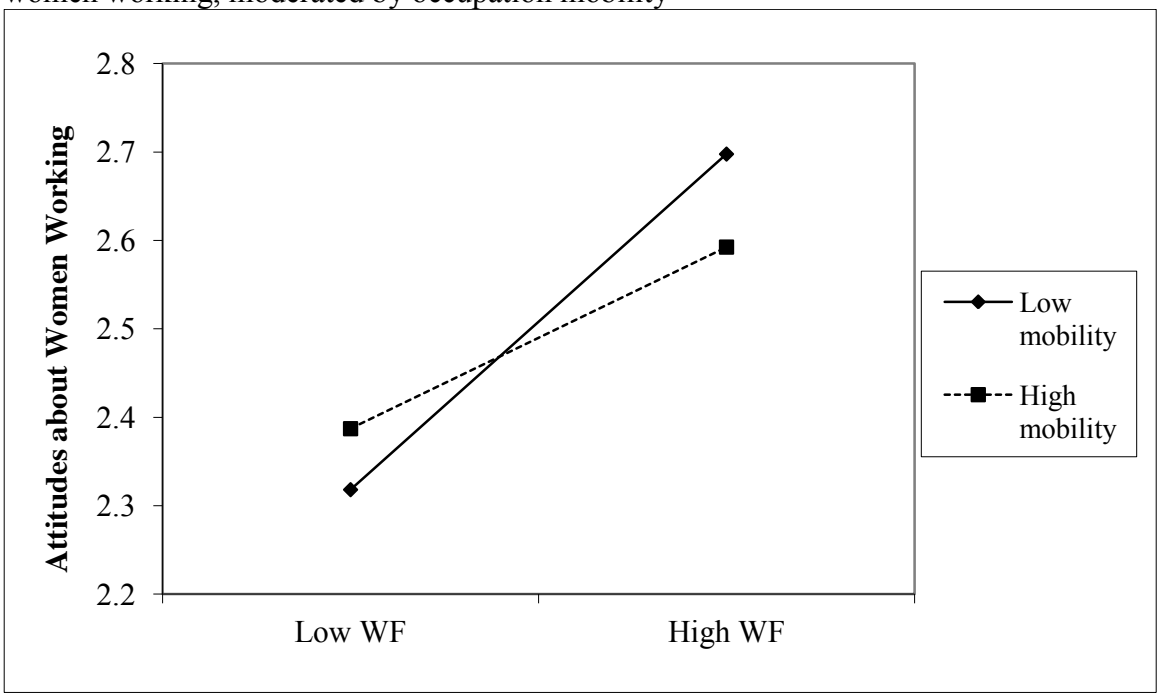


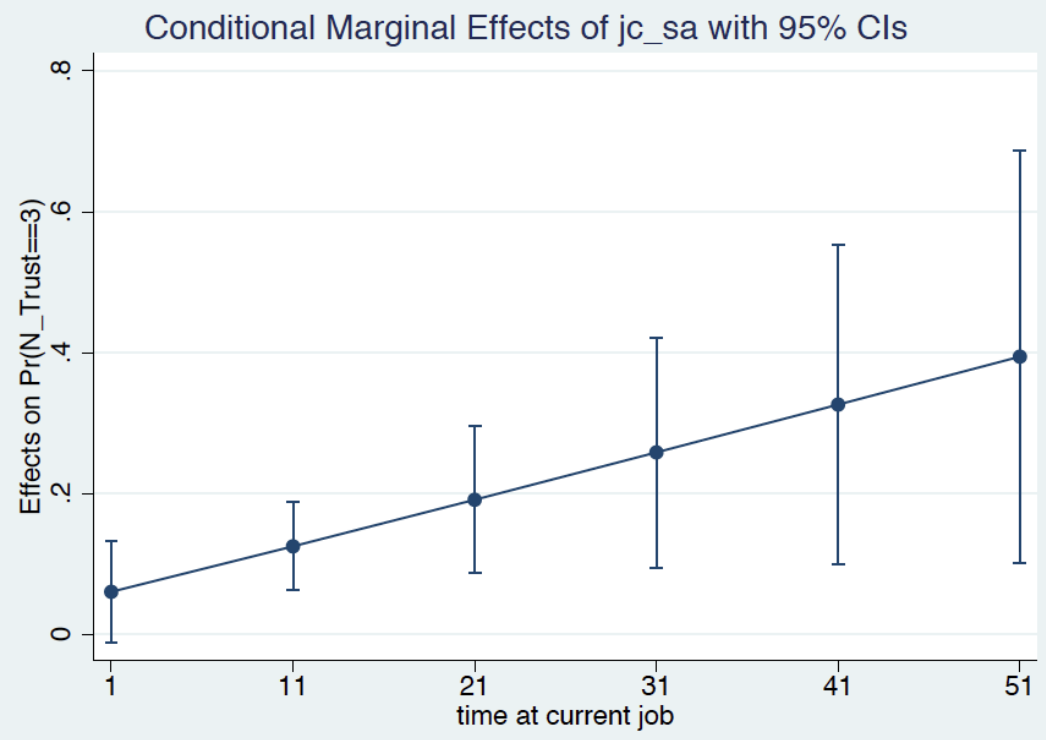
Figure 10b: Relationship between work-family conflict occupation characteristic and attitudes about women working, moderated by occupation mobility



Note: Higher values indicate negative attitudes about women working

Figure 11: Graph of H7a, Study 2

Relationship between safety occupation characteristics and trust propensity, moderated by occupation tenure



Note: Y-axis is trust propensity: "Can people be trusted?" (1=*no*, 2=*depends*, 3=*yes*).

Table 1: GSS Ballot Versions by Panel Year (Study 1)

Ballot used for interview	Panel Year			
	2006	2008	2010	Total
1	340	511	435	1,286
2	311	492	405	1,208
3	342	533	436	1,311
4	331	.a	.a	331
5	329	.a	.a	329
6	347	.a	.a	347
Total	2,000	1,536	1,276	4,812

Note: .a refers to information that is not provided in the GSS.

Table 2: Key demographic characteristics and controls (Study 1)

	Mean/Percentage	SD	Composite index	Item anchor
Married	48.94%			1=yes, 0=no
Age	49.17	17.23		
White*	76.41%			1=yes, 0=no
Male*	41.94			1=male, 0=female
Democrat	4.25	1.99		1=strongly Republican, 7=strongly Democrat
Religiosity	-.003	.803	Average of following items (standardized for comparison): how often do you attend church, pray, and feelings on bible	Church (0=never, 4=once a month, 8=more than once a week) Pray (1=several times a day, 6=never) Bible (1=word of God, 4=other)
Protestant	51.69%			1=yes, 0=no
Income	11.02	2.19		1 = < $1,000; 6 = $6,000 - $6,999; 12 = $25,000+
BA/Grad degree	29.31%			1=yes, 0=no
HS degree	50.05%			1=yes, 0=no
# years of education	13.62	3.04		
Live in Northeast	15.95%			1=yes, 0=no
Live in Midwest	22.83%			1=yes, 0=no
Live in South	38.50%			1=yes, 0=no
# children at home	1.93	1.68		
# people living in R's home	2.59	1.50		
# siblings	3.61	3.11		

N= 6,000 observations. 2,000 respondents per panel wave.
* Denotes time-invariant variables that are not included as controls in Study 1

Table 3: Most/least represented occupations (Study 1)

O*NET Code	O*NET Title	Frequency
43-6014.00	Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	105
43-4051.00	Customer Service Representatives	88
25-2031.00	Secondary School Teachers, Except Special and Career/Technical Education	79
29-1141.00	Registered Nurses	78
11-1021.00	General and Operations Managers	73
25-2021.00	Elementary School Teachers, Except Special Education	73
43-9061.00	Office Clerks, General	69
37-2012.00	Maids and Housekeeping Cleaners	68
41-4012.00	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	67
41-2011.00	Cashiers	63
53-7121.00	Tank Car, Truck, and Ship Loaders	1
53-7081.00	Refuse and Recyclable Material Collectors	1
53-7072.00	Pump Operators, Except Wellhead Pumpers	1
53-7041.00	Hoist and Winch Operators	1
53-7032.00	Excavating and Loading Machine and Dragline Operators	1
53-6051.08	Freight and Cargo Inspectors	1
53-6041.00	Traffic Technicians	1
53-6021.00	Parking Lot Attendants	1
53-5021.02	Mates- Ship, Boat, and Barge	1
53-5011.00	Sailors and Marine Oilers	1

Note: 6,000 observations.

Table 4: Example of computed occupation tenure score (Study 1)

O*NET-SOC Code	ID	Year	Panel wave	Occupation Tenure
27-3031.00	9	2006	1	1
49-9071.00	9	2008	2	1
25-2053.00	9	2010	3	1
43-5051.00	14	2006	1	1
43-5051.00	14	2008	2	2
43-5051.00	14	2010	3	3
53-3032.00	1089	2006	1	1
53-3032.00	1089	2008	2	2
17-2131.00	1089	2010	3	1

Table 5: Occupation characteristic items from O*NET Content Model (Study 1)

	Autonomy	Safety	Control	Skill/task variety	Social Support
O*NET Domain ***Sub-domain(s)***	**Work characteristic** ***Work styles: Independence***	**Occ requirements** ***Work context: Physical work conditions***	**Occ requirements** ***Work activities: Pressure***	**Worker requirement** ***Skills***	**Work characteristic** ***Work styles: Interpersonal relationship***
	Workers on this job do their work alone.	How often are there conflict situations the employee has to face in this job?	Providing information to supervisors, co-workers, and subordinates by telephone, in written form, e-mail, or in person.	Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.	Occupations that satisfy this work value offer supportive management that stands behind employees.
	How much decision making freedom, without supervision, does the job offer?	How frequently does the worker have to deal with unpleasant, angry, or discourteous individuals as part of the job requirements?	Workers on this job are never pressured to do things that go against their sense of right and wrong.	Understanding written sentences and paragraphs in work related documents.	Workers on this job are treated fairly by the company.
	Determining the kind of tools and equipment needed to do a job.	How frequently does this job require the worker to deal with physical aggression of violent individuals?		Communicating effectively in writing as appropriate for the needs of the audience.	Workers on this job have supervisors who back up their workers with management.
	Developing specific goals and plans to prioritize, organize, and accomplish your work.	How often does this job require working indoors in environmentally controlled conditions?		Talking to others to convey information effectively.	
		How often does this job require working indoors in non-controlled environmental conditions (e.g., warehouse without heat)?		Using mathematics to solve problems.	
		How often does this job require working outdoors, exposed to all weather conditions?		Using scientific rules and methods to solve problems.	

	Autonomy	Safety	Control	Skill/task variety	Social Support
O*NET Domain ***Sub-domain(s)***	**Work characteristic** ***Work styles: Independence***	**Occ requirements** ***Work context: Physical work conditions***	**Occ requirements** ***Work activities: Pressure***	**Worker requirement** ***Skills***	**Work characteristic** ***Work styles: Interpersonal relationship***
		How often does this job require working outdoors, under cover (e.g., structure with roof but no walls)?		Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.	
		How often does this job require working in an open vehicle or equipment (e.g., tractor)?		Understanding the implications of new information for both current and future problem-solving and decision-making.	
		How often does this job require working in a closed vehicle or equipment (e.g., car)?		Selecting and using training/instructional methods and procedures appropriate for the situation when learning or teaching new things.	
		To what extent does this job require the worker to perform job tasks in close physical proximity to other people?		Monitoring/Assessing performance of yourself, other individuals, or organizations to make improvements or take corrective action.	
		How often does this job require working exposed to sounds and noise levels that are distracting or uncomfortable?		Being aware of others' reactions and understanding why they react as they do.	
		How often does this job require working in very hot (above 90 F degrees) or very cold (below 32 F degrees) temperatures?		Adjusting actions in relation to others' actions.	

	Autonomy	Safety	Control	Skill/task variety	Social Support
O*NET Domain ***Sub-domain(s)***	**Work characteristic** ***Work styles: Independence***	**Occ requirements** ***Work context: Physical work conditions***	**Occ requirements** ***Work activities: Pressure***	**Worker requirement** ***Skills***	**Work characteristic** ***Work styles: Interpersonal relationship***
		How often does this job require working in extremely bright or inadequate lighting conditions?		Persuading others to change their minds or behavior.	
		How often does this job require working exposed to contaminants (such as pollutants, gases, dust or odors)?		Bringing others together and trying to reconcile differences.	
		How often does this job require working in cramped work spaces that requires getting into awkward positions?		Teaching others how to do something.	
		How often does this job require exposure to whole body vibration (e.g., operate a jackhammer)?		Actively looking for ways to help people.	
		How often does this job require exposure to radiation?		Identifying complex problems and reviewing related information to develop and evaluate options and implement solutions.	
		How often does this job require exposure to disease/infections?		Analyzing needs and product requirements to create a design.	
		How often does this job require exposure to high places?		Generating or adapting equipment and technology to serve user needs.	
		How often does this job require exposure to hazardous conditions?		Installing equipment, machines, wiring, or programs to meet specifications.	

	Autonomy	Safety	Control	Skill/task variety	Social Support
O*NET Domain ***Sub-domain(s)***	**Work characteristic** ***Work styles: Independence***	**Occ requirements** ***Work context: Physical work conditions***	**Occ requirements** ***Work activities: Pressure***	**Worker requirement** ***Skills***	**Work characteristic** ***Work styles: Interpersonal relationship***
		How often does this job require exposure to hazardous equipment?		Writing computer programs for various purposes.	
		How often does this job require exposure to minor burns, cuts, bites, or stings?		Watching gauges, dials, or other indicators to make sure a machine is working properly.	
		How much does this job require sitting?		Controlling operations of equipment or systems.	
		How much does this job require standing?		Performing routine maintenance on equipment and determining when and what kind of maintenance is needed.	
		How much does this job require climbing ladders, scaffolds, or poles?		Determining causes of operating errors and deciding what to do about it.	
		How much does this job require walking and running?		Repairing machines or systems using the needed tools.	
		How much does this job require kneeling, crouching, stooping or crawling?		Conducting tests and inspections of products, services, or processes to evaluate quality or performance.	
		How much does this job require keeping or regaining your balance?		Considering the relative costs and benefits of potential actions to choose the most appropriate one.	
		How much does this job require using your hands to handle, control, or feel objects, tools or controls?		Determining how a system should work and how changes in conditions, operations, and the environment will	

	Autonomy	Safety	Control	Skill/task variety	Social Support
O*NET Domain ***Sub-domain(s)***	**Work characteristic** ***Work styles: Independence***	**Occ requirements** ***Work context: Physical work conditions***	**Occ requirements** ***Work activities: Pressure***	**Worker requirement** ***Skills***	**Work characteristic** ***Work styles: Interpersonal relationship***
		How much does this job require bending or twisting your body?		affect outcomes. Identifying measures or indicators of system performance and the actions needed to improve or correct performance, relative to the goals of the system. Managing one's own time and the time of others. Determining how money will be spent to get the work done, and accounting for these expenditures. Obtaining and seeing to the appropriate use of equipment, facilities, and materials needed to do certain work. Motivating, developing, and directing people as they work, identifying the best people for the job.	

Table 6: Autonomy occupation characteristics, H1 & H2 (Study 1) - Missing values

A	B	C	D	E	F
Panel wave	**Total observations**	**Deleted due to NA**	**# observations remaining (% of column B)**	**Deleted due to NR (% of column D)**	**# observations in final sample (% of Column B)**
1	2,000	1,579	421	74	347
2	2,000	1,579	421	74	347
3	2,000	1,579	421	74	347
Total (%)	**6,000**	**4,737 (78%)**	**1,263 (21%)**	**222 (17%)**	**1,041 (17%)**

Note: NA refers to inapplicable (i.e., individuals not given the autonomy question). NR refers to no response. Listwise deletion employed. "Deleted due to NR" refers to % of "# observations remaining".

Table 7: Autonomy occupation characteristics, H1 & H2 (Study 1) – Means/SDs

	Mean	SD
Autonomy value (*Mediator*)	3.87	1.26
Autonomous occupation characteristics (*IV)*	3.03	0.27
Occupation tenure (*Moderator*)	1.44	0.69
Social Support (*Moderator*)	3.56	0.58
Occupation mobility (*Moderator*)	2.15	0.79
Married	0.48	0.50
Age	48.60	16.31
Democrat	4.38	1.97
Religiosity	0.01	0.81
Protestant	0.54	0.50
Income	10.95	2.36
BA/Grad degree	0.32	0.47
HS degree	0.49	0.50
# years of education	13.77	3.07
Northeast	0.17	0.38
Midwest	0.23	0.42
South	0.40	0.49
# children at home	1.96	1.72
# people living in R's home	2.64	1.52
# siblings	3.73	3.09

Note: 1,041 observations; 347 respondents per panel wave.

Table 8. Autonomy occupation characteristics, H1 & H2 (Study 1) – Correlation table

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1. Autonomy value	1.00																			
2. Autonomous occ characteristic	0.01	(.68)																		
3. Occ. tenure	-0.01	-0.01	1.00																	
4. Social Support	-0.02	0.09	0.02	(.65)																
5. Occ. mobilty	-0.01	0.07	0.02	0.03	1.00															
6. Married	0.00	0.02	0.07	0.02	-0.01	1.00														
7. Age	0.02	0.08	0.10	0.01	0.03	0.02	1.00													
8. Democrat	0.01	0.01	-0.01	-0.02	-0.02	-0.20	0.04	1.00												
9. Religiosity	-0.22	-0.03	-0.04	0.03	-0.01	0.03	0.09	-0.10	1.00											
10. Protestant	-0.01	-0.02	-0.03	0.00	-0.02	0.04	0.10	-0.14	0.40	1.00										
11. Income	0.16	0.06	0.04	0.10	-0.10	0.28	0.07	-0.05	-0.09	0.02	1.00									
12. BA/Grad degree	0.20	0.12	0.10	-0.07	-0.11	0.10	-0.03	0.01	-0.19	-0.05	0.20	1.00								
13. HS degree	-0.11	-0.12	-0.08	0.06	0.05	-0.03	-0.02	-0.03	0.12	0.06	-0.04	-0.67	1.00							
14. # years of education	0.24	0.09	0.05	-0.02	-0.13	0.11	-0.05	0.03	-0.17	-0.05	0.28	0.77	-0.38	1.00						
15. Northeast	0.02	0.01	0.03	-0.09	-0.07	0.01	0.03	0.14	-0.09	-0.16	0.04	0.06	0.00	0.03	1.00					
16. Midwest	0.10	0.02	0.02	0.07	0.08	0.02	-0.05	-0.02	-0.08	0.00	0.06	0.06	-0.04	0.10	-0.25	1.00				
17. South	-0.10	0.00	-0.02	0.01	0.02	0.00	-0.02	-0.09	0.26	0.19	-0.14	-0.12	0.02	-0.13	-0.38	-0.45	1.00			
18. # children at home	-0.07	-0.01	0.03	0.06	0.01	0.18	0.33	-0.02	0.18	0.04	-0.08	-0.15	-0.01	-0.23	-0.04	0.00	0.06	1.00		
19. # people living in R's home	-0.01	-0.09	0.05	0.07	0.01	0.38	-0.39	-0.12	0.03	-0.06	0.04	-0.01	0.02	-0.03	-0.01	0.00	0.01	0.20	1.00	
20. # siblings	-0.15	0.06	0.00	0.06	-0.04	-0.08	0.12	0.05	0.23	-0.01	-0.17	-0.17	0.00	-0.25	-0.02	-0.14	0.16	0.20	-0.02	1.00

Note: 1,041 observations; 347 respondents per panel wave. Reliabilities presented when necessary in ( ).

Table 9: Autonomy occupation characteristics, H1 & H2 (Study 1) – Fixed effects model

	(1)		(2)		(3)	
Variables	**b**	**SE**	**b**	**SE**	**b**	**SE**
Autonomous occ characteristic (AOC)			0.005	0.213	0.483	2.113
Occupation tenure (OT)					-2.031^{+}	1.063
Social support (SS)					-0.054	1.917
Occupation mobility (OM)					0.520	1.067
AOC x OT					0.582*	0.349
AOC x SS					0.043	0.602
AOC x OM					-0.172	0.351
Married	0.016	0.163	0.056	0.166	0.291	0.247
Age	-0.034^{+}	0.019	-0.031^{+}	0.020	-0.003	0.046
Democrat	-0.006	0.041	-0.008	0.043	0.031	0.071
Religiosity	-0.301**	0.105	-0.260**	0.107	-0.034	0.177
Protestant	0.253^{+}	0.150	0.345*	0.158	0.374	0.242
Income	-0.007	0.024	-0.018	0.026	-0.141*	0.058
BA/Grad degree	-0.193	0.297	-0.071	0.313	-0.528	0.636
HS degree	0.003	0.180	0.042	0.196	-0.049	0.273
# years of education	0.041	0.041	0.039	0.052	0.001	0.069
R's location: Northeast	-0.405	0.552	-0.373	0.550	0.042	1.670
R's location: Midwest	0.175	0.601	0.079	0.604	-0.784	0.933
R's location: South	-0.332	0.539	-0.292	0.538	-1.492	0.921
# children at home	0.023	0.086	0.020	0.088	0.035	0.146
# people living in R's home	-0.031	0.041	-0.031	0.042	-0.002	0.066
# siblings	-0.016	0.044	-0.002	0.046	0.100*	0.050
Constant	5.239**	1.123	5.043**	1.421	4.309	7.167
R^2 (overall)	**0.01**		**0.012**		**0.024**	
F	**1.21**		**1.07**		**1.82**	
ΔR^2			**.002**		**.012**	
ΔF			**.14**		**.75**	

Note: 1,041 observations; 347 respondents per panel wave.
Dependent variable is autonomy values: "how important is it to think for oneself" (1=*least important*, 5=*most important)*
* $p < .05$
** $p < .01$
$^{+}$ $p < .10$

Table 10: Skill/task variety occupation characteristics, H4 & H5 (Study 1) - Missing values

A	B	C	D	E	F
Panel wave	**Total observations**	**Deleted due to NA**	**# observations remaining (% of column B)**	**Deleted due to NR (% of column D)**	**# observations in final sample (% of Column B)**
1	2,000	1,129	871	160	711
2	2,000	1,129	871	160	711
3	2,000	1,129	871	160	711
Total (%)	**6,000**	**3,387 (56%)**	**2,613 (43%)**	**480 (18%)**	**2,133 (35%)**

Note: NA refers to inapplicable (i.e., individuals not given the skill/task variety sets of questions). NR refers to no response. Listwise deletion employed. "Deleted due to NR" refers to % of "# observations remaining".

Table 11. Skill/task variety occupation characteristics, H4 & H5 (Study 1) – Means/SDs

	Mean	SD
Experience meaningfulness (Mediator)	1.56	0.59
Skill/task variety characteristics (IV)	0.85	0.19
Occupation tenure (Moderator)	1.35	0.63
Social Support (Moderator)	3.54	0.53
Occupation mobility (Moderator)	2.16	0.80
Married	0.48	0.50
Age	49.23	17.04
Democrat	4.21	2.00
Religiosity	0.01	0.79
Protestant	0.52	0.50
Income	11.08	2.13
BA/Grad degree	0.29	0.45
HS degree	0.51	0.50
# years of education	13.60	2.96
Northeast	0.15	0.36
Midwest	0.23	0.42
South	0.38	0.49
# children at home	1.90	1.64
# people living in R's home	2.58	1.50
# siblings	3.59	3.04

Note: 2,133 observations, 711 per panel wave

Table 12: Skill/task variety occupation characteristics, H4 & H5 (Study 1) – Correlation table

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1. Experience Meaninfulness	1.00																			
2. Skill/task variety characteristic	-0.11	(.95)																		
3. Occ. tenure	0.00	0.05	1.00																	
4. Social Support	0.03	0.00	-0.01	(.62)																
5. Occ. mobilty	0.09	-0.06	0.17	0.03	1.00															
6. Married	-0.05	0.06	0.05	0.03	-0.01	1.00														
7. Age	0.07	0.03	0.10	0.02	0.16	0.00	1.00													
8. Democrat	0.07	-0.02	0.01	0.01	0.09	-0.15	-0.07	1.00												
9. Religiosity	-0.06	0.04	0.00	0.01	0.00	0.11	0.15	-0.14	1.00											
10. Protestant	0.01	0.02	0.01	0.00	0.06	0.02	0.15	-0.12	0.38	1.00										
11. Income	-0.10	0.15	0.04	0.08	-0.01	0.27	-0.01	-0.07	-0.04	0.04	1.00									
12. BA/Grad degree	-0.19	0.38	0.09	-0.09	-0.01	0.09	-0.03	-0.04	-0.11	-0.08	0.19	1.00								
13. HS degree	0.11	-0.19	-0.05	0.07	0.08	-0.03	0.02	0.00	0.04	0.05	-0.07	-0.66	1.00							
14. # years of education	-0.21	0.44	0.10	-0.03	-0.01	0.07	-0.07	-0.03	-0.10	-0.06	0.24	0.73	-0.32	1.00						
15. Northeast	0.04	0.01	0.01	-0.02	0.02	-0.01	0.02	0.09	-0.08	-0.19	0.00	0.07	-0.06	0.05	1.00					
16. Midwest	0.01	0.00	0.04	0.04	0.08	0.05	0.06	-0.02	0.03	0.05	0.04	-0.04	0.02	0.00	-0.23	1.00				
17. South	0.03	0.00	-0.01	0.00	-0.02	-0.02	-0.02	-0.02	0.18	0.18	-0.04	-0.02	-0.02	-0.07	-0.34	-0.43	1.00			
18. # children at home	0.06	-0.07	0.02	0.00	0.02	0.19	0.37	-0.08	0.23	0.10	-0.03	-0.20	0.09	-0.27	-0.05	0.04	0.02	1.00		
19. # people living in R's home	-0.02	-0.04	0.04	-0.03	-0.03	0.37	-0.39	-0.04	0.05	-0.07	0.07	-0.06	0.01	-0.09	-0.01	-0.02	-0.01	0.21	1.00	
20. # siblings	0.05	-0.17	-0.05	0.01	-0.08	-0.04	0.11	0.08	0.15	0.03	-0.14	-0.21	0.05	-0.28	-0.03	0.01	0.03	0.20	0.07	1.00

Note: 2,133 observations, 711 per panel wave

Table 13: Skill/task variety occupation characteristics, H4 & H5 (Study 1) – Fixed effects model

	(1)		(2)		(3)	
Variables	**b**	**SE**	**b**	**SE**	**b**	**SE**
Skill/task variety (ST)			-0.073	0.106	0.214	0.991
Occupation tenure (OT)					-0.198	0.152
Social support (SS)					0.043	0.203
Occupation mobility (OM)					0.038	0.147
SV x OT					0.259	0.168
SV x SS					-0.116	0.235
SV x OM					-0.036	0.165
Age	0.006	0.006	0.003	0.006	-0.012	0.015
Married	0.061	0.053	0.066	0.053	0.136	0.094
Democrat	-0.002	0.013	-0.001	0.013	0.009	0.024
Religiosity	-0.052	0.032	-0.045	0.033	-0.137*	0.062
Protestant	0.049	0.045	0.035	0.047	0.087	0.090
Income	-0.002	0.007	-0.007	0.008	0.018	0.019
BA/Grad degree	-0.060	0.084	-0.027	0.089	-0.124	0.165
HS degree	-0.059	0.055	-0.044	0.058	-0.232*	0.111
# years of education	-0.007	0.011	-0.020	0.013	-0.009	0.026
R's location: Northeast	-0.351	0.223	-0.330	0.221	-0.833	0.792
R's location: South	-0.471*	0.213	-0.442*	0.212	-0.018	0.484
# children at home	0.008	0.024	0.013	0.024	0.019	0.042
# people living in R's home	0.006	0.013	0.009	0.013	-0.017	0.024
# siblings	0.020	0.011	0.019	0.011	0.030	0.022
Constant	1.588**	0.353	2.021**	0.380	1.946	1.146
R^2 (overall)	**.0012**		**.0042**		**.0002**	
F	**1.13**		**1.09**		**1.03**	
ΔR^2			**.003**		**.004**	
ΔF			**.04**		**.03**	

Note: 2,133 observations, 711 per panel wave.
Dependent variable is experienced meaningfulness: "is life exciting, dull, or routine?" (1 = *exciting*, 2=*routine*, 3 = *dull*)
* $p < .05$

Table 14: Safety occupation characteristics, H6 & H7 (Study 1) – Missing values

A	B	C	D	E	F
Panel wave	**Total observations**	**Deleted due to NA**	**# observations remaining (% of column B)**	**Deleted due to NR (% of column D)**	**# observations in final sample (% of Column B)**
1	2,000	1,159	841	180	661
2	2,000	1,159	841	180	661
3	2,000	1,159	841	180	661
Total (%)	**6,000**	**3,477 (57%)**	**2,523 (42%)**	**540 (21%)**	**1,983 (33%)**

Note: NA refers to inapplicable (i.e., individuals not given the safety sets of questions). NR refers to no response. Listwise deletion employed. "Deleted due to NR" refers to % of "# observations remaining".

Table 15. Safety occupation characteristics, H6 & H7 (Study 1) – Means/SDs

	Mean	SD
Trust (Mediator)	1.78	0.94
Safety occ. characteristic (IV)	2.27	0.43
Occ. Tenure (Moderator)	1.37	0.67
Social Support (Moderator)	3.53	0.54
Occ. mobility (Moderator)	2.17	0.79
Age	48.78	16.94
Married	0.48	0.50
Democrat	4.25	1.97
Religiosity	-0.01	0.80
Protestant	0.52	0.50
Income	11.00	2.21
BA/Grad degree	0.29	0.46
HS degree	0.50	0.50
# years of education	13.63	3.05
Northeast	0.16	0.37
Midwest	0.23	0.42
South	0.39	0.49
# children at home	1.92	1.69
# people living in R's home	2.58	1.50
# siblings	3.62	3.08
R Born in US	0.88	0.32
Grandparents born in US	0.61	0.49
White	0.76	0.42
Male	0.42	0.49
Fund (mod)	0.38	0.49
Fund (lib)	0.30	0.46
Mobility 16	0.37	0.48

Note: 1,080 observations; 360 per panel wave.

Table 16. Safety occupation characteristics, H6 & H7 (Study 1) – Correlation table

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1. Trust	1.00																		
2. Safety characteristic	-0.17	(.94)																	
3. Occ. tenure	0.08	0.01	1.00																
4. Social Support	-0.03	0.00	-0.02	(.62)															
5. Occ. mobility	-0.04	-0.02	0.13	0.05	1.00														
6. Married	0.13	-0.04	0.05	0.03	-0.03	1.00													
7. Age	0.12	-0.06	0.12	0.02	0.11	0.04	1.00												
8. Democrat	-0.03	0.00	0.01	-0.01	0.03	-0.17	-0.01	1.00											
9. Religiosity	-0.08	0.00	-0.02	0.02	0.03	0.11	0.12	-0.13	1.00										
10. Protestant	-0.03	0.01	-0.01	0.00	0.00	0.03	0.11	-0.13	0.39	1.00									
11. Income	0.15	-0.10	0.04	0.09	-0.02	0.28	0.02	-0.06	-0.05	0.01	1.00								
12. BA/Grad degree	0.26	-0.30	0.09	-0.07	-0.06	0.10	-0.01	-0.01	-0.15	-0.08	0.20	1.00							
13. HS degree	-0.12	0.15	-0.05	0.07	0.06	-0.04	-0.01	0.00	0.06	0.05	-0.06	-0.64	1.00						
14. # years of education	0.28	-0.33	0.08	-0.01	-0.08	0.08	-0.04	-0.01	-0.14	-0.06	0.27	0.73	-0.31	1.00					
15. Northeast	0.04	-0.02	0.01	-0.03	0.00	-0.02	0.03	0.10	-0.08	-0.18	0.03	0.08	-0.03	0.06	1.00				
16. Midwest	0.06	0.00	0.04	0.04	0.07	0.04	0.01	-0.01	-0.02	0.01	0.04	-0.03	0.01	0.00	-0.24	1.00			
17. South	-0.14	0.02	-0.02	0.00	-0.01	-0.01	-0.02	-0.05	0.22	0.19	-0.08	-0.05	-0.01	-0.09	-0.35	-0.43	1.00		
18. # children at home	-0.04	0.06	0.04	0.00	0.03	0.18	0.38	-0.03	0.22	0.07	-0.08	-0.19	0.02	-0.27	-0.03	0.02	0.03	1.00	
19. # people living in R's home	-0.03	0.04	0.05	0.00	0.00	0.36	-0.38	-0.05	0.07	-0.04	0.06	-0.06	0.01	-0.07	-0.02	-0.02	0.01	0.19	1.00
20. # siblings	-0.11	0.16	-0.04	0.01	-0.06	-0.03	0.08	0.08	0.19	0.02	-0.15	-0.20	0.04	-0.27	-0.04	-0.04	0.08	0.22	0.06
21. R Born in US	0.05	-0.02	0.04	0.05	-0.02	-0.06	0.10	-0.07	0.01	0.20	0.04	-0.03	0.11	0.09	-0.10	0.09	0.02	-0.03	-0.13
22. Grandparents born in US	-0.06	0.08	0.00	0.01	-0.01	-0.04	-0.08	-0.08	0.10	0.30	-0.01	-0.09	0.08	-0.04	-0.17	0.05	0.16	-0.06	-0.06
23. White	0.18	-0.05	0.10	-0.02	-0.06	0.13	0.15	-0.30	-0.18	-0.04	0.16	0.10	-0.01	0.13	0.00	0.12	-0.14	-0.06	-0.07
24. Male	0.07	0.35	0.02	0.01	0.02	0.05	-0.04	-0.04	-0.22	-0.07	0.10	0.07	-0.02	0.05	-0.04	0.02	-0.01	-0.09	-0.06
25. Fund (mod)	0.02	-0.02	0.02	0.02	-0.02	0.04	-0.01	-0.03	0.08	-0.39	0.03	0.02	0.01	-0.01	0.12	0.01	-0.13	0.03	0.06
26. Fund (lib)	0.10	-0.06	0.02	-0.05	0.00	-0.03	-0.01	0.07	-0.47	-0.22	0.02	0.15	-0.09	0.15	0.03	0.00	-0.10	-0.12	-0.06
27. Mobility 16	0.08	-0.04	0.00	0.02	-0.04	0.04	0.10	-0.01	-0.05	-0.09	0.05	0.12	-0.13	0.05	-0.05	-0.11	0.02	0.07	-0.03

Note: 1,080 observations; 360 per panel wave.

	20	**21**	**22**	**23**	**24**	**25**	**26**	**27**
20. # siblings	1.00							
21. R Born in US	-0.14	1.00						
22. Grandparents born in US	-0.03	0.44	1.00					
23. White	-0.25	0.25	0.08	1.00				
24. Male	-0.05	-0.03	-0.02	0.03	1.00			
25. Fund (mod)	0.01	-0.17	-0.26	0.04	-0.04	1.00		
26. Fund (lib)	-0.14	0.05	0.00	0.14	0.10	-0.52	1.00	
27. Mobility 16	0.10	-0.32	-0.21	-0.04	0.07	0.05	0.04	1.00

Note: 1,080 observations; 360 per panel wave.

Table 17: Safety occupation characteristics, H6 & H7 (Study 1) – Fixed effects ordered probit model

	(1)		(2)		(3)	
Variables	**b**	**SE**	**b**	**SE**	**b**	**SE**
Safety job characteristics (SA)			-0.447**	0.112	0.516	1.544
Occupation tenure (OT)					0.410	0.491
Social support (SS)					1.395	0.960
Occupation mobility (OM)					-1.180*	0.501
SA x OT					-0.039	0.216
SA x SS					-0.609	0.417
SA x OM					0.144	0.221
Age	0.016**	0.003	0.014**	0.003	0.011**	0.008
Married	0.417**	0.097	0.450**	0.099	0.721	0.179
Democrat	0.012	0.022	0.019	0.023	0.059	0.041
Religiosity	0.019	0.065	0.025	0.067	0.022	0.119
Protestant	0.169	0.109	0.135	0.112	0.340+	0.202
Income	0.037	0.021	0.016	0.022	-0.006	0.050
BA/Grad degree	0.368*	0.167	0.278	0.172	0.333	0.304
HS degree	0.095	0.113	0.094	0.117	-0.007	0.220
# years of education	0.112**	0.022	0.100**	0.023	0.085	0.042
Northeast	-0.072	0.149	-0.068	0.151	-0.200	0.261
Midwest	0.051	0.137	0.055	0.139	-0.010	0.244
South	-0.466**	0.125	-0.480**	0.128	-0.272	0.223
# children at home	-0.030	0.033	-0.037	0.034	0.043	0.066
# people living in R's home	0.009	0.033	0.013	0.034	-0.120	0.062
# siblings	-0.018	0.016	-0.011	0.016	-0.026	0.028
R Born in US	0.329*	0.167	0.315+	0.172	0.676	0.341
Grandparents born in US	-0.187+	0.100	-0.121	0.102	-0.188	0.181
White	0.138**	0.095	0.279**	0.103	0.358	0.182
Male	0.420	0.121	0.476**	0.126	0.260*	0.223
Fund (mod)	0.131	0.123	0.133	0.127	0.263	0.224
Fund (lib)	0.267*	0.134	0.237	0.137	0.606*	0.248
Mobility 16	0.233**	0.097	0.229	0.099	0.223	0.170
Wald χ^2	**231.00**		**220.51**		**98.00**	

Note: 1,080 observations; 360 per panel wave.
Dependent variable is trust propensity: "Can people be trusted?" (1=*no*, 2=*depends*, 3=*yes*)
* $p < .05$
** $p < .01$
+ $p < .10$

Table 18: Control occupation characteristics, H9 & H10 (Study 1) - Missing values

A	B	C	D	E	F
Panel wave	**Total observations**	**Deleted due to NA**	**# observations remaining (% of column B)**	**Deleted due to NR (% of column D)**	**# observations in final sample (% of Column B)**
1	2,000	1,579	421	61	360
2	2,000	1,579	421	61	360
3	2,000	1,579	421	61	360
Total (%)	**6,000**	**4,737 (78%)**	**1,263 (21%)**	**183 (14%)**	**1,080 (18%)**

Note: NA refers to inapplicable (i.e., individuals not given the control sets of questions). NR refers to no response. Listwise deletion employed. "Deleted due to NR" refers to % of "# observations remaining".

Table 19: Control occupation characteristics, H9 & H10 (Study 1) – Means/SDs

	Mean	SD
Obedience value (Mediator)	2.80	1.30
Control occupation characteristics (IV)	3.55	0.22
Occupation tenure (Moderator)	1.44	0.69
Social Support (Moderator)	3.56	0.58
Occupation mobility (Moderator)	2.15	0.79
Married	0.48	0.50
Age	48.60	16.31
Democrat	4.38	1.97
Religiosity	0.01	0.81
Protestant	0.54	0.50
Income	10.95	2.36
BA/Grad degree	0.32	0.47
HS degree	0.49	0.50
# years of education	13.77	3.07
Northeast	0.17	0.38
Midwest	0.23	0.42
South	0.40	0.49
# children at home	1.96	1.72
# people living in R's home	2.64	1.52
# siblings	3.73	3.09

Note: 1,080 observations, 360 respondents per panel wave.

Table 20. Control occupation characteristics, H9 & H10 (Study 1) – Correlation table

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1. Obedience value	1.00																			
2. Control occ characteristic	-0.13	(.61)																		
3. Occ. tenure	0.01	0.00	1.00																	
4. Social Support	0.02	0.47	0.02	(.62)																
5. Occ. mobilty	-0.03	0.00	0.02	0.03	1.00															
6. Married	-0.06	0.04	0.07	0.02	-0.01	1.00														
7. Age	0.03	0.02	0.10	0.01	0.03	0.02	1.00													
8. Democrat	-0.01	-0.02	-0.01	-0.02	-0.02	-0.20	0.04	1.00												
9. Religiosity	0.35	-0.09	-0.04	0.03	-0.01	0.03	0.09	-0.10	1.00											
10. Protestant	0.13	-0.07	-0.03	0.00	-0.02	0.04	0.10	-0.14	0.40	1.00										
11. Income	-0.17	0.16	0.04	0.10	-0.10	0.28	0.07	-0.05	-0.09	0.02	1.00									
12. BA/Grad degree	-0.26	0.25	0.10	-0.07	-0.11	0.10	-0.03	0.01	-0.19	-0.05	0.20	1.00								
13. HS degree	0.15	-0.14	-0.08	0.06	0.05	-0.03	-0.02	-0.03	0.12	0.06	-0.04	-0.67	1.00							
14. # years of education	-0.28	0.28	0.05	-0.02	-0.13	0.11	-0.05	0.03	-0.17	-0.05	0.28	0.77	-0.38	1.00						
15. Northeast	-0.05	-0.05	0.03	-0.09	-0.07	0.01	0.03	0.14	-0.09	-0.16	0.04	0.06	0.00	0.03	1.00					
16. Midwest	-0.10	0.05	0.02	0.07	0.08	0.02	-0.05	-0.02	-0.08	0.00	0.06	0.06	-0.04	0.10	-0.25	1.00				
17. South	0.19	-0.02	-0.02	0.01	0.02	0.00	-0.02	-0.09	0.26	0.19	-0.14	-0.12	0.02	-0.13	-0.38	-0.45	1.00			
18. # children at home	0.09	-0.06	0.03	0.06	0.01	0.18	0.33	-0.02	0.18	0.04	-0.08	-0.15	-0.01	-0.23	-0.04	0.00	0.06	1.00		
19. # people living in R's home	-0.03	0.04	0.05	0.07	0.01	0.38	-0.39	-0.12	0.03	-0.06	0.04	-0.01	0.02	-0.03	-0.01	0.00	0.01	0.20	1.00	
20. # siblings	0.20	-0.09	0.00	0.06	-0.04	-0.08	0.12	0.05	0.23	-0.01	-0.17	-0.17	0.00	-0.25	-0.02	-0.14	0.16	0.20	-0.02	1.00

Note: 1,080 observations, 360 respondents per panel wave.

Table 21: Control occupation characteristics, H9 & H10 (Study 1) – Fixed effects model

	(1)		(2)		(3)	
Variables	**b**	**SE**	**b**	**SE**	**b**	**SE**
Control occ characteristic (CO)			0.389^{+}	0.216	-2.659	2.852
Occupation tenure (OT)					-1.314	1.509
Social support (SS)					-2.103	2.458
Occupation mobility (OM)					-1.419	1.702
CO x OT					0.359	0.421
CO x SS					0.510	0.678
CO x OM					0.386	0.482
Age	0.000	0.017	-0.006	0.017	0.014	0.051
Married	-0.252^{+}	0.143	-0.299*	0.145	-0.170	0.291
Democrat	-0.016	0.036	-0.007	0.037	0.073	0.085
Religiosity	0.192*	0.092	0.182*	0.094	0.396*	0.192
Protestant	-0.277*	0.131	-0.309*	0.138	-0.035	0.268
Income	-0.050*	0.021	-0.046	0.023	-0.055	0.067
BA/Grad degree	-0.146	0.261	-0.071	0.274	1.398*	0.626
HS degree	-0.046	0.158	-0.154	0.170	-0.096	0.291
# years of education	-0.033	0.036	-0.096*	0.045	0.000	0.089
R's location: Northeast	0.715	0.484	0.757	0.480	-0.076	1.545
R's location: Midwest	0.227	0.528	0.208	0.528	0.451	0.926
R's location: South	0.334	0.473	0.407	0.470	-0.033	0.889
# children at home	0.037	0.076	0.047	0.077	-0.231	0.192
# people living in R's home	0.000	0.036	-0.008	0.037	-0.003	0.067
# siblings	0.015	0.039	0.014	0.040	0.090	0.087
Constant	3.746**	0.985	3.524**	1.314	12.839	10.715
R^2 (overall)	**.090**		**.098**		**.001**	
F	**1.51**		**1.86**		**.77**	
ΔR^2			**.008**		**.097**	
ΔF			**.35**		**1.09**	

Note: 1,080 observations, 360 respondents per panel wave.
Dependent variable is "how important is it to obey" (1=*least important*, 5=*most important*)
* $p < .05$
** $p < .01$
$^{+}$ $p < .10$

Table 22: GSS Ballot Versions by Year (Study 2)

Ballot used for interview	**Year**		**Total**
	2002	2006	
1	460	521	981
2	448	491	939
3	464	511	975
4	473	482	955
5	463	498	961
6	457	489	946
7	0	1,518	1,518
Total	**2,765**	**4,510**	**7,275**

Table 23: Key demographic characteristics and controls (Study 2)

	Mean/Percentage	SD	Composite index	Item anchor
Married	47.31%			1=yes, 0=no
Age	46.81	17.08		
White*	75.22			1=yes, 0=no
Male*	44.41%			1=male, 0=female
Democrat	4.20	1.95		1=strongly Republican, 7=strongly Democrat
Religiosity	.005	.87	Average of following items (standardized for comparison): how often do you attend church, pray, and feelings on bible	Church (0=never, 4=once a month, 8=more than once a week) Pray (1=several times a day, 6=never) Bible (1=word of God, 4=other)
Protestant	52.39%			1=yes, 0=no
Fundamentalist – moderate+	38.81%			1=yes, 0=no
Fundamentalist – liberal+	30.55%			1=yes, 0=no
Income	36,067.08	38,742.61		
BA/Grad degree	25.31%			1=yes, 0=no
HS degree	51.71%			1=yes, 0=no
# years of education	13.32	3.13		
Live in Northeast	17.69%			1=yes, 0=no
Live in Midwest	23.90%			1=yes, 0=no
Live in South	37.14%			1=yes, 0=no
Mobility since age 16*	35.98%			1 = live in different state from 16, 0 = live in same state
# children at home	.191	.343		
# people living in R's home	2.42	1.38		
# siblings	3.68	3.09		
R Born in US*	88.30%			1=yes, 0=no
Both paternal and maternal grandparents born in US*	60.45%			1=yes, 0=no

Note: Study 1 and Study 2 use the same set of controls. The exceptions are:

* Denotes time-invariant covariates that were added to Study 2.

+ Denotes variables that were available in Study 2 that were unavailable in Study 1.

Table 24: Confirmatory factor analysis for occupation characteristic items (Study 2)

GSS Variable name		Autonomy	Social Support	Safety	Control	Skill/Task	Work-family conflict
lotofsay	I have a lot of say about what happens on my job	0.58					
setthngs	How often do you participate with others in helping set the way things are done on your job	0.75					
wkdecide	In your job, how often do you take part with others in making decisions that affect you	0.74					
wkfreedm	I am given a lot of freedom to decide how to do my own work	0.44					
condemnd	The people I work with can be relied on when I need help		0.45				
cowrkhlp	The people I work with take a personal interest in me		0.53				
cowrkint	In general, how would you describe relations in your work place between management and employees		0.55				
manvsemp	At the place where I work, I am treated with respect		0.71				
respect	My supervisor is concerned about the welfare of those under him or her		0.67				
supcares	My supervisor is helpful to me in getting the job done		0.63				
suphelp	I am free from the conflicting demands that other people make of me		0.62				
trustman	I trust the management at the place where I work		0.76				
safefrst	There are no significant compromises or shortcuts taken when worker safety is at stake			0.80			
safehlth	The safety and health conditions where I work are good			0.79			
safetywk	The safety of workers is a high priority with management where I work			0.82			

GSS Variable name		Autonomy	Social Support	Safety	Control	Skill/Task	Work-family conflict
teamsafe	Where I work, employees and management work together to ensure the safest possible working conditions			0.89			
haveinfo	I know exactly what is expected of me				0.58		
hlpequip	Conditions on my job allow me to be about as productive as I could be				0.64		
knowwhat	The place where I work is run in a smooth and effective manner				0.44		
prodctiv	I have enough information to get the job done				0.66		
toofewwk	I receive enough help and equipment to get the job done				-0.35		
trainops	I have too much work to do everything well				0.49		
wksmooth	How often are there not enough people or staff to get all the work done				0.79		
learnnew	I get to do a number of different things on my job					0.54	
myskills	I have an opportunity to develop my own special abilities					0.66	
opdevel	My job lets me use my skills and abilities					0.7	
workdiff	My job requires that I keep learning new things					0.54	
famvswk	How often do the demands of your family interfere with your work on the job						0.34
famwkoff	How often do the demands of your job interfere with your family life						-0.36
wkvsfam	How hard is it to take time off during your work to take care of personal or family matters						0.5
wrktime	I have enough time to get the job done						-0.69
overwork	I have the training opportunities I need to perform my job safely and competently						0.51
	$\chi^2_{[449]} = 8,456$						
	RMSEA = .07						
	NNFI = .93						
	CFI = .94						
	SRMR = .07						

Note: Items come from 2002 and 2006 32-item “Quality Working Life” section

Table 25: Autonomy occupation characteristics, H1 – H3 (Study 2) - Missing values

A	B	C	D	E
Total observations	**Deleted due to NA**	**# observations remaining (% of column A)**	**Deleted due to NR (% of column C)**	**# observations in final sample (% of Column A)**
7,275	4,968 (68%)	2,307 (31%)	506 (21%)	1,801 (24%)

Note: NA refers to inapplicable (i.e., individuals not given the autonomy sets of questions). NR refers to no response. Listwise deletion employed. "Deleted due to NR" refers to % of "# observations remaining".

Table 26: Autonomy occupation characteristics, H1 – H3 (Study 2) – Means/SDs

	Mean	SD
Social Tolerance (DV)	5.74	6.23
Autonomy value (Mediator)	3.99	1.24
Autonomous occupation characteristics (IV)	3.16	0.63
Occupation tenure (Moderator)	8.32	8.95
Social Support (Moderator)	0.02	0.65
Occupation mobility (Moderator)	2.11	0.78
GSS year	0.49	0.50
Married	0.59	0.49
Age	42.07	12.75
White	0.80	0.40
Male	0.46	0.50
Democrat	4.13	1.98
Religiosity	0.02	0.77
Protestant	0.55	0.50
Fund (mod)	0.36	0.48
Fund (lib)	0.32	0.47
Income	40,713.48	42,198.98
BA/Grad degree	0.32	0.47
HS degree	0.52	0.50
# years of education	13.94	2.82
Northeast	0.18	0.38
Midwest	0.26	0.44
South	0.38	0.49
Mobility 16	0.29	0.46
# children at home	0.22	0.36
# people living in R's home	2.81	1.36
# siblings	3.41	2.95
R Born in US	0.91	0.29
Grandparents born in US	0.65	0.48

Note: N=1,801

Table 27. Autonomy occupation characteristics, H1 – H3 (Study 2) – Correlation table

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1. Social Tolerance	1.00																		
2. Autonomy value	0.12	(.70)																	
3. Autonomous occ characteristic	0.08	0.06	1.00																
4. Occ. tenure	-0.02	0.05	0.07	1.00															
5. Social Support	-0.02	0.00	0.38	0.00	(.82)														
6. Occ. mobilty	0.05	0.03	-0.06	0.26	-0.11	1.00													
7. GSS year	0.02	-0.02	-0.06	0.01	-0.01	-0.04	1.00												
8. Married	0.02	0.00	0.08	0.10	0.06	-0.02	-0.02	1.00											
9. Age	0.03	0.09	0.04	0.46	0.12	0.21	-0.02	0.14	1.00										
10. White	0.10	0.13	0.10	0.09	0.06	0.00	-0.05	0.14	0.10	1.00									
11. Male	0.09	-0.07	0.08	0.04	0.02	0.00	0.03	0.05	-0.02	0.05	1.00								
12. Democrat	-0.02	0.00	-0.03	-0.04	-0.08	0.09	0.00	-0.13	-0.02	-0.29	-0.14	1.00							
13. Religiosity	-0.10	-0.20	-0.03	0.08	0.06	0.01	-0.04	0.05	0.08	-0.21	-0.21	-0.06	1.00						
14. Protestant	-0.07	-0.09	-0.02	0.10	0.02	0.05	0.02	0.06	0.14	-0.11	-0.05	-0.10	0.43	1.00					
15. Fund (mod)	-0.02	0.04	0.03	0.05	0.02	0.01	-0.03	0.07	-0.04	0.07	-0.02	-0.06	0.05	-0.35	1.00				
16. Fund (lib)	0.12	0.10	0.02	-0.03	0.00	0.01	0.06	-0.01	0.06	0.18	0.06	0.08	-0.43	-0.19	-0.51	1.00			
17. Income	0.03	0.11	0.20	0.19	0.02	0.06	-0.03	0.14	0.15	0.13	0.21	-0.07	-0.11	-0.04	0.05	0.05	1.00		
18. BA/Grad degree	0.17	0.15	0.17	-0.05	0.03	-0.03	0.04	0.08	0.01	0.14	-0.03	-0.04	-0.08	-0.10	0.09	0.12	0.34	1.00	
19. HS degree	-0.10	-0.05	-0.14	0.03	-0.07	0.04	-0.02	-0.06	0.00	-0.12	0.03	0.04	0.08	0.06	-0.05	-0.10	-0.26	-0.71	1.00
20. # years of education	0.17	0.18	0.21	-0.04	0.02	-0.06	0.06	0.07	-0.02	0.15	-0.06	-0.01	-0.08	-0.08	0.08	0.10	0.35	0.77	-0.48
21. Northeast	0.01	0.04	0.00	0.04	-0.02	0.04	-0.03	0.02	0.05	0.01	0.02	0.06	-0.11	-0.16	0.09	0.05	0.08	0.08	-0.06
22. Midwest	0.03	0.03	0.02	-0.01	-0.03	0.02	-0.02	0.04	-0.03	0.15	-0.06	-0.06	-0.02	0.02	0.07	-0.06	-0.02	-0.03	0.00
23. South	-0.03	-0.11	-0.05	-0.01	0.04	-0.04	0.02	-0.04	0.01	-0.14	0.02	-0.01	0.26	0.28	-0.17	-0.06	-0.09	-0.09	0.08
24. Mobility 16	0.01	0.00	-0.05	-0.03	0.02	0.00	0.00	0.01	0.06	-0.02	0.05	-0.01	-0.05	-0.10	-0.04	0.11	0.08	0.18	-0.14
25. # children at home	-0.06	-0.06	-0.02	-0.05	0.02	-0.07	0.07	0.19	-0.20	-0.09	-0.05	-0.05	0.11	0.02	0.03	-0.09	-0.02	0.01	-0.02
26. # people living in R's home	-0.04	-0.09	0.01	-0.01	0.04	-0.06	0.08	0.39	-0.16	-0.04	-0.03	-0.07	0.10	0.04	0.06	-0.09	0.01	-0.03	0.01
27. # siblings	-0.08	-0.08	-0.06	0.07	0.02	0.03	0.01	0.03	0.15	-0.23	0.01	0.11	0.13	0.02	-0.04	-0.08	-0.08	-0.22	0.13
28. R Born in US	0.01	0.11	0.03	0.07	0.00	0.03	-0.06	-0.04	0.09	0.14	-0.02	0.01	-0.03	0.09	-0.04	0.02	-0.07	-0.05	0.08
29. Grandparents born in US	-0.02	-0.01	0.00	0.06	0.02	0.01	0.03	-0.02	-0.02	-0.01	-0.03	0.02	0.08	0.31	-0.20	-0.02	-0.10	-0.09	0.04

	20	21	22	23	24	25	26	27	28	29
20. # years of education	1.00									
21. Northeast	0.03	1.00								
22. Midwest	-0.04	-0.26	1.00							
23. South	-0.06	-0.36	-0.45	1.00						
24. Mobility 16	0.15	-0.01	-0.08	-0.01	1.00					
25. # children at home	-0.02	-0.05	0.06	-0.03	-0.04	1.00				
26. # people living in R's home	-0.05	-0.04	0.06	-0.03	-0.05	0.84	1.00			
27. # siblings	-0.25	-0.04	-0.04	0.05	0.04	0.07	0.07	1.00		
28. R Born in US	0.01	-0.05	0.07	0.06	-0.26	-0.03	-0.07	-0.05	1.00	
29. Grandparents born in US	-0.12	-0.20	-0.01	0.25	-0.13	0.00	-0.02	0.06	0.35	1.00

Note: N=1,801

Table 28: Autonomy occupation characteristics, H1 – H3 (Study 2) – Linear regression models

	(1)		(2)		(3)	
Variables	**b**	**SE**	**b**	**SE**	**b**	**SE**
Autonomous occ characteristics (AOC)			.094	.078	.141	.227
Occupation tenure (OT)					-0.046	0.029
Social support (SS)					-0.535	0.310
Occupation mobility (OM)					0.304	0.344
AOC x OT					0.017*	0.009
AOC x SS					0.202*	0.098
AOC x OM					-0.092	0.103
GSS survey year	0.024	0.093	0.034	0.092	0.041	0.092
Married	-0.033	0.100	-0.040	0.101	-0.045	0.101
Age	0.010*	0.004	0.010*	0.004	0.009*	0.004
White	0.085	0.135	0.075	0.135	0.075	0.135
Male	-0.285**	0.106	-0.291**	0.106	-0.298	0.105
Democrat	-0.004	0.025	-0.005	0.025	-0.001	0.026
Religiosity	-0.275**	0.074	-0.274**	0.074	-0.285**	0.074
Protestant	0.038	0.113	0.041	0.112	0.027	0.111
Fundamentalist - moderate	0.118	0.142	0.117	0.141	0.092	0.140
Fundamentalist - liberal	0.043	0.142	0.048	0.141	0.039	0.140
Income	0.000	0.000	0.000	0.000	0.000	0.000
BA/Grad degree	0.074	0.196	0.090	0.195	0.165	0.196
HS degree	0.131	0.143	0.143	0.143	0.157	0.144
# years of education	0.062*	0.029	0.057*	0.028	0.051	0.028
R's location: Northeast	0.037	0.142	0.043	0.142	0.034	0.144
R's location: Midwest	0.010	0.139	0.014	0.139	0.028	0.138
R's location: South	-0.223	0.131	-0.218	0.132	-0.216	0.131
Mobility since age 16	0.052	0.102	0.064	0.102	0.055	0.103
# children at home	0.202	0.253	0.208	0.252	0.234	0.253
# people living in R's home	-0.068	0.069	-0.070	0.068	-0.080	0.068
# siblings	0.008	0.018	0.009	0.019	0.012	0.018
R Born in US	0.368	0.211	0.375	0.212	0.401	0.210
Grandparents born in US	0.085	0.113	0.076	0.112	0.023	0.113
Constant	2.374**	0.489	2.148**	0.499	2.028*	0.884
R^2	**0.115**		**0.117**		**0.134**	
F	**3.69**		**3.71**		**3.32**	
ΔR^2			**.002**		**.017**	
ΔF			**.02**		**.39**	

Note: N=1,801

Dependent variable is autonomy values: "how important is it to think for oneself" (1=*least important*, 5=*most important*)

* $p < .05$

** $p < .01$

Table 29: Autonomy occupation characteristics, H3 (Study 2) – Moderated mediation models

Table 29a: Relationship between autonomous occupation characteristic and social tolerance mediated by autonomy value, moderated by occupation tenure

Social Tolerance	Indirect effect	SE	*z*	*p*	*Bias-corrected lower CI*	*Bias-corrected upper CI*
	Conditional indirect effect at Occupation Tenure = ± 1 *SD*					
-1 *SD*	-.002	.059	-0.26	0.79	-.142	.101
M	-.001	.051	1.11	0.26	-.015	.210
+1 *SD*	-.001	.087	1.48	0.13	.010	.379

Note: Dependent variable is social tolerance. Higher scores indicate higher social tolerance.

Table 29b: Relationship between autonomous occupation characteristics and social tolerance mediated by autonomy value, moderated by social support

Social Tolerance	Indirect effect	SE	*z*	*p*	*Lower CI*	*Upper CI*
	Conditional indirect effect at Social Support = ± 1 *SD*					
-1 *SD*	-.032	.057	-0.58	0.565	-.144	.078
M	.055	.060	0.92	0.35	-.062	.173
+1 *SD*	.144	.092	1.56	0.11	-.037	.325

Note: Dependent variable is social tolerance. Higher scores indicate higher social tolerance.

Table 30: Skill/task variety occupation characteristics, H4 & H5 (Study 2) – Missing values

A	B	C	D	E
Total observations	**Deleted due to NA**	**# observations remaining (% of column A)**	**Deleted due to NR (% of column C)**	**# observations in final sample (% of Column A)**
7,275	4,348 (59%)	2,927 (41%)	453 (15%)	2,474 (34%)

Note: NA refers to inapplicable (i.e., individuals not given the skill/task variety sets of questions). NR refers to no response. Listwise deletion employed . "Deleted due to NR" refers to % of "# observations remaining".

Table 31: Skill/task variety occupation characteristics, H4 & H5 (Study 2) – Means/SDs

	Mean	SD
Experience meaning (DV)	5.74	6.23
Skill/task variety occupation characteristic (IV)	3.99	1.24
Occ. Tenure (Moderator)	8.32	8.95
Social Support (Moderator)	0.02	0.65
Occ. Mobility (Moderator)	2.11	0.78
GSS year	0.49	0.50
Married	0.59	0.49
Age	42.07	12.75
White	0.80	0.40
Male	0.46	0.50
Democrat	4.13	1.98
Religiosity	0.02	0.77
Protestant	0.55	0.50
Fund (mod)	0.36	0.48
Fund (lib)	0.32	0.47
Income	40,713.48	42,198.98
BA/Grad degree	0.32	0.47
HS degree	0.52	0.50
# years of education	13.94	2.82
Northeast	0.18	0.38
Midwest	0.26	0.44
South	0.38	0.49
Mobility 16	0.29	0.46
# children at home	0.22	0.36
# people living in R's home	2.81	1.36
# siblings	3.41	2.95
R Born in US	0.91	0.29
Grandparents born in US	0.65	0.48

N=2,474

Table 32: Skill/task variety occupation characteristics, H4 & H5 (Study 2) – Correlation table

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1. Life	1.00																		
2. STV	-0.22	(.71)																	
3. Occ. tenure	0.02	0.04	1.00																
4. Social Support	-0.17	0.40	-0.01	(.82)															
5. Occ. mobility	0.10	-0.09	0.18	-0.10	1.00														
6. GSS year	0.02	-0.02	0.03	-0.02	-0.06	1.00													
7. Married	-0.08	0.07	0.11	0.05	0.00	0.01	1.00												
8. Age	0.00	0.04	0.47	0.09	0.12	0.04	0.15	1.00											
9. White	-0.04	0.08	0.09	0.05	0.00	-0.03	0.13	0.12	1.00										
10. Male	-0.06	0.00	0.06	-0.01	-0.02	0.00	0.06	0.00	0.06	1.00									
11. Democrat	0.06	-0.03	-0.01	-0.10	0.06	0.01	-0.14	-0.03	-0.31	-0.12	1.00								
12. Religiosity	-0.06	0.05	0.06	0.10	-0.01	-0.02	0.11	0.08	-0.14	-0.21	-0.10	1.00							
13. Protestant	0.00	-0.01	0.10	0.01	0.03	0.03	0.04	0.13	-0.08	-0.05	-0.09	0.36	1.00						
14. Fund (mod)	-0.03	0.04	0.00	0.03	-0.01	-0.02	0.04	-0.03	0.07	-0.01	-0.04	0.06	-0.36	1.00					
15. Fund (lib)	0.00	0.02	0.00	-0.03	0.00	0.03	-0.03	0.04	0.15	0.07	0.06	-0.39	-0.18	-0.53	1.00				
16. Income	-0.13	0.21	0.21	0.03	0.03	-0.03	0.13	0.17	0.11	0.22	-0.08	-0.08	-0.07	0.02	0.07	1.00			
17. BA/Grad degree	-0.18	0.22	0.00	0.02	-0.03	0.05	0.05	0.06	0.10	0.01	0.00	-0.03	-0.08	0.03	0.14	0.31	1.00		
18. HS degree	0.15	-0.21	0.00	-0.04	0.04	-0.04	-0.05	-0.04	-0.08	-0.01	0.01	0.01	0.04	0.01	-0.11	-0.23	-0.69	1.00	
19. # years of education	-0.20	0.25	0.00	0.00	-0.04	0.07	0.03	0.04	0.10	-0.02	0.02	-0.02	-0.08	0.03	0.13	0.31	0.76	-0.47	1.00
20. Northeast	0.01	-0.01	0.04	-0.02	0.03	-0.06	0.00	0.03	0.03	-0.01	0.06	-0.10	-0.19	0.10	0.05	0.06	0.07	-0.04	0.05
21. Midwest	-0.01	-0.01	0.01	-0.04	0.02	0.00	0.03	-0.05	0.11	-0.02	-0.03	0.00	-0.01	0.07	-0.03	-0.05	-0.03	0.00	-0.01
22. South	0.03	-0.03	-0.02	0.05	-0.05	0.00	-0.02	0.01	-0.13	0.01	-0.02	0.20	0.26	-0.16	-0.07	-0.04	-0.06	0.05	-0.07
23. Mobility 16	-0.04	0.04	-0.05	0.00	-0.04	0.02	0.01	0.10	-0.03	0.04	0.00	-0.06	-0.08	-0.03	0.11	0.12	0.16	-0.13	0.15
24. # children at home	0.00	-0.01	-0.09	-0.01	-0.02	0.04	0.19	-0.22	-0.09	-0.05	-0.03	0.10	0.03	0.01	-0.06	-0.02	-0.06	0.02	-0.07
25. # people living in R's home	-0.01	0.00	-0.07	0.02	-0.02	0.04	0.37	-0.21	-0.04	-0.01	-0.05	0.09	0.01	0.04	-0.07	-0.02	-0.09	0.04	-0.09
26. # siblings	0.02	-0.05	0.04	-0.04	0.02	-0.01	0.02	0.10	-0.25	-0.03	0.10	0.10	0.02	-0.01	-0.11	-0.07	-0.18	0.09	-0.20
27. R Born in US	0.03	0.02	0.06	0.03	0.03	0.01	-0.02	0.06	0.20	-0.02	-0.05	0.02	0.14	-0.05	-0.01	-0.04	-0.05	0.05	0.00
28. Grandparents born in US	0.03	-0.02	0.01	0.03	0.00	0.02	-0.01	-0.06	0.03	-0.02	-0.05	0.11	0.29	-0.18	-0.04	-0.08	-0.09	0.04	-0.08

	20	21	22	23	24	25	26	27	28
20. Northeast	1.00								
21. Midwest	-0.26	1.00							
22. South	-0.36	-0.44	1.00						
23. Mobility 16	-0.05	-0.11	0.03	1.00					
24. # children at home	-0.02	0.05	-0.02	-0.04	1.00				
25. # people living in R's home	-0.01	0.03	-0.03	-0.06	0.82	1.00			
26. # siblings	-0.02	0.02	0.01	0.04	0.07	0.06	1.00		
27. R Born in US	-0.08	0.09	0.04	-0.28	0.00	-0.03	-0.06	1.00	
28. Grandparents born in US	-0.20	0.02	0.24	-0.13	0.04	0.00	0.00	0.37	1.00

N=2,474

Table 33: Skill/task variety occupation characteristics, H4 & H5 (Study 2) – Linear regression models

	(1)		(2)		(3)	
Variables	**b**	**SE**	**b**	**SE**	**b**	**SE**
Skill/task variety occupation characteristic (STV)			-0.170	0.032	-0.065	0.078
Occupation tenure (OT)					0.010	0.010
Social support (SS)					0.062	0.137
Occupation mobility (OM)					0.097	0.123
STVx OT					-0.003	0.003
STV x SS					-0.053	0.042
STV x OM					-0.013	0.037
GSS survey year	0.023	0.034	0.020	0.033	0.018	0.033
Married	-0.039	0.038	-0.035	0.038	-0.030	0.037
Age	0.002	0.001	0.002	0.001	0.001	0.002
White	-0.072	0.049	-0.050	0.049	-0.046	0.049
Male	-0.074	0.036	-0.073	0.036	-0.076	0.035
Democrat	0.010	0.009	0.011	0.009	0.004	0.008
Religiosity	-0.093	0.028	-0.083	0.028	-0.075	0.028
Protestant	-0.042	0.043	-0.040	0.042	-0.047	0.041
Fundamentalist - moderate	-0.049	0.048	-0.048	0.047	-0.047	0.046
Fundamentalist - liberal	-0.078	0.050	-0.088	0.050	-0.080	0.049
Income	0.000	0.000	0.000	0.000	0.000	0.000
BA/Grad degree	-0.029	0.066	-0.040	0.063	-0.043	0.063
HS degree	0.028	0.048	0.006	0.047	0.011	0.047
# years of education	-0.028	0.010	-0.022	0.010	-0.022	0.010
R's location: Northeast	0.069	0.055	0.053	0.054	0.044	0.054
R's location: Midwest	0.080	0.049	0.075	0.050	0.063	0.049
R's location: South	0.098	0.048	0.085	0.048	0.097	0.047
Mobility since age 16	0.030	0.037	0.031	0.036	0.020	0.036
# children at home	0.092	0.084	0.084	0.084	0.068	0.083
# people living in R's home	-0.005	0.022	-0.001	0.022	0.000	0.022
# siblings	-0.011	0.006	-0.010	0.006	-0.011	0.006
R Born in US	0.127	0.065	0.136	0.064	0.139	0.065
Grandparents born in US	-0.002	0.039	-0.004	0.039	-0.002	0.039
Constant	1.809	0.191	2.251	0.209	1.856	0.305
R^2	**.080**		**.106**		**.130**	
F	**4.13**		**5.47**		**5.74**	
ΔR^2			**.026**		**.024**	
ΔF			**1.34**		**.27**	

N=2,474

Dependent variable is experienced meaningfulness: "is life exciting, dull, or routine?" (1 = *exciting*, 2=routine, 3 = *dull*)

* p < .05

** p < .01

Table 34: Safety occupation characteristics, H6 – H8 (Study 2) – Missing values

A	B	C	D	E
Total observations	**Deleted due to NA**	**# observations remaining (% of column A)**	**Deleted due to NR (% of column C)**	**# observations in final sample (% of Column A)**
7,275	3,521 (48%)	3,754 (51%)	803 (21%)	2,951 (40%)

Note: NA refers to inapplicable (i.e., individuals not given the safety sets of questions). NR refers to no response. Listwise deletion employed. "Deleted due to NR" refers to % of "# observations remaining".

Table 35. Safety occupation characteristics, H6 – H8 (Study 2) – Means/SDs

	Mean	SD
Own gun (DV)	0.39	0.49
Trust (Mediator)	1.91	0.96
Safety occ. characteristic (IV)	3.33	0.56
Occ. Tenure (Moderator)	8.07	8.95
Social Support (Moderator)	0.04	0.64
Occ. mobility (Moderator)	2.11	0.80
GSS year	0.74	0.44
Married	0.59	0.49
Age	42.34	13.06
White	0.80	0.40
Male	0.51	0.50
Democrat	4.08	1.96
Religiosity	-0.05	0.79
Protestant	0.55	0.50
Fund (mod)	0.37	0.48
Fund (lib)	0.33	0.47
Income	39,917.83	38,190.37
BA/Grad degree	0.32	0.47
HS degree	0.51	0.50
# years of education	14.01	2.64
Northeast	0.17	0.38
Midwest	0.24	0.43
South	0.37	0.48
Mobility 16	0.30	0.46
# children at home	0.20	0.32
# people living in R's home	2.75	1.28
# siblings	3.37	2.84
R Born in US	0.92	0.27
Grandparents born in US	0.68	0.47

N=2,951

Table 36. Safety occupation characteristics, H6 – H8 (Study 2) – Correlation table

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1. Own gun	1.00																		
2. Trust	0.00	1.00																	
3. Safety characteristic	0.04	0.14	(.88)																
4. Occ. tenure	0.21	0.10	0.02	1.00															
5. Social Support	0.03	0.11	0.54	0.00	(.82)														
6. Occ. mobility	0.07	-0.02	-0.06	0.21	-0.11	1.00													
7. GSS year	-0.01	0.01	0.04	-0.01	0.00	-0.06	1.00												
8. Married	0.21	0.16	0.11	0.10	0.09	-0.02	0.01	1.00											
9. Age	0.23	0.17	0.04	0.47	0.11	0.15	-0.01	0.15	1.00										
10. White	0.16	0.17	0.05	0.08	0.05	-0.01	-0.04	0.14	0.12	1.00									
11. Male	0.09	0.04	0.02	0.06	0.00	0.01	0.03	0.04	-0.03	0.05	1.00								
12. Democrat	-0.11	-0.04	-0.09	-0.01	-0.09	0.07	-0.02	-0.16	-0.01	-0.29	-0.10	1.00							
13. Religiosity	0.03	-0.05	0.07	0.06	0.10	0.01	-0.05	0.09	0.07	-0.18	-0.24	-0.09	1.00						
14. Protestant	0.12	0.00	0.04	0.09	0.03	0.05	0.03	0.06	0.13	-0.08	-0.07	-0.10	0.42	1.00					
15. Fund (mod)	0.00	-0.01	-0.01	0.01	0.04	-0.03	0.00	0.05	-0.04	0.06	-0.02	-0.06	0.07	-0.34	1.00				
16. Fund (lib)	-0.08	0.12	-0.02	0.00	-0.02	0.00	0.03	-0.03	0.07	0.16	0.08	0.08	-0.45	-0.21	-0.52	1.00			
17. Income	0.08	0.15	0.09	0.21	0.03	0.03	-0.03	0.14	0.16	0.11	0.22	-0.05	-0.12	-0.08	0.06	0.05	1.00		
18. BA/Grad degree	-0.09	0.22	0.00	-0.02	0.00	-0.06	0.02	0.07	0.02	0.09	-0.02	0.00	-0.08	-0.10	0.08	0.11	0.34	1.00	
19. HS degree	0.07	-0.15	-0.05	0.03	-0.04	0.05	-0.02	-0.06	0.01	-0.07	0.03	0.02	0.06	0.05	-0.03	-0.09	-0.24	-0.70	1.00
20. # years of education	-0.09	0.22	0.02	-0.01	-0.01	-0.07	0.06	0.05	0.02	0.09	-0.05	0.02	-0.07	-0.10	0.09	0.09	0.33	0.77	-0.50
21. Northeast	-0.09	0.02	-0.02	0.04	-0.02	0.03	-0.03	0.01	0.03	0.03	-0.01	0.06	-0.10	-0.19	0.10	0.04	0.04	0.06	-0.03
22. Midwest	0.04	0.02	-0.03	-0.01	-0.03	0.03	-0.02	0.04	-0.05	0.12	-0.02	-0.03	-0.02	-0.01	0.06	-0.03	-0.02	-0.03	0.00
23. South	0.03	-0.08	0.04	-0.02	0.03	-0.04	0.01	-0.04	0.00	-0.12	0.01	-0.01	0.23	0.27	-0.17	-0.07	-0.08	-0.05	0.04
24. Mobility 16	-0.08	0.07	0.03	-0.01	0.01	-0.03	0.02	0.02	0.08	-0.02	0.06	-0.01	-0.06	-0.07	-0.04	0.11	0.12	0.16	-0.14
25. # children at home	-0.04	-0.06	0.04	-0.08	0.02	-0.04	0.04	0.19	-0.22	-0.10	-0.05	-0.06	0.12	0.02	0.01	-0.08	-0.03	-0.03	-0.02
26. # people living in R's home	0.03	-0.02	0.06	-0.06	0.04	-0.03	0.06	0.38	-0.19	-0.05	-0.02	-0.07	0.11	0.01	0.05	-0.09	-0.01	-0.06	0.02
27. # siblings	0.01	-0.05	0.00	0.04	0.01	-0.01	-0.01	0.04	0.11	-0.24	-0.02	0.09	0.13	0.02	-0.03	-0.09	-0.05	-0.18	0.10
28. R Born in US	0.12	0.01	0.02	0.06	0.01	0.01	-0.03	-0.01	0.10	0.21	-0.04	-0.05	0.00	0.13	-0.05	0.00	-0.07	-0.07	0.07
29. Grandparents born in US	0.17	-0.01	0.00	0.05	0.01	0.01	0.02	-0.01	-0.01	0.06	-0.05	-0.03	0.13	0.30	-0.18	-0.04	-0.09	-0.09	0.02

	20	21	22	23	24	25	26	27	28	29
20. # years of education	1.00									
21. Northeast	0.04	1.00								
22. Midwest	-0.05	-0.26	1.00							
23. South	-0.04	-0.34	-0.44	1.00						
24. Mobility 16	0.15	-0.04	-0.11	0.03	1.00					
25. # children at home	-0.06	-0.04	0.07	-0.03	-0.05	1.00				
26. # people living in R's home	-0.08	-0.01	0.05	-0.06	-0.06	0.82	1.00			
27. # siblings	-0.21	-0.01	0.01	-0.02	0.04	0.08	0.09	1.00		
28. R Born in US	-0.03	-0.08	0.08	0.06	-0.22	-0.03	-0.08	-0.04	1.00	
29. Grandparents born in US	-0.10	-0.21	0.03	0.25	-0.11	0.01	-0.02	0.01	0.35	1.00

N=2,951

Table 37. Safety occupation characteristics, H6 – H8 (Study 2) – Ordered probit regression models

	(1)		(2)		(3)	
Variables	**b**	**SE**	**b**	**SE**	**b**	**SE**
Safety job characteristics (SA)			0.320	0.067	0.070	0.185
Occupation tenure (OT)					-0.050^{+}	0.028
Social support (SS)					0.183	0.266
Occupation mobility (OM)					-0.197	0.278
SA x OT					0.017*	0.008
SA x SS					-0.039	0.082
SA x OM					0.036	0.083
GSS survey year	-0.007	0.080	-0.015**	0.080	-0.024	0.081
Married	0.307**	0.083	0.283	0.083	0.276**	0.084
Age	0.009**	0.003	0.009**	0.003	0.008*	0.004
White	0.362**	0.110	0.353**	0.110	0.343*	0.110
Male	0.173*	0.081	0.174*	0.081	0.174*	0.083
Democrat	0.005	0.020	0.012	0.020	0.017	0.021
Religiosity	0.026	0.059	0.010	0.059	-0.006	0.061
Protestant	0.204*	0.099	0.221*	0.100	0.208*	0.101
Fundamentalist - moderate	0.061	0.114	0.081	0.114	0.078	0.115
Fundamentalist - liberal	0.275*	0.116	0.287*	0.116	0.274*	0.117
Income	0.000	0.000	0.000	0.000	0.000	0.000
BA/Grad degree	0.169	0.153	0.213	0.154	0.191	0.156
HS degree	-0.076	0.105	-0.022	0.106	-0.036	0.108
# years of education	0.054*	0.024	0.055*	0.023	0.058*	0.023
R's location: Northeast	-0.089	0.118	-0.096	0.118	-0.072	0.120
R's location: Midwest	-0.120	0.112	-0.103	0.112	-0.101	0.114
R's location: South	-0.246*	0.109	-0.249*	0.110	-0.237	0.110
Mobility since age 16	0.005	0.086	-0.014	0.086	-0.006	0.087
# children at home	-0.263	0.190	-0.237	0.189	-0.222	0.192
# people living in R's home	0.037	0.053	0.031	0.052	0.028	0.052
# siblings	0.004	0.014	0.004	0.014	0.003	0.015
R Born in US	-0.131	0.152	-0.181	0.154	-0.177	0.155
Grandparents born in US	0.029	0.092	0.034	0.093	0.028	0.094
F	**5.55**		**6.12**		**4.93**	
ΔF			**.57**		**1.19**	

N=2,951

Dependent variable is trust propensity: "Can people be trusted?" (1=*no*, 2=*depends*, 3=*yes*)

* $p < .05$

** $p < .01$

$^{+}$ $p < .10$

Table 38: Safety occupation characteristics, H8 (Study 2) - Ordered probit regression model

Variables	b	SE
Trust (depends)	-0.077	0.221
Trust	-0.250*	0.121
Safety job characteristics (SA)	0.300	0.272
Occupation tenure (OT)	0.048	0.039
Social support (SS)	-0.010	0.012
Occupation mobility (OM)	0.429	0.404
SA x OT	-0.106	0.118
SA x SS	-0.114	0.359
SA x OM	0.044	0.109
GSS survey year	0.043	0.117
Married	0.407**	0.123
Age	0.018**	0.005
White	0.362*	0.145
Male	0.163	0.116
Democrat	-0.063*	0.028
Religiosity	-0.097	0.090
Protestant	0.101	0.142
Fundamentalist - moderate	-0.065	0.157
Fundamentalist - liberal	-0.279+	0.165
Income	0.000	0.000
BA/Grad degree	-0.153	0.221
HS degree	0.084	0.144
# years of education	0.015	0.033
R's location: Northeast	-0.387*	0.170
R's location: Midwest	-0.052	0.151
R's location: South	0.094	0.150
Mobility since age 16	-0.391**	0.126
# children at home	-0.428	0.288
# people living in R's home	0.099	0.081
# siblings	-0.007	0.020
R Born in US	0.463+	0.256
Grandparents born in US	0.316*	0.137

Note: N=2,951. IV = Trust propensity: "Can people be trusted?" (1=*no*, 2=*depends*, 3=*yes*). DV = "Do you own a gun?" (0=*no*, 1=*yes*).

* $p < .05$

** $p < .01$

\+ $p < .10$

For the "svy: probit" command in Stata, pseudo-R^2 value is not computed because it is based on the ratio of likelihood values and is inapplicable to survey data. Specifically, "maximum likelihood estimation, and hence the calculation of a pseudo-R2, assumes that the observations are independently and identically distributed. However, with survey data, this assumption is obviously not met, since with survey estimators you specify the sampling weights, PSU's, and strata. Therefore, the pseudo-R2 is not valid with survey data" (Alsonso, 2006).

Table 39: Control occupation characteristics, H9 - H11 (Study 2) - Missing values

A	B	C	D	E
Total observations	**Deleted due to NA**	**# observations remaining (% of column A)**	**Deleted due to NR (% of column C)**	**# observations in final sample (% of Column A)**
7,275	4,178 (57%)	3,097 (42%)	906 (29%)	2,191 (30%)

Note: NA refers to inapplicable (i.e., individuals not given the control sets of questions). NR refers to no response. Listwise deletion employed. "Deleted due to NR" refers to % of "# observations remaining".

Table 40: Control occupation characteristics, H9 - H11 (Study 2) – Means/SDs

	Mean	SD
Deference to authority (DV)	2.47	0.97
Obedience value (Mediator)	2.62	1.20
Control occupation characteristic (IV)	3.15	0.48
Occ. Tenure (Moderator)	8.32	8.95
Social Support (Moderator)	2.11	0.78
Occ. Mobility (Moderator)	0.02	0.65
GSS year	0.49	0.50
Married	0.59	0.49
Age	42.07	12.75
White	0.80	0.40
Male	0.46	0.50
Democrat	4.13	1.98
Religiosity	0.02	0.77
Protestant	0.55	0.50
Fund (mod)	0.36	0.48
Fund (lib)	0.32	0.47
Income	40,713.48	42,198.98
BA/Grad degree	0.32	0.47
HS degree	0.52	0.50
# years of education	13.94	2.82
Northeast	0.18	0.38
Midwest	0.26	0.44
South	0.38	0.49
Mobility 16	0.29	0.46
# children at home	0.22	0.36
# people living in R's home	2.81	1.36
# siblings	3.41	2.95
R Born in US	0.91	0.29
Grandparents born in US	0.65	0.48

N= 2,191

Table 41: Control occupation characteristics, H9 - H11 (Study 2) – Correlation table

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1. Police	1.00																		
2. Obey	-0.09	1.00																	
3. Control occ characteristic	0.00	0.10	(.78)																
4. Occ. tenure	0.06	-0.03	0.03	1.00															
5. Social Support	0.03	0.01	-0.10	0.26	(.82)														
6. Occ. mobility	0.04	0.04	0.68	0.00	-0.11	1.00													
7. GSS year	0.03	0.02	-0.04	0.01	-0.04	-0.01	1.00												
8. Married	0.08	-0.06	0.05	0.10	-0.02	0.06	-0.02	1.00											
9. Age	0.02	0.01	0.11	0.46	0.21	0.12	-0.02	0.14	1.00										
10. White	0.29	-0.21	0.02	0.09	0.00	0.06	-0.05	0.14	0.10	1.00									
11. Male	0.11	-0.01	-0.03	0.04	0.00	0.02	0.03	0.05	-0.02	0.05	1.00								
12. Democrat	-0.21	0.01	-0.08	-0.04	0.09	-0.08	0.00	-0.13	-0.02	-0.29	-0.14	1.00							
13. Religiosity	-0.05	0.27	0.07	0.08	0.01	0.06	-0.04	0.05	0.08	-0.21	-0.21	-0.06	1.00						
14. Protestant	0.01	0.18	0.03	0.10	0.05	0.02	0.02	0.06	0.14	-0.11	-0.05	-0.10	0.43	1.00					
15. Fund (mod)	0.02	-0.07	0.01	0.05	0.01	0.02	-0.03	0.07	-0.04	0.07	-0.02	-0.06	0.05	-0.35	1.00				
16. Fund (lib)	0.10	-0.17	-0.06	-0.03	0.01	0.00	0.06	-0.01	0.06	0.18	0.06	0.08	-0.43	-0.19	-0.51	1.00			
17. Income	0.15	-0.12	-0.04	0.19	0.06	0.02	-0.03	0.14	0.15	0.13	0.21	-0.07	-0.11	-0.04	0.05	0.05	1.00		
18. BA/Grad degree	0.09	-0.22	-0.10	-0.05	-0.03	0.03	0.04	0.08	0.01	0.14	-0.03	-0.04	-0.08	-0.10	0.09	0.12	0.34	1.00	
19. HS degree	-0.04	0.13	0.02	0.03	0.04	-0.07	-0.02	-0.06	0.00	-0.12	0.03	0.04	0.08	0.06	-0.05	-0.10	-0.26	-0.71	1.00
20. # years of education	0.11	-0.22	-0.12	-0.04	-0.06	0.02	0.06	0.07	-0.02	0.15	-0.06	-0.01	-0.08	-0.08	0.08	0.10	0.35	0.77	-0.48
21. Northeast	-0.07	-0.05	-0.03	0.04	0.04	-0.02	-0.03	0.02	0.05	0.01	0.02	0.06	-0.11	-0.16	0.09	0.05	0.08	0.08	-0.06
22. Midwest	0.04	-0.05	0.01	-0.01	0.02	-0.03	-0.02	0.04	-0.03	0.15	-0.06	-0.06	-0.02	0.02	0.07	-0.06	-0.02	-0.03	0.00
23. South	-0.01	0.14	0.04	-0.01	-0.04	0.04	0.02	-0.04	0.01	-0.14	0.02	-0.01	0.26	0.28	-0.17	-0.06	-0.09	-0.09	0.08
24. Mobility 16	-0.02	-0.07	-0.05	-0.03	0.00	0.02	0.00	0.01	0.06	-0.02	0.05	-0.01	-0.05	-0.10	-0.04	0.11	0.08	0.18	-0.14
25. # children at home	-0.04	0.01	0.04	-0.05	-0.07	0.02	0.07	0.19	-0.20	-0.09	-0.05	-0.05	0.11	0.02	0.03	-0.09	-0.02	0.01	-0.02
26. # people living in R's home	-0.02	-0.01	0.08	-0.01	-0.06	0.04	0.08	0.39	-0.16	-0.04	-0.03	-0.07	0.10	0.04	0.06	-0.09	0.01	-0.03	0.01
27. # siblings	-0.16	0.12	0.02	0.07	0.03	0.02	0.01	0.03	0.15	-0.23	0.01	0.11	0.13	0.02	-0.04	-0.08	-0.08	-0.22	0.13
28. R Born in US	0.09	-0.04	0.01	0.07	0.03	0.00	-0.06	-0.04	0.09	0.14	-0.02	0.01	-0.03	0.09	-0.04	0.02	-0.07	-0.05	0.08
29. Grandparents born in US	0.00	0.12	0.03	0.06	0.01	0.02	0.03	-0.02	-0.02	-0.01	-0.03	0.02	0.08	0.31	-0.20	-0.02	-0.10	-0.09	0.04

	20	21	22	23	24	25	26	27	28	29
20. # years of education	1.00									
21. Northeast	0.03	1.00								
22. Midwest	-0.04	-0.26	1.00							
23. South	-0.06	-0.36	-0.45	1.00						
24. Mobility 16	0.15	-0.01	-0.08	-0.01	1.00					
25. # children at home	-0.02	-0.05	0.06	-0.03	-0.04	1.00				
26. # people living in R's home	-0.05	-0.04	0.06	-0.03	-0.05	0.84	1.00			
27. # siblings	-0.25	-0.04	-0.04	0.05	0.04	0.07	0.07	1.00		
28. R Born in US	0.01	-0.05	0.07	0.06	-0.26	-0.03	-0.07	-0.05	1.00	
29. Grandparents born in US	-0.12	-0.20	-0.01	0.25	-0.13	0.00	-0.02	0.06	0.35	1.00

N= 2,191

Table 42: Control occupation characteristics, H9 - H11 (Study 2) – Linear regression models

	(1)		(2)		(3)	
Variables	**b**	**SE**	**b**	**SE**	**b**	**SE**
Control occ. characteristics (CO)			0.157^{+}	0.087	0.126	0.273
Occupation tenure (OT)					-0.008	0.029
Social support (SS)					-0.292	0.339
Occupation mobility (OM)					-0.018	0.364
CO x OT					-0.002	0.009
CO x SS					0.102	0.111
CO x OM					0.024	0.117
GSS survey year	0.023	0.084	0.028	0.084	0.034	0.085
Married	-0.023	0.095	-0.026	0.094	-0.002	0.096
Age	0.000	0.004	-0.001	0.004	0.002	0.004
White	-0.291*	0.125	-0.291*	0.125	-0.282*	0.124
Male	0.083	0.096	0.094	0.095	0.107	0.094
Democrat	-0.025**	0.025	-0.022	0.025	-0.024	0.025
Religiosity	0.279	0.072	0.275**	0.072	0.303**	0.072
Protestant	-0.051	0.111	-0.039	0.111	-0.019	0.111
Fundamentalist - moderate	-0.283*	0.128	-0.284*	0.128	-0.267*	0.133
Fundamentalist - liberal	-0.281*	0.133	-0.278*	0.134	-0.255^{+}	0.135
Income	0.000	0.000	0.000	0.000	0.000	0.000
BA/Grad degree	-0.369*	0.181	-0.352	0.181	-0.388*	0.187
HS degree	-0.250^{+}	0.132	-0.231^{+}	0.132	-0.219	0.135
# years of education	-0.027	0.028	-0.025	0.028	-0.024	0.028
R's location: Northeast	0.074	0.143	0.070	0.142	0.050	0.143
R's location: Midwest	-0.058	0.130	-0.065	0.129	-0.080	0.130
R's location: South	0.093	0.125	0.085	0.125	0.069	0.125
Mobility since age 16	-0.129	0.094	-0.125	0.094	-0.135	0.094
# children at home	-0.043	0.210	-0.030	0.210	-0.008	0.212
# people living in R's home	-0.026	0.056	-0.034	0.056	-0.038	0.057
# siblings	0.010	0.016	0.011	0.016	0.006	0.016
R Born in US	-0.250	0.159	-0.243	0.160	-0.239	0.159
Grandparents born in US	0.245*	0.103	0.231*	0.102	0.243*	0.103
Constant	3.899**	0.470	3.396**	0.562	3.269**	0.993
R^2	**.153**		**.157**		**.166**	
F	**6.12**		**6.18**		**5.32**	
ΔR^2			**.004**		**.009**	
ΔF			**.06**		**.86**	

N= 2,191

Dependent variable is obedience values: "how important is it to obey" (1=*least important*, 5=*most important*)

* p < .05

** p < .01

Table 43: Work-family occupation characteristics, H12 - H14 (Study 2) - Missing values

A	B	C	D	E
Total observations	**Deleted due to NA**	**# observations remaining (% of column A)**	**Deleted due to NR (% of column C)**	**# observations in final sample (% of Column A)**
7,275	5,298 (72%)	1,977 (27%)	652 (32%)	1,325 (18%)

Note: NA refers to inapplicable (i.e., individuals not given the work-family sets of questions). NR refers to no response. Listwise deletion employed. "Deleted due to NR" refers to % of "# observations remaining".

Table 44: Work-family occupation characteristics, H12 - H14 (Study 2) – Means/SDs

	Mean	SD
Blacks stereotype (DV)	1.807	0.549
White stereotype (DV)	1.751	0.623
Attitudes about women working (Mediator)	2.745	0.657
Work-family conflict characteristic (IV)	2.077	0.559
Occ. Tenure (Moderator)	0.098	0.607
Social Support (Moderator)	9.721	9.437
Occ. Mobility (Moderator)	2.096	0.779
GSS year	0.638	0.481
Married	0.966	0.181
Age	46.224	12.311
White	0.878	0.328
Male	0.536	0.499
Democrat	3.716	2.000
Religiosity	-0.034	0.796
Protestant	0.569	0.496
Fund (mod)	0.375	0.485
Fund (lib)	0.356	0.479
Income	49,167.060	50,120.020
BA/Grad degree	0.386	0.487
HS degree	0.480	0.500
# years of education	14.247	2.815
Northeast	0.177	0.382
Midwest	0.245	0.431
South	0.366	0.482
Mobility 16	0.343	0.476
# children at home	0.253	0.363
# people living in R's home	2.986	1.210
# siblings	3.354	2.859
R Born in US	0.914	0.280
Grandparents born in US	0.618	0.487
Divorce	1.725	0.447
Women's promotion	2.154	0.835

N = 1,325

Table 45: Work-family occupation characteristics, H12 - H14 (Study 2) – Correlation table

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1. Black Stereotype	1.00																		
2. White Stereotype	0.55	1.00																	
3. Women work stereotype	-0.09	-0.16	(.72)																
4. Work-family conflict	-0.06	0.01	-0.08	(.65)															
5. Occ. tenure	0.03	0.01	-0.02	0.07	1.00														
6. Social Support	-0.02	0.00	0.01	-0.28	-0.09	(.82)													
7. Occ. mobility	0.09	0.04	-0.03	-0.03	0.19	-0.04	1.00												
8. GSS year	-0.07	-0.02	0.00	0.01	-0.02	0.01	-0.14	1.00											
9. Married	-0.02	-0.08	-0.06	0.06	-0.04	-0.01	-0.10	0.00	1.00										
10. Age	0.17	0.08	-0.14	-0.11	0.39	0.15	0.10	0.00	-0.21	1.00									
11. White	-0.07	-0.20	0.02	0.00	-0.01	0.05	-0.12	-0.07	0.11	0.06	1.00								
12. Male	0.05	0.00	-0.18	0.01	0.10	0.01	-0.01	0.05	0.21	0.04	0.11	1.00							
13. Democrat	0.06	0.11	0.10	0.04	0.00	-0.14	0.01	0.05	-0.07	-0.01	-0.35	-0.11	1.00						
14. Religiosity	-0.05	0.04	-0.14	-0.05	0.08	0.10	0.10	0.06	-0.12	0.12	-0.16	-0.19	-0.12	1.00					
15. Protestant	-0.09	-0.06	-0.09	-0.10	0.12	0.06	-0.03	0.09	-0.04	0.16	-0.04	0.02	-0.15	0.41	1.00				
16. Fund (mod)	-0.02	0.03	0.03	0.05	-0.03	0.08	0.01	-0.07	0.04	-0.05	0.01	-0.05	-0.01	0.00	-0.34	1.00			
17. Fund (lib)	0.06	0.01	0.08	0.03	-0.01	-0.08	0.00	0.02	0.05	0.02	0.12	0.04	0.10	-0.35	-0.15	-0.55	1.00		
18. Income	0.05	-0.02	0.00	0.19	0.19	0.01	0.05	-0.15	0.09	0.16	0.10	0.27	-0.10	-0.14	-0.05	-0.05	0.13	1.00	
19. BA/Grad deg	-0.07	-0.11	0.09	0.18	0.01	-0.03	-0.06	0.00	0.06	0.03	0.12	0.06	0.01	-0.04	-0.08	-0.05	0.19	0.40	1.00
20. HS degree	0.05	0.14	-0.13	-0.09	-0.04	-0.03	0.07	-0.04	0.01	-0.03	-0.03	-0.03	-0.02	0.00	0.02	0.11	-0.15	-0.30	-0.74
21. # yrs of educ	-0.11	-0.13	0.19	0.17	0.00	-0.04	-0.07	0.00	0.10	-0.02	0.17	0.03	0.04	-0.03	-0.08	-0.06	0.17	0.37	0.77
22. Northeast	0.11	0.08	0.07	-0.09	0.04	0.04	0.08	-0.15	0.00	0.09	-0.06	-0.08	0.11	-0.15	-0.23	0.14	0.06	0.06	0.00
23. Midwest	-0.03	0.06	0.00	0.13	-0.01	-0.06	-0.04	0.03	-0.12	0.00	0.13	-0.03	-0.05	-0.02	-0.05	0.06	0.01	-0.10	0.01
24. South	0.02	-0.02	-0.04	0.00	-0.03	0.04	-0.03	0.04	0.04	-0.04	-0.13	0.05	-0.05	0.17	0.27	-0.17	-0.07	-0.03	-0.03
25. Mobility 16	0.09	-0.03	0.03	0.05	-0.13	0.04	-0.01	-0.01	-0.01	0.02	-0.01	0.11	-0.03	-0.08	-0.06	-0.11	0.20	0.14	0.15
26. # children at home	-0.08	-0.06	-0.02	0.04	-0.15	-0.02	0.00	0.05	0.07	-0.39	-0.06	-0.01	-0.03	0.02	0.02	-0.04	-0.01	-0.09	0.02
27. # ppl in home	-0.07	-0.03	-0.04	0.02	-0.12	0.01	-0.02	0.07	0.20	-0.33	-0.08	0.02	-0.03	0.02	0.02	-0.04	0.00	-0.09	0.00
28. # siblings	0.13	0.08	-0.03	0.01	0.01	-0.08	0.00	0.08	0.01	0.03	-0.22	-0.09	0.07	0.01	-0.04	-0.07	-0.05	-0.04	-0.17
29. R Born in US	-0.04	-0.08	0.04	-0.08	0.07	0.04	-0.01	0.07	-0.01	0.07	0.22	-0.04	-0.08	0.06	0.14	-0.04	-0.08	-0.20	-0.07
30. Grandparents born in US	-0.04	0.01	0.03	-0.06	-0.04	0.04	0.11	0.04	-0.04	-0.11	0.04	0.05	-0.14	0.11	0.28	-0.17	-0.02	-0.13	-0.13
31. Divorce	0.05	0.08	0.04	0.04	-0.07	0.13	-0.11	-0.03	-0.05	-0.10	0.00	0.00	0.00	-0.02	-0.08	-0.03	0.08	0.01	0.14
32. Women promotion	0.01	-0.02	-0.05	0.02	-0.06	0.03	-0.07	0.06	0.07	-0.09	-0.04	0.08	-0.06	-0.08	-0.04	0.05	-0.02	0.07	0.01

	20	21	22	23	24	25	26	27	28	29	30	31	32
20. # yrs of educ	1.00												
21. Northeast	-0.59	1.00											
22. Midwest	-0.01	0.02	1.00										
23. South	0.01	-0.03	-0.26	1.00									
24. Mobility 16	0.00	-0.03	-0.35	-0.45	1.00								
25. # children at home	-0.17	0.10	-0.02	-0.11	0.03	1.00							
26. # ppl in home	-0.04	0.02	-0.01	0.05	-0.09	0.00	1.00						
27. # siblings	0.00	0.01	-0.01	0.00	-0.05	0.02	0.89	1.00					
28. R Born in US	0.07	-0.17	0.03	0.05	-0.08	0.13	0.01	0.02	1.00				
29. Grandparents born in US	0.07	-0.02	-0.05	0.06	0.06	-0.25	-0.05	-0.11	-0.02	1.00			
30. Divorce	0.05	-0.10	-0.33	0.01	0.31	-0.11	0.03	0.03	-0.01	0.31	1.00		
32. Women promotion	-0.11	0.12	0.13	0.03	-0.11	0.05	0.12	0.13	0.05	-0.07	-0.05	1.00	

N = 1,325

Table 46: Work-family occupation characteristics, H12 - H14 (Study 2) – Linear regression models

	(1)		(2)		(3)	
Variables	**b**	**SE**	**b**	**SE**	**b**	**SE**
Work-family conflict characteristic (WF)			0.154*	0.065	0.340*	0.155
Occupation tenure (OT)					0.044**	0.013
Social support (SS)					0.264**	0.235
Occupation mobility (OM)					0.306	0.161
WF x OT					-0.018+	0.006
WF x SS					-0.099	0.104
WF x OM					-0.156*	0.073
GSS survey year	0.018	0.071	0.033	0.070	0.047	0.069
Married	-0.156	0.187	-0.115	0.194	-0.102**	0.211
Age	-0.009**	0.003	-0.010**	0.003	-0.013	0.003
White	-0.100	0.128	-0.097	0.128	-0.055**	0.126
Male	-0.231**	0.076	-0.243**	0.075	-0.232	0.074
Democrat	0.003	0.020	0.006	0.020	0.016	0.019
Religiosity	-0.155**	0.052	-0.150**	0.052	-0.154**	0.050
Protestant	0.108	0.088	0.094	0.086	0.053	0.085
Fundamentalist - moderate	0.193*	0.099	0.210*	0.097	0.218*	0.096
Fundamentalist - liberal	0.141	0.105	0.139	0.106	0.131	0.105
Income	0.000	0.000	0.000	0.000	0.000	0.000
BA/Grad degree	-0.273*	0.137	-0.262+	0.142	-0.270*	0.140
HS degree	-0.127	0.102	-0.118	0.104	-0.087	0.101
# years of education	0.060**	0.016	0.063**	0.016	0.064**	0.015
R's location: Northeast	0.015	0.128	0.001	0.129	-0.013	0.128
R's location: Midwest	-0.071	0.100	-0.026	0.099	-0.017	0.098
R's location: South	-0.065	0.091	-0.044	0.089	-0.022	0.091
Mobility since age 16	0.070	0.086	0.068	0.085	0.110	0.081
# children at home	-0.168	0.242	-0.137	0.238	-0.081	0.256
# people living in R's home	0.012	0.073	0.003	0.072	-0.011	0.078
# siblings	-0.011	0.014	-0.010	0.014	-0.014	0.013
R Born in US	0.222	0.168	0.197	0.170	0.188	0.171
Grandparents born in US	-0.013	0.082	-0.015	0.081	-0.024	0.081
Divorce	0.031	0.082	0.034	0.081	0.041	0.082
Women's promotion	-0.038	0.045	-0.036	0.045	-0.049	0.043
Constant	2.531**	0.396	2.777**	0.412	1.802**	0.519
R^2	**.155**		**.170**		**.209**	
F	**2.65**		**2.69**		**3.24**	
ΔR^2			**.015**		**.039**	
ΔF			**.04**		**.55**	

N = 1,325

Dependent variable is attitudes about women working. Positive scores indicate negative attitudes towards women working.

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

Table 47: Work-family occupation characteristics, H14 (Study 2) – Moderated mediation models

Table 47a: Relationship between work-family conflict occupation characteristics and racial stereotypes about Blacks mediated by attitudes about women working, moderated by occupation tenure

Stereotypes about Blacks	Indirect effect	SE	*z*	*p*	*Lower CI*	*Upper CI*
	Conditional indirect effect at Occupation Tenure = ± 1 *SD*					
-1 *SD*	.000	.005	0.10	0.92	-.009	.010
M	.011	.010	1.06	0.28	-.009	.031
+1 *SD*	.021	.019	1.12	0.26	-.016	.059

Table 47b: Relationship between work-family conflict occupation characteristics and racial stereotypes about Blacks mediated by attitudes about women working, moderated by occupation mobility

Stereotypes about Blacks	Indirect effect	SE	*z*	*p*	*Lower CI*	*Upper CI*
	Conditional indirect effect at Occupation Mobility = ± 1 *SD*					
-1 *SD*	.0018	.004	0.43	0.66	-.006	.010
M	.008	.009	0.92	0.36	-.009	.026
+1 *SD*	.014	.015	0.93	0.35	-.016	.046

Table 47c: Relationship between work-family conflict occupation characteristics and racial stereotypes about Whites mediated by attitudes about women working, moderated by occupation tenure

Stereotypes about Whites	Indirect effect	SE	*z*	*p*	*Lower CI*	*Upper CI*
	Conditional indirect effect at Occupation Tenure = ± 1 *SD*					
-1 *SD*	.001	.011	0.10	0.92	-.020	.022
M	.023	.012	1.83	0.06	-.001	.049
+1 *SD*	.046	.021	2.18	0.02	.004	.088

Table 47d: Relationship between work-family conflict occupation characteristics and racial stereotypes about Whites mediated by attitudes about women working, moderated by occupation mobility

Stereotypes about Whites	Indirect effect	SE	*z*	*p*	*Lower CI*	*Upper CI*
	Conditional indirect effect at Occupation Mobility = ± 1 *SD*					
-1 *SD*	.005	.0115	0.46	0.64	-.017	.027
M	.023	.013	1.81	0.07	-.001	.049
+1 *SD*	.042	.021	1.98	0.04	.000	.084

Note: For Tables 47a-d, the dependent variables are stereotypes about Blacks/Whites. Positive coefficients indicate more stereotypical thinking about Blacks/Whites.

Table 48: Summary of hypotheses results for Study 1 and Study 2

	Study 1	Study 2
Autonomy occupation characteristics (H1 – H3)		
H1: Autonomous occupation characteristics will increase the extent to which individuals in that occupation value autonomy.		
H2: The relationship between autonomous occupation characteristics and the valuing of autonomy by individuals in that occupation is moderated by a) occupation tenure b) occupation mobility and c) social support.	H2a	H2a, H2c
H3: The positive relationship between autonomous occupation characteristics and social tolerance is mediated by individuals' valuing of autonomy, and moderated at the first stage by a) occupation tenure b) occupation mobility and c) social support.	*	
Skill/task variety occupation characteristics (H4-H5)		
H 4: Skill/task variety occupation characteristics will change the attitudes that individuals in that occupation have regarding meaning. Higher skill/task variety occupation characteristics lead to positive attitudes regarding meaning.		
H5: The relationship between skill and task variety occupation characteristics and individuals' attitudes regarding meaning in their lives is moderated by a) occupation tenure b) occupation mobility and c) social support.		
Safety occupation characteristics (H6-H8)		
H6: Safety occupation characteristics will positively increase the trust propensities of individuals in that occupation.	H6	
H7: The relationship between safety occupation characteristics and the trust propensities of individuals in that occupation is moderated by a) occupation tenure b) occupation mobility and c) social support.		H7a
H8: The negative relationship between safety occupation characteristics and safety behaviors (specifically gun ownership) is mediated by individuals' trust propensities, and moderated at the first stage by a) occupation tenure b) occupation mobility and c) social support.	*	*
Control occupation characteristics (H9-H11)		
H9: Occupation control characteristics will increase the extent to which individuals in that occupation value obedience.	H9^{+}	H9^{+}
H10: The relationship between occupation control characteristics and individuals' valuing of obedience is moderated by a) occupation tenure b) occupation mobility and c) social support.		
H11: The positive relationship between occupational control characteristics and deference to authority is mediated by obedience values, and moderated at the first stage by a) occupation tenure b) occupation mobility and c) social support.	*	
Work-family conflict occupation characteristics (H12-H14)		
H12: Work-family conflict characteristics will change the attitudes individuals in that occupation have about women working. Higher work-family conflict occupation characteristics lead to negative attitudes regarding women working.	*	H12
H13: The relationship between work-family conflict characteristics and attitudes regarding women working is moderated by a) occupation tenure b) occupation mobility and c) social support.	*	H13a, H13b
H14: The positive relationship between work-family conflict and racial stereotypes is mediated by attitudes about women working, and moderated at the first stage by a) occupation tenure b) occupation mobility and c) social support	*	H14^{+}

Note: * denotes note testable.
Hypotheses supported at $p < .05$ except where noted ($^{+} = p < .10$).