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Age-typing Across Occupations When, Where, And Why Age-typing Exists

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AGE-TYPING ACROSS OCCUPATIONS: WHEN, WHERE, AND WHY AGE-TYPING EXISTS

by

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ABSTRACT

The present study sought to determine the direction and degree to which occupations representative of all major occupational categories are viewed as age-typed (i.e., more appropriate for older or younger workers). The 60 occupations examined were the 12 most common and familiar occupations in each of five occupational categories used by the U.S. Census Bureau. I randomly assigned 365 participants to one of three survey conditions. Participants rated the feature centrality, proportional representation, normative age, and optimal performance age of 20 of the 60 occupations and the age-type of 20 different occupations. Results showed that participants reliably rated the occupations on a continuum from highly young-typed to highly old-typed. Occupations viewed as most appropriate for older workers included psychologists (clinical), bus drivers, and librarians, whereas those viewed as most appropriate for younger workers included recreation and fitness workers, bartenders, and hosts/hostesses. Interestingly, despite commonly held stereotypes that older workers are less competent than younger workers (Kite, Stockdale, Whitley, & Johnson, 2005), old-typed occupations were viewed as requiring higher competence than those viewed as young-typed. Additionally, roughly three times as many workers are needed to fill the most young-typed jobs compared to the most old-typed jobs (U.S. Census Bureau, 2000). Both of these findings suggest problems for an increasingly aging workforce (Administration of Aging, 2010). I also found that perceived proportional representation accounted for 79% of the variance in predicting the age-type of occupations. This suggests that people rely on general impressions of current worker ages, which supports career timetables theory's approach to the formation of occupational age-type. Implications for theory and research are discussed.

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CHAPTER 1: INTRODUCTION

Age discrimination in employment is a growing problem. In a recent survey, approximately 40% of British employers admitted to the practice of age discrimination, and 80% of the general public responded that ageism still exists in employment selection contexts (Macnicol, 2006). In a United States-based survey, 25% of older workers felt discriminated against when applying for a job (Romano, 1994).

The Age Discrimination in Employment Act of 1967 is designed to protect those age 40+ from unfair employment discrimination. Yet, age discrimination claims have increased 34% from 1989 to 1993 (Marley, 1994). According to Small Business Reports (1994), the average award for these claims is over $300,000, which is 175 to 300 percent greater than that of race, gender, or disability discrimination (as cited in Clapham, 1997). Each year since 1995, the Equal Employment Opportunity Commission has dealt with an average of 16,500 age discrimination cases (Hedge et al., 2006).

Making matters worse, involuntary job loss is a particularly large problem for older workers. The number of older workers involuntarily leaving jobs has grown faster than any other age group. It has also been documented that 30% of older workers felt it was "at least somewhat likely" they would lose their job within one year (Johnson, Kawachi, & Lewis, 2009). Unfortunately, termination may be more devastating for older workers than for others. According to the US Bureau of Labor Statistics (2004), workers age 55 and older have a tendency to take seven to nine weeks longer than those under 55 to acquire a new job (as cited in Goldberg, 2007). Therefore, an increasing number of individuals are without jobs and a large portion of these individuals will require an extended period of time to become reemployed.

Following job loss, many older workers find it necessary to change careers. For example,

a recent AARP survey revealed that 27% of all older workers who changed jobs also switched occupations, and retirees who take new jobs are nearly twice as likely to move into new occupations (Johnson et al., 2009). When older workers re-skill and move into new careers, they compete with younger workers who have similarly low-levels of job experience in that field, but the advantage of all of the positive stereotypes associated with youth. Thus, age bias is more likely when older workers re-career than when they stay in the same field (e.g., Arvey, Miller, Gould, & Burch, 1987; Gibson et al., 1993; Raza & Carpenter, 1987).

Just as we hold age stereotypes about people, jobs are also age stereotyped. That is, some jobs are perceived as being more appropriate for older workers and other jobs are perceived as more appropriate for younger workers (Cleveland & Hollmann, 1990). A fair amount of literature has shown that workers are disadvantaged when a mismatch is perceived between the age of the employee and the age-type of the job (e.g., Cleveland, Festa, & Montgomery, 1988; Cleveland & Shore, 1992; Ostroff & Atwater, 2003; Shore, Cleveland, & Goldberg, 2003). However, relatively little research has been conducted to establish the characteristics that distinguish "younger" v. "older" jobs. One can surmise that a pizza delivery job is viewed as a young person's job whereas an executive position would be held by an older person. Yet, what are the characteristics that lead people to age-type jobs? It is possible that age-typing is predicted by the age composition of current incumbents. Age-typing could also be related to the status of the job, pay level, the technological nature of the job, or other job characteristics.

In the sex-typing literature, studies have determined the degree to which major occupations were typed as male or female (Beggs & Doolittle, 1993; Shinar, 1975). Sex typing of occupations has contributed to the sex discrimination literature by determining the occupations in which sex discrimination is more likely to occur. For instance, occupations such

as miner and construction worker are strongly male sex-typed, whereas bank teller and dental hygienist are strongly female sex-typed. Shinar's (1975) research not only showed the extent to which jobs are sex-typed, but also identified why people viewed jobs as "male" or "female." Shinar's work has clearly had an impact, as it has been cited in 142 papers, according to a Google Scholar search.

My study has identified the extent to which jobs are age-typed and why people perceive them to be age-typed. I used survey methods to systematically study perceptions of a wide range of jobs in terms of proportional representation (i.e., how old are people in this job?), feature centrality (i.e., what age-related characteristics are perceived as critical to success in the job?), and occupational age-type (i.e., is the job appropriate for younger or older workers?). Analyses resulted in jobs being reported on a continuum of age-type severity, from strongly young-typed to strongly old-typed.

Following is a literature review supporting my thesis. Specifically, I will begin with a definition of ageism, followed by a summary of theories relevant to age-typing. Then, a brief discussion of prejudice and discrimination is presented, with a particular emphasis on how age-based prejudice relates to age-typing of occupations. After covering prejudice and discrimination, I then review the literature on age-typing of occupations, focusing on its nomological network. To conclude the literature review, predictors of occupational age-type are hypothesized.

CHAPTER 2: LITERATURE REVIEW

Ageism Defined

Between the years of 2000 and 2030 the number of people over the age of 60 is projected to double in size, representing one fourth of the population (Administration on Aging, 2010). This trend is also seen in the labor force. The number of workers age 55 and older increased from 18.2 million in 2000 to 27.1 million in 2009 (Bureau of Labor Statistics, 2009), which is at a rate over four times that of workers below the age of 35. This trend is expected to continue due to the baby boom generation entering their 50s and 60s and trends in early retirement have reversed (Adler & Hibler, 2009). The number of workers age 65 and older has demonstrated a steadily positive trend (AARP, 2005), increasing 46% in the past decade (Bureau of Labor Statistics, 2009). The number of workers older than 55 is expected to expand at four times the rate of the overall labor force by 2012 (Alley & Crimmins, 2007). Because of such a dramatic shift in the age of the population and the workforce, increased attention has been paid to the study of ageism.

Originally defined by Robert Butler (1969), ageism is:

> the subjective experience implied in the popular notion of the generation gap…a deep seated uneasiness on the part of the young and middle-aged—a personal revulsion to and distaste for growing old, disease, disability, and fear or powerlessness, 'uselessness,' and death" (as cited in Nelson, 2002, p. 339).

This definition was later modified by Butler (1980) in order to better apply to workplace settings and social scientific research. This modification includes "institutional practices and policies that perpetuate stereotypes about older adults, reduce their opportunity for life satisfaction, and undermine their personal dignity" (as cited in Nelson, 2004, p. 339). Therefore, the

conceptualization of ageism began solely as an attitude and evolved to incorporate negative behaviors toward older workers.

Workplace Ageism Theories

The theoretical structure of age-type proposed in this study predominately stems from prototype matching theory (Niedenthal, Cantor, & Kihlstrom, 1985; Perry, 1994) and career timetables theory (Lawrence, 1988). Prototype matching theory states that workers are compared to person-in-job prototypes and the degree of match between worker features and central prototype features leads to perceived fit of an individual with a job (Perry & Finkelstein, 1999). Other stereotype-fit models emphasize nearly identical cognitive frameworks. For instance, Heilman's (1983) lack of fit model states that expectations of success emerge through perceptions of fit between perceptions of individual attributes and job requirements (i.e., skills and abilities). Expectations of success lead to evaluation and ultimately behaviors (e.g., performance appraisal and reward allocation, selection decisions, career choice, and career advancement activities). Though these other stereotype fit models emphasize the same cognitive processes as prototype matching theory, they are limited by their overemphasis on cognitive factors and lack of attention to other critical aspects (Dipboye, 1985). Perry and Finkelstein (1999) have extended prototype matching theory to also include organizational factors, such as organizational structure and values, and how they impact cognitive processes when evaluating older workers. Though the present study holds organizational factors constant, the use of a theory that includes social factors will provide an advantage over solely cognitive theories when interpreting results and identifying limitations.

The career timetables perspective proposes that occupations possess age norms, which are formed from age composition (Shore & Goldberg, 2005). As older workers deviate above the

normative age, the potential for ageism increases (e.g., Cleveland & Hollmann, 1990; Cleveland & Smith, 1989). However, younger workers are not necessarily affected by deviating below the normative age. The asymmetrical nature of this effect enables application to ageism and prompted the use of career time tables over similar theories, such as relational demography (Riordan, 2000; Williams & O' Reilly, 1998), which simply assesses deviations from the norm without accounting for the direction.

Prototype Matching

People develop social categories to aid in information processing (Cantor & Mischel, 1979; Niedenthal et al., 1985). According to Rosch (1978), social categories are defined by the attributes most prototypical or central to members of that particular category (as cited in Lord, Foti, & DeVader, 1984). Prototypes, which represent sets of features typically associated with an average category member (Cantor & Mischel, 1979; Rosh, 1975), may also be contextually based, such that individuals may match themselves or others to situations, creating a person-in-situation prototype (Cantor, Mischel, & Schwartz, 1982). Person-in-situation prototypes represent one's perception of normative personality traits, behaviors, and other features corresponding to people in various situations. According to DeVader (1987), the situations may be work-related, causing the person-in-situation prototype to include both features of the person (e.g., age, dependability, learning potential) and the job (e.g., tasks, skill and ability requirements, proportional representation of age).

Perry (1994) was the first to suggest the existence of person-in-job prototypes through which individuals store job and incumbent relevant information. This is similar to person-in-situation prototypes; however, the level of abstraction is set at the job level. Through this application of prototype matching, Perry used an experimental design with university students to

discover that raters compare job applicants to person-in-job prototypes. Applicants who matched on more person-in-job prototype features received higher evaluations than those who did not. Specifically, participants listed features associated with their prototype of a job holder in jobs strongly associated with age. Applicants described as matching five central job features were seen as more suitable for the job than applicants described as matching three or one central feature. Applicants described as matching three central features were viewed as more suitable for the job than those described by one central feature. Additionally, applicants who matched the age stereotype of the job were evaluated more favorably. Therefore, as the number overlapping features associated with older workers and particular person-in-job prototypes increases, so does the degree of match between the applicant and person-in-job prototype. As this degree of match increases, so does the perceived fit of the individual with the respective job.

Perry (1994) also tested differences in central versus peripheral features. Central features are those that define a category and have a stronger impact on decision making than peripheral features, which are characteristic of a category, but not a requirement of membership (Smith, Shoben, & Rips, 1974). For instance, physical strength is a central feature of the category firefighter, as a high degree of physical strength is a requirement of membership and it is a feature held by all members. Compassion, however, would be a peripheral feature, because it is considered common among rescue workers, but not a requirement of membership. Results indicated that applicants who matched the relevant person-in-job prototype on age received higher evaluations than those who did not. However, this occurred only when age was a central feature of the person-in-job prototype, which gives rise to the notion that the more central a feature is to a person-in-job prototype, the greater influence it will have on rater perceptions and decision making. Therefore, it is both the quantity and centrality of age-related features relevant

to a person-in-job prototype that influences the perceived degree of match between older workers and the job in question.

Career Timetables

Lawrence's (1984) concept of career timetables is an approach to understanding age bias through discrepancies between worker age and the normative age of the job. Career timetables reflect that occupations possess commonly accepted age norms, such that older workers should occupy jobs higher on the organizational chart than younger workers (Shore & Goldberg, 2005). Perceptions of normative ages for various jobs and positions are often based on the age composition of workers in that particular position. Past research has supported this perspective through the establishment of causal relationships of work group age composition (Cleveland et al., 1988; Cleveland & Shore, 1992; Ferris, Judge, Chachere, & Liden, 1991), applicant pool age composition (Cleveland et al., 1988), and occupational age composition (Cleveland & Hollmann, 1990) on decision making and organizational outcomes such as job suitability, performance expectations, performance ratings, and development opportunities.

Field studies conducted by Lawrence (1988) and Cleveland and Shore (1992) established links between age composition and organizational outcomes. For example, Cleveland and Shore (1992) found that manager perceptions of an employee's age relative to members of his or her workgroup are negatively related to self-rated perceived organizational support and global performance, as well as manager-rated global performance and promotability. Others utilized experimental methods to assess the effects of the proportional representation of older and younger workers (Cleveland et al., 1984; Cleveland & Hollmann, 1990). By presenting participants with information regarding the age composition of a fabricated occupation, Cleveland and Hollmann (1990) discovered that proportional representation affects performance

expectations, perceived salary, and the age stereotype of the job. These studies show that, through perceived age composition, individuals form an impression of the typical or normative age in various occupations, and as a worker's actual age deviates from this perceived normative age, the potential for ageism increases.

Career timetables assert an asymmetrical relationship between age-based deviations above and below the norm, such that those who are above the normative age group are often viewed more negatively than those who are below. Those who are above the normative age group are viewed as "behind schedule." "Behind schedule" workers are more likely to exhibit lower work satisfaction and work orientation (Lawrence, 1984), as well as receive lower performance ratings (Lawrence, 1988) and fewer promotions (Rosenbaum, 1984) than those who are "on schedule." Workers who are younger than the relative normative age are viewed as "ahead of schedule" and are more likely to receive higher performance ratings than those who are "on schedule" and "behind schedule" (Lawrence, 1988). Those who are below the normative age are commonly viewed as ambitious and high achieving. Alternatively, those above the normative age are perceived as unable to keep up with their peer group, lazy, and lacking ambition. It is this asymmetrical relationship that makes career timetables theory more appropriate for application in ageism research than similar theories. For instance, relational demography theory (Riordan, 2000; Williams & O' Rielly, 1998) states that the level of dissimilarity in demographic characteristics between the individual and the composition of the social unit impacts attitudes and behaviors. This theory is highly applicable to the study of discrimination regarding multiple demographic variables (e.g., sex, race). The asymmetrical relationship of career timetables theory goes beyond mere dissimilarity to account for the direction of the deviation. This makes career timetables theory more suitable for the unique

nature of age, wherein deviations above the norm result in differing outcomes than deviations below the norm.

It is through career time tables and prototype matching that individuals form the bases for attitudes and behaviors toward older workers in specific contexts. Career timetables assert that workers who are above the normative age will be viewed more negatively than someone at or below the normative age. Prototype matching states that workers stereotyped as possessing features perceived as typical of an ideal job incumbent will be viewed more positively than those who are not stereotyped as possessing these features. The outcomes of the processes underlying these theories are changes in attitudes and behaviors. Negative attitudes and behaviors are defining of prejudice and discrimination. The following section will address how such prejudices and discrimination toward older workers are formed and how they exist within the tripartite view of age bias.

The Formation of Age-Based Prejudice and Discrimination

The term *prejudice* originally was used to represent judgments derived from past experiences. It later became a "premature or hasty judgment," and eventually modified into "emotional flavor of favorableness or unfavorableness that accompanies such a prior and unsupported judgment" (Allport, 1979, p. 6). These judgments are initiated by way of social categorization, in that individuals become members of certain social subgroups based on race, gender, age, and other salient characteristics. Through acknowledgement of group membership, individuals form ingroups (Gaertner & Dovidio, 2000). The strength of ingroup membership is dependent upon the inclusiveness of the group itself. The strongest identified ingroup is family, followed by neighborhood, city, state, nation, racial stock, and mankind (Allport, 1979, p. 43). According to Allport's (1954) contact hypothesis, group membership ultimately leads to

stereotyping, prejudice, and discrimination. However, interpersonal contact across groups is capable of mitigating these effects when group members are of equal status, share a superordinate goal, have the ability to behave outside their social roles, and social norms support interaction across groups. Since ingroups are often based on age, and identification with one's age is a major factor for individuals when making age-related employment decisions (Finkelstein et al., 1995), understanding the social and cognitive processes leading from group membership to discriminatory behavior are critical to the reduction of ageism in the workplace.

As seen in figure 1, once group membership is acknowledged and ingroups are formed, individuals tend to perceive others outside of their particular ingroup as different. According to social identity theory (Tajfel & Turner, 1979, 1986), people define themselves through group membership. Membership in various groups combines to form a social identity which we are driven to enhance, even at the cost of others with no actual differences (Tajfel & Turner, 1979). To better understand one's social identity and where it fits into the environment, social categorization takes place. Social categorization is a simplification process through which, groups of individuals are sorted into categories. A category is defined as "an accessible cluster of associated ideas which as a whole has the property of guiding daily adjustments" (Allport, 1979, p. 171). Formation of these categories is often on the basis of salient demographic variables, such as age. Categories then lead to stereotypes through personal experiences and secondary information regarding outgroups. Personal experiences involving members of a particular category combined with rare events leads to an association of category members to be falsely associated with the attributes witnessed during the rare event. The false association of these attributes with a particular social category is referred to as illusory correlation (Chapman & Chapman, 1967; Feldman & Lynch, 1988). These illusory correlations, when accepted and often

embraced by society, become stereotypes.

Stereotypes are "cognitive structures used to store our beliefs and expectations about the characteristics of members of social groups" (Cuddy, 2002, p. 4). In general, stereotypes of older workers are more negative than those of younger workers (Finkelstein et al., 1995; Gordon & Arvey, 2004; Kite & Johnson, 1988). More specifically, Finkelstein and Farrell (2007) listed that older workers are viewed as being more absent-minded (Kogan & Shelton, 1960), resistant to change, lacking in creativity, slow in judgment, lower in physical capacity, lacking interest in technology (Rosen & Jerdee, 1976, 1977; Taylor & Walker, 1998), and contributing less (Perry & Verney, 1978). They are also seen as less ambitious, and more opinioned (Craft, Doctors, Shkop, & Benecki, 1979), lower in development potential (Crew, 1984; Gibson, Zerbe, & Franken, 1993; Rosen & Jerdee, 1976), energy (Levin, 1988), and flexibility (Vrugt & Schabracq, 1996), do not work well in team settings (Lyon & Pollard, 1997), and are less valuable economically (Finkelstein, Higgins, & Clancy, 2000). Other relevant stereotypes include lower responsiveness to training (Cleveland & Shore, 1992; Maurer & Rafuse, 2001) and reduced interpersonal skills, stamina, competence, and dexterity (Finkelstein & Burke, 1998; Kite, Stockdale, Whitley, & Johnson, 2005; McMullin & Marshall, 2001). According to Postuma and Campion (2009), the most common negative older worker stereotypes are that they are expected to have less time with the company and are more costly to the organization through higher pay expectancy and nearness to retirement. Older workers are viewed as poor performers, having poor learning ability, and resistant to change. Though the list of negative stereotypes is numerous, there are also common positive stereotypes of older workers. These include being more dependable, stable, honest, trustworthy, loyal, committed, sincere, sociable, and less likely to steal (Postuma & Campion, 2009).

Therefore, group membership, social categorization, group identification, and stereotyping serve as precursors to prejudice and discrimination, as depicted in Figure 1. More specifically, theory posits that group membership leads to group identification. Group identification, in turn, gives way to social categorization, which is a main cause of stereotyping. Additionally, theories such as terror management (Becker, 1975) specify that ingroup membership and identification are not necessary conditions for age-related stereotypes to occur. Individuals of all age groups possess the tendency to stereotype in an attempt to separate oneself from older workers and the salience of aging. This explains the findings that older managers demonstrate greater age bias when rating performance, as compared to younger managers (Shore & Goldberg., 2003). As managers mature in age, the salience of mortality increases, which causes uneasiness. To relieve this uneasiness, individuals will attempt to separate themselves from the social category of older workers. In an attempt to separate from older workers, it is common to stereotype and respond negatively to social interaction with older individuals. Furthermore, older individuals have demonstrated a tendency to view older workers as less competent compared to younger workers (Kite et al., 2005).

Lastly, it is middle-aged managers who display the greatest degree of age-related bias in employment situations (Kite et al., 2005). This is due to the fact that the saliency of becoming old is greater in middle-aged workers than younger workers and they are distant enough in age from older workers to also form ingroup bias. The mere existence of social categorization, combined with effects such as that produced by terror management is likely to cause increases in age related stereotyping and ultimately prejudice and discrimination. Since age is a salient characteristic in interpersonal interactions (Fiske, 1998), ageism is difficult for older workers to avoid.

According to the traditional tripartite view (figure 1), stereotyping is the cognitive component that leads to discrimination (behavioral component), partially through prejudice (affective component) (Breckler, 1984; Eagly & Chaiken, 1998; Finkelstein & Farrell, 2007). Conscious acceptance and subconscious awareness of stereotypes directly lead to prejudicial attitudes. Allport (1979) has ranked the severity of attitude expression in a scale beginning with antilocution, then avoidance, discrimination, physical attack, and extermination. Antilocution is the verbal expression of prejudice among like-minded individuals. Avoidance involves evading members of a disliked group, despite it possibly being a great inconvenience. Discrimination entails withholding rights and privileges from members of a particular group. Unlike avoidance, with discrimination, the burden and inconvenience is no longer placed upon the one acting on prejudice and is relocated to the recipient of these actions (Allport, 1979).

According to the tripartite view of age bias, each of prejudicial expressions would be considered discrimination. However, due to the presence of the Age Discrimination in Employment Act (1967) and increases in social disapproval toward overt displays of discrimination, it is no longer as common to witness the more extreme forms of discrimination identified by Allport (1979), particularly in the workplace. Consequently, discrimination has transformed into more covert expressions of prejudice (Weitz, 1972). Much of this modern discrimination, particularly in employment settings, is unintentional and is inconsistent with conscious perceptions of outgroups (Dovidio & Gaertner, 1996; Gaertner & Dovidio, 1986; Kovel, 1970). This aversive form of discrimination is fundamental to the occurrence of unintentional age discrimination in employment settings.

The meditational effect of prejudice explains the modest relationship between stereotyping and discrimination (r = .16) reported by Fiske (2004). Of the studies involving age

discrimination in employment contexts, many have supported the notion that older individuals receive lower overall ratings and recommendations for hire in selection interviews (Avolio & Barrett, 1987; Cleveland et al., 1988; Finkelstein et al., 1995; Gibson et al., 1993; Haefner, 1977; Marcus, Fritzsche, & Le, 2011; Perry et al., 1996; Raza & Carpenter, 1987; Weiner & Schneider, 1974). This suggests that raters do, in fact, rely on applicant age when making employment decisions. Older applicants have also been seen to receive lower future potential ratings compared to younger applicants (Avolio & Barrett, 1987; Gibson et al., 1993). Additionally, the recourse for errors on the job is more severe for older workers as opposed to younger workers (Rupp, Vodanovich, & Credé, 2006).

The relationship between stereotyping and discrimination (partially though prejudice) has been studied extensively. Several moderating variables have been assessed to determine specific contexts in which age discrimination is more likely to occur. For example, the cognitive busyness of the rater causes greater reliance on stereotypes when making employment decisions (Perry et al., 1996). Rater age (e.g., Chiu et al., 2001; Connor, Walsh, Litzelman, & Alvarez, 1978), race, and gender (Crew, 1984) have also demonstrated an effect on age bias. Perry and Finkelstein (1999) have also proposed that organizational structure, value, and technology have the potential to impact stereotype activation. Though each of these variables has demonstrated an impact on age bias, they are specific to individual organizations and situations.

The one moderator of the relationship between stereotyping and discrimination that is broad enough in scope to extend beyond the individual and organizational level and apply across organizations is that of occupational age-type. Jobs are present in all organizations and the person-in-job prototypes associated with these jobs are capable of increasing and decreasing age discrimination. Therefore, it is critical to understand the components causing age-typing and the

degree to which specific jobs are age-typed. As a result, the primary purpose of this study was to determine which occupations are age-typed and why.

Occupational Age-Type

Age-type represents the degree to which older and younger workers are perceived as suitable for particular occupations (Cleveland & Hollmann, 1990). This concept stems from the notion that stereotypes are associated with jobs as well as people (Perry & Finkelstein, 1999). Consistent with prototype matching theory, stereotypical features of people are compared to sets of features associated with a person-in-job prototype. This is often described as the formation of a match between stereotypes of workers and stereotypes of jobs. Individuals compare the stereotypes of jobs relative to individuals to develop a degree of match (Perry, 1994, 1997). Perry and Bourhis (1998) noted that this degree of match is on a continuum and can be either direct or indirect. As noted by Perry and Finkelstein (1999), a direct match is between an individual's age and the age-type of the job in question, whereas an indirect match involves a comparison between the features of a person and those relevant to success in a particular job. This degree of match determines one's perception of the relative fit of the individual with the respective job (Goldberg, 2007). This relative fit impacts individual perceptions of older workers in various occupations. As a result, the treatment of older workers in a context involving poor relative fit will differ from that involving a strong fit.

Past research has offered support for this matching process (Cleveland et al., 1988; Cleveland & Hollmann, 1990; Cleveland & Landy, 1983, 1987; Cleveland & Shore, 1992; Finkelstein et al., 1995; Panek, Staats, & Hiles, 2006; Ostroff & Atwater, 2003; Perry & Bourhis, 1998; Perry et al., 1996; Shore, et al., 2003; Singer, 1986; Singer & Sewell, 1989, Vecchio, 1993). Early literature determined that applicant age, sex, and race are significant variables in

employment decisions (Kinicki & Lockwood, 1985) and these individual characteristics possess the tendency to place a stronger influence over employment decisions in certain situations (Arvey, 1979; Cleveland & Landy, 1983; Cohen & Bunker, 1975; Heilmann, 1983; Shinar, 1975, 1978). Perry, Kulik, and Bourhis (1996) found that younger applicants were evaluated more favorably than older applicants for a young-typed job (i.e. sales person of CDs, records, and tapes) and older applicants were evaluated more favorably than younger applicants for an old-typed job (i.e., sales person of stamps and coins). However, this interaction was found to be asymmetrical in that age-typing is potentially more beneficial and less detrimental to younger workers. It was also determined that age congruent applicants were evaluated more positively than age incongruent applicants as rater age bias increases.

In a meta-analysis of the existing literature, Finkelstein et al. (1995) also found an asymmetrical relationship. In jobs categorized as young-typed or age neutral, younger workers were rated as more qualified. Yet, in jobs categorized as old-typed, virtually no differences in ratings were found. This suggests that age-type effects may level the playing field for older workers in some situations, but rarely place older workers at an advantage. The effects found in this meta-analysis are qualified by the fact that there were inconsistencies in the categorization of jobs as young or old-typed in the studies reviewed. Past studies were used as guidelines in the coding process (Cleveland & Landy, 1987; Gordon & Arvey, 1986). Twenty-two graduate students then coded each occupation as old, young, or neutral. If the two previous studies categorized an occupation similarly and 60% of the independent raters placed the occupation into the same category, then the occupation was retained for analyses. Unfortunately, only six old-typed, three young-typed, and eight age-neutral occupations met the necessary criteria for inclusion. The present study sought to eliminate these inconsistencies by systematically assessing

and reporting the degree to which a wide variety of jobs are old or young-typed. By reporting this information, future researchers now have a guideline, based on theory and empirical findings, with which occupations under analysis may be identified as old-typed to young-typed on a continuous scale. According to prototype matching theory and empirical support, age bias tends to be present when age is a central feature of the job (Perry, 1994, 1997). Since age-typing exists on a continuum, certain jobs will possess characteristics that are more applicable to differences in features of older and younger workers. Therefore, older workers are more likely to experience discrimination in strongly young-typed jobs. Perry and Bourhis (1998) supported this logic by demonstrating that younger applicants were evaluated more favorably than older applicants for a strongly young-typed job, although, not for a weakly young-typed job. The more age is considered a central feature of the job, the more the jobs will be stereotyped as young or old. The extent to which jobs are age stereotyped represents the strength of the occupational age-type.

The common theme in this literature is that age-typing of jobs significantly impacts age bias and strongly exhibits potential to result in unlawful discrimination. Since the presence of age-typing in employment situations has the tendency to affect the likelihood of discrimination, it may no longer be appropriate to solely study main effects in age bias (Cleveland & Hollmann, 1991; Cleveland & Landy, 1983). Thus, it is critical for researchers to have a clear understanding of the degree to which specific jobs are age-typed and why these jobs are typed as old, young, or neutral.

Many studies to date have selected old-typed, young-typed, or age neutral jobs via minimal pilot studies. This practice is likely to result in the use of jobs that are disproportionally stereotyped as young or old. For instance, a study may include a strongly old-typed job and a

mildly young-typed job. When unaccounted for, this asymmetry may distort findings about ageism in employment contexts. Thus, this study sought to determine the direction and magnitude of age-typing in a multitude of occupations. The objective of this process was to determine which jobs are age-typed, to what extent, and why.

Theoretical Structure of Age-Type

Feature centrality

The first proposed predictor was feature centrality, the degree to which stereotypically older worker features are associated with the job. In their job age-type meta-analysis, Finkelstein et al. (1995) recommended that the age-type literature account for commonly accepted features of older workers. As indicated by the tripartite view of age bias, older worker stereotypes predict discriminatory behavior (Finkelstein & Farrell, 2007). In order for job age-type to moderate this relationship, it must account for commonly accepted stereotypical features of older workers.

Research suggests that jobs have age-related stereotypical features associated with them (Cleveland & Landy, 1983; Singer, 1986). These perceived features are based on the tasks and elements associated with the job (Cleveland & Hollmann, 1990). For age-typing to occur, a relative fit between the features of the job or person-in-job prototype and age-based stereotypical features of the worker is required. Since individuals possess particular expectations concerning the features of person-in-job prototypes and workers (Gordon & Arvey, 1986; Ruble, Cohen, & Ruble, 1984) and job age and sex-types largely result from features of job holders (Gordon & Arvey, 1986; Krefting et al., 1978), there is evidence that it is not merely the features of the job or worker in isolation. Rather, job age-type emerges as a function of the indirect match between stereotypically older worker features and the features associated with the relevant person-in-job prototype.

Early literature exploring predictors of age-type emphasized the stereotypes of job tasks (Cleveland & Hollmann, 1990; Cleveland & Smith, 1987). Specifically, Cleveland and Hollmann (1990) found that a job's proportion of stereotypically old tasks (e.g., "meets regularly with policy-making body to discuss administrative matters") relative to young tasks (e.g., "seeks knowledge and skills beyond the present assignment to prepare for greater opportunity") significantly influences rater perceptions of a job's suitability for older workers.

Later, age-type literature followed the approach taken by researchers studying sex typing (e.g., Cleveland & Baker, 1987; Schein, 1975), placing an emphasis on stereotypical worker features (Perry, 1994). Perry and Bourhis (1998) assessed the impact of worker features (i.e., personality traits) on employment decisions. Their study included a young-typed job (i.e. pizza delivery driver) and a less young-typed job (i.e. fast food worker). The job that was more strongly young-typed involved a person-in-job prototype that included more stereotypically younger worker features. In other words, jobs that are more strongly young-typed are accompanied by more job stereotypes related to age. Since older workers possess features that are often in contrast to prototypical younger worker features perceived to be important to the job, older workers applying for the less young-typed job received more positive evaluations than those applying for the more young-typed job. Stereotypical older worker features contrasted more with the prototypical pizza delivery driver than the prototypical fast food worker. Therefore, older worker ratings in the fast food job were not as negatively affected by rater perceptions. Their study illustrated the significance of feature centrality. As the degree to which stereotypically older worker features become central to success on the job, the match between worker features and person-in-job prototype features strengthens, and perceptions of job age-type intensify.

Panek et al. (2006) found that the extent of age-related job demands in occupations impacted perceptions of optimal performance and recommended retirement ages. Specifically, raters' perceived age of optimal performance and recommended retirement were lower for job clusters that contained greater physical demands. In a review of these findings, Finkelstein and Farrell (2007) mention that the greater the relevance of stereotypically age-based features to job success, the more age becomes a central feature. As age becomes a central feature, the job is likely to become stereotyped more strongly as older or younger (Perry & Bourhis, 1998; Perry, 1994). Yet, no study has directly assessed the relationship between centrality of stereotypically older worker features in various jobs and perceptions of job age-type. The present study aimed to extend the present literature by assessing this relationship.

Hypothesis 1a: As stereotypically positive older worker features increase in centrality, occupations were expected to be perceived as old-typed.

Hypothesis 1b: As stereotypically negative older worker features increase in centrality, occupations were expected to be perceived as young-typed.

Proportional representation

The predominant approach to explaining occupational age-type is that of proportional representation (Cleveland et al., 1988; Cleveland & Hollmann, 1990; Cleveland & Shore, 1992; Shore et al., 2003; Lawrence, 1988; Ostroff & Atwater, 2003). This literature is largely based on Gordon and Arvey's (1986) conclusion that certain occupations are commonly perceived as occupied by younger workers, whereas others are perceived as occupied by older workers. The logic behind the proportional representation approach is that the actual or perceived age composition of occupations determines individuals' perceptions the job's age-type. That is, greater representation of a particular subgroup is likely to influence one's belief regarding that

subgroup's suitability in a respective occupation.

Proportional representation was initially assessed in gender discrimination literature, where it was determined that perceived and actual disparity in subgroup representation has been shown to impact perceived stereotypes of occupations (Beggs & Doolittle, 1993; Krefting, Berger, & Wallace, 1978; Oppenheimer, 1968; Shinar, 1975). Additionally, Krefting et al. (1978) found that the actual base rate of male and female workers in an occupation was the most important predictor of job sex-type, over job content and occupational classification. As a result, as the proportion of subgroup representation changes, the perception of the job itself may shift (Beggs & Doolittle, 1993; Shinar, 1975). In addition to the actual subgroup distribution in occupations, it has also been demonstrated that the perception of these distributions formulates a partial basis for job stereotypes, also described as person-in-job prototypes (Kiesler, 1975; Krefting et al., 1978; Shinar, 1975, 1978).

This logic was later utilized in age discrimination literature to determine the impact of age composition in applicant pools (Cleveland et al., 1988). It was discovered that age composition affects perceptions of job age-types, such that a greater representation of older applicants causes the job to be viewed as more appropriate for older workers, whereas a greater representation of younger applicants causes the job to be viewed as more appropriate for younger workers. Their study also determined that proportional representation in the applicant pool affects ratings of recommendations for hire and potential to advance. In a follow-up study, Cleveland and Hollmann (1990) assessed the effect of proportional representation on job age-types and found that the age composition of workers within an occupation significantly predicts perceptions of age-type. That is, as the job's proportional representation of older workers increased, so did perceptions that the job was more appropriate for older workers as opposed to

younger workers. Additionally, as the job's proportional representation of younger workers increased, participants viewed the job as being more appropriate for younger workers. Through these studies, the foundation for the proportional representation approach and its prediction of job age-types was formed.

Other literature on proportional representation focused primarily on its relationship with personnel decisions and employment outcomes rather than stereotypes of jobs. Past research discovered that deviations from actual and perceived typical ages in jobs impacted managerial performance ratings (Cleveland & Shore, 1992; Lawrence, 1988). Additionally, perceived and actual age deviations from supervisors, subordinates, or workgroups also impacted employment outcomes (Cleveland, Montomery, & Festa, 1984; Ostroff & Atwater, 2003; Shore et al., 2003). These studies are consistent with the career timetables perspective in that proportional representation of older workers in various careers largely led to impressions that various occupations are more appropriate than others for workers of particular ages. Additionally, deviations in actual age and the perceived appropriate age for various jobs negatively impacted evaluations and employment outcomes.

Numerous studies have assessed the impact of proportional representation and age-type on employment outcomes (Cleveland & Shore, 1992; Lawrence, 1988; Perry & Bourhis, 1998; Perry et al., 1996). Yet, only one study has assessed the relationship between proportional representation of age in occupations to occupational age-type (Cleveland & Hollmann, 1990). Though their study found significant results for the effect of proportional representation on age-type, with a respectable effect sized ($\eta^2 = .30$), participants were not presented with real jobs. Instead, participants read a list of tasks that were more typical of older workers or younger workers and were told that the job in question was composed of either 100% older workers, 50%

older and younger workers, or 100% younger workers. Given this information, participants would then rate the degree to which the fabricated job was more typical of and appropriate for older and younger workers. My study has filled this gap by assessing the impact of actual and perceived proportional representation in a wide array of real occupations through US Census data and measures attaining perceived age proportions.

In the present study, participants responded to measures of perceived proportional representation, feature centrality, and age-type regarding 60 occupations. The selected occupations represented each of the five major occupational categories used by the US Census Bureau. For each occupation, participants first responded to items evaluating the degree to which stereotypically positive and negative older worker features are necessary to be successful on the job (i.e., feature centrality). Participants then responded to an item assessing the extent to which the occupation was composed of older and younger workers (i.e., proportional representation). Lastly, participants rated a completely different list of occupations on the degree to which the job is typical of and appropriate for a younger or older worker (age-type). Data regarding actual proportional representation of older and younger workers in specific occupations was attained by the US Census Bureau (2000). Hypotheses were tested by regressing age-type on feature centrality, perceived proportional representation, and actual proportional representation, while controlling for demographic variables.

A primary purpose of the present study was to fill the gap in age-type literature by assessing the impact of both actual and perceived proportional representation on age-type in actual occupations. Resulting from empirical and theoretical support in ageism and sexism literature, it was believed that actual and perceived proportional representation of age groups will significantly predict age-type.

Hypothesis 2a: The actual proportional representation of older workers in occupations was expected to predict age stereotypes of occupations. Specifically, as the actual proportion of older workers increases, the occupation was expected to be viewed as more old-typed.

Hypothesis 2b: The perceived proportional representation of older workers in occupations was expected to explain variance in the age stereotype of occupations. Specifically, as the perceived proportion of older workers increases, the occupation was expected to be perceived as old-typed.

Past studies have shown that demographic and cultural differences account for variations in actual and perceived age (Kastenbaum et al., 1972; Markides & Boldt, 1983; Montepare & Lachman, 1989). It is possible that individuals use career timetables to fill in information gaps and form impressions of age composition in the absence of relevant information. Since past literature suggests that perceived age composition is more predictive of organizational outcomes than actual age composition (Lawrence, 1988), and age-type is predictive of organizational outcomes, it was expected that perceived age composition better predicts occupational age-type than actual age composition.

Hypothesis 2c: The perceived proportional representation of older and younger workers was expected to explain more variance in the age stereotype of occupations than actual proportional representation.

CHAPTER 3: METHODOLOGY

Participants

Participants were 365 undergraduate students attending a large, southeastern university. Participants were enrolled in at least one psychology class and extra course credit was provided

for participation. 79 participants responded that they have worked five years or more, 209 worked fewer than five years, and 75 have never worked. Among racial categories, 251 responded as Caucasian, 37 African-American, 16 Asian, and 47 Hispanic. Lastly, 123 responded as being male and 238 as being female.

Selection of Occupations

The occupations considered for use in this study were all 472 civilian occupations listed by the U.S. Census Bureau (2000). The Census Bureau categorizes occupations into 5 broad categories, including: (1) *management, professional and related occupations, (2) service occupations, (3) farming, fishing, and forestry occupations, (4) construction, extraction, and maintenance occupations,* and *(5) production, transportation, and material moving occupations*.

To reduce the number of occupations to be rated, the 243 occupations containing fewer than 100,000 employees were removed. People who make employment decisions generally possess information relevant to the job. Therefore, it was important that the participants in my study were familiar with the jobs to be evaluated. Like other researchers (e.g., Cejka & Eagly, 1999), I conducted a pilot study to eliminate occupations that were unfamiliar to students. For each of the 229 occupations, pilot study participants responded to the item, "I am familiar with this occupation" using a 6-point Likert-type scale ranging from 1 ("disagree very much") to 6 ("agree very much"). The 12 occupations that received the highest familiarity ratings in each of the five major occupational categories were included, resulting in a total of 60 occupations. See table 2 for a list of all occupations selected for analysis.

Procedure

All measures were administered online through SONA systems. Participants received written instructions regarding completion of all measures prior to survey administration. Once all

surveys were complete, participants were debriefed and thanked.

Participants were first randomly assigned to one of three surveys containing the feature centrality, proportional representation, normative age, and optimal performance age measures. Each group completed the same measures, but the jobs under analysis in each group were different. Participants were then randomly assigned to one of three surveys containing the age-type measure. Assignment to the age-type measure was setup so that no participant rated the same jobs on the age-type measure as all other measures. Once the occupational ratings were complete, participants completed the demographics measure. Once the measures were complete, participants had the opportunity to take a memory quiz, matching jobs to job descriptions. This quiz was announced at the beginning of the study to encourage participants to pay attention throughout the survey. The top 20 participants received a $5 Amazon.com gift card. Following the memory quiz, a debriefing statement was displayed and participants were thanked for their time.

Measures

Feature Centrality

To assess the degree to which stereotypical older worker features match central features of ideal person-in-job prototypes, a measure of feature centrality was utilized. This measure was a modified version of Cejka & Eagly's (1999) measure of belief in gender-stereotypic attributes' importance to success. While the focus of the present study was age, the gender related features in the existing measure will be replaced by those in Marcus et al. (2011) work-related, age-based stereotype scale (WAS). Unlike earlier age-based stereotype measures, the WAS has been designed to directly apply to the workplace. It involves 24 items, divided into four dimensions, each containing six items. The dimensions include competence ($\alpha = .89$), adaptability ($\alpha = .85$),

stability (α = .85), and warmth/friendliness (α = .92). The stereotypical older worker features in this measure were used in the feature centrality measure. For each occupation and feature, participants were asked "please identify the extent to which you believe each worker feature presented is necessary to be successful in the job."

To avoid central tendency bias, response options were on a 6-point Likert-type scale (Nunnally & Bernstein, 1994). Response options range from 1 ("Disagree Very Much") to 6 ("Agree Very Much") and were chosen in accordance with Bass, Cascio, and O'Connor's (1974) magnitude estimations. An average across all items within each dimension will be calculated to attain overall scores for each dimension.

Perceived Proportional Representation

The proportional representation measure was similar to the sex distribution measure used by Cejka and Eagly (1999), which yielded an alpha coefficient of .99. Their measure asked participants to identify the percentage of employees who are women in a given occupation. Given that sex is a dichotomous variable, the proportion of men to women is attainable from this open ended response. However, unlike sex, age is not a dichotomous variable. For each occupation, therefore, participants were presented with the item "to the best of your ability, identify the proportion of workers 50 years of age or older relative to workers 39 years of age or younger." This item was written to be consistent with age categories used by the US Census. Response options were on a 5-point Likert-type scale ranging from 1 ("far more younger workers than older workers") to 5 ("far more older workers than younger workers.") The scaling is based on Kanter's (1977) group types, which include uniform, skewed, tilted, and balanced groups. Uniform groups were excluded from the measure, as it was unrealistic that 100% of all workers in any occupation are older or younger according to the age categories employed in this study.

Skewed groups were represented by the most extreme response options (1 and 5), tilted groups were represented by the intermediate response options (2 and 4), and balanced groups were represented by the central response option (3). Proportional representation items for each occupation were located following the feature centrality items corresponding to the same occupation. For example, participants were asked to estimate the proportional representation for the occupation of secretary after responding to the feature centrality items for the occupation of secretary.

Occupational Age-Type

This study utilized a two-item age-type measure developed by Cleveland and Hollmann (1990). The first item asked raters to describe the job using a 9-point Likert-type scale ranging from 1 ("younger worker's job") to 9 ("older worker's job"). The second item asked raters to indicate who would be the most appropriate person for the job, with response options ranging from 1 ("younger worker") to 9 ("older worker"). Response options included the term "worker" in place of the original term "person" to ensure the level of abstraction was consistently on the worker level. This dependent measure was modified from that used by Shinar (1975) and Beggs and Doolittle (1993) to assess the degree to which occupations are masculine or feminine. Shinar's measure utilized a 7-point graphic scale ranging from 1 ("Masculine") to 7 ("Feminine"). The within subjects reliability on their scale was .78 and the test-retest reliability over a 3 week period was .97.

Alternative Age-Type Measures

For exploratory purposes, measures attaining the normative and optimal performance age of the job were also included. Consistent with past studies (Gordon & Arvey, 1986; Panek et al., 2006), these items were open ended. For each job, items simply read "please identify the typical

age of workers in the job of…" and "please identify the optimal performance age of workers in the job of…"

Actual Proportional Representation

Since the release of 2010 EEO data has been postponed until Fall 2012, actual proportional representation data was attained via the US Census Bureau (2000). Proportional representation will be operationalized as the ratio of older workers to younger workers in each job.

Demographics and Culture

Due to the relationship between age bias and rater age (Finkelstein et al., 1995; Shore et al., 2003), race (Crew, 1984), gender (Chiu et al., 2001; Connor et al., 1978), and national culture (Levy & Langer, 1994; Perry & Parlamis, 2005), differential predictability was be assessed amongst subgroups. Specifically, the demographics measure was designed to capture rater age, race, gender, and work experience.

CHAPTER 4: RESULTS

Data Preparation

Data preparation was conducted using SPSS 19.0 and Microsoft Excel 2010. To help identify random responding, the feature centrality and age-type measures contained two duplicate items on each page. Correlations were calculated between the duplicate items for each participant. Data from participants with correlations below .70 on either measure were further analyzed. Of these participants, those with responses that appeared invalid (e.g., all responses were the same, large amount of missing data, etc.) were removed from the dataset. The correlation between duplicate items was .74 for the feature centrality measure and .72 for the age-type measure following removal of the bad data. Initially, the dataset contained 412 participants. After removing participants determined to provide invalid data, the total number of observations was 365. All remaining analyses were conducted on data from the sample of 365 participants.

Variable-level data were calculated for each job. In this process, the 60 jobs selected for this study became the unit of analysis ($N = 60$). Data points for each job were calculated by averaging the responses for each item across all participants. Multivariate outliers on the primary dependent variable, age-type, were identified using Cook's distance and the plot of Cook's distance by job number, as recommended by Fidell and Tabachnick (2007). No jobs were identified as substantially distant or out of line with the rest of the jobs. Therefore, the final dataset contained $N = 60$ jobs.

Data Analysis

Which Occupations Are Age-Typed?

The main purpose of this study was to identify the age-type of jobs and explain why the jobs are age-typed. To identify the age-type of jobs, 60 occupations were rated by participants on the degree to which each job is more appropriate for older or younger workers. As seen in Table 2, the jobs were then ranked from the most young-typed to the most old-typed occupations according to their mean age-type score on a 9-point scale (1 = strongly young-typed; 5 = age-neutral; 9 = strongly old-typed). The jobs perceived as most young-typed are *recreation and fitness workers* (M = 2.08, SD = 1.10), *bartenders* (M = 2.46, SD = 1.58), and *hosts/hostesses* (M = 2.49, SD = 1.49). Those perceived most strongly as old-typed are *psychologists (clinical)* (M = 6.18, SD = 1.73, *bus drivers* (M = 6.06, SD = 1.47), and *librarians* (M = 5.92, SD = 1.46). Lastly, those perceived to be the most age-neutral are *carpenters* (M = 5.00, SD = 1.51), *maintenance and repair workers* (M = 5.03, SD = 1.59), and *education administrators* (M = 5.03, SD = 1.66).

Each job was classified into one of five major categories, according to the standard occupational classification (SOC). To assess for differences in perceived age-type across the five occupational categories, a one-way ACNOVA was performed, while controlling for salary. A significant main effect was found for occupational category, F (1, 4) = 4.95, $p < .01$, $\eta^2 = .27$. LSD post-hoc analyses were performed to specify the differences between the categories. The service occupation category was the only one to differ from the other four categories. *Service occupations* (M = 3.64, SD = 1.12) were perceived as significantly more young-typed than *management* (M = 4.65, SD = 1.24, $p < .01$), *production* (M = 4.97, SD = .68, $p < .01$), *construction* (M = 4.73, SD = .29, $p < .01$), and *farming, fishing and forestry* (M = 4.42, SD = .93, $p < .05$). No other differences were found.

Variable Intercorrelations

Pearson correlations were calculated for all variables (see Table 3), including the optimal performance age and normative age of workers in various occupations. Normative age represents the typical age of an individual in an occupation and optimal performance age embodies the age at which individuals are expected to display their highest degree of performance. Correlational analyses revealed that occupational age-type was highly correlated with normative age ($r = .92$, $p < .001$) and optimal performance age ($r = .92$, $p < .001$). Additionally, the correlation between optimal performance age and normative age ($r = .97$, $p < .001$) was nearly perfect. The exceptionally high correlations shared amongst these variables indicate that they may be measuring the same construct. Due to the high degree of overlap among these variables, I will only use the hypothesized variable (age-type) as the dependent variable in this study.

Since age was expected to be associated with increased salary, the median salary of job incumbents was also included as an exploratory variable. It was discovered that salary was significantly related to age-type ($r = .44$, $p < .001$), as well as all hypothesized predictors except warmth/friendliness (see Table 3). In an effort to ensure that the relationships between the hypothesized predictors and age-type are not confounded by salary, it was added as a control variable in all regression analyses reported in the following section.

Why Are Occupations Age-Typed?

Feature centrality

The formal hypotheses of this study were designed to explain why occupations are age-typed. Hypothesis 1 states that age-type will be predicted by the degree to which older worker stereotypes are relevant to the occupation. Specifically, when stereotypically positive older worker features are central to the job, the job will be viewed as more appropriate for older

workers (H1a), and when stereotypically negative older worker features are central, it will be viewed as more appropriate for younger workers (H1b). To test these hypotheses, age-type was simultaneously regressed on positive feature centrality dimensions (stability and warmth/friendliness) and negative feature centrality dimensions (competence and adaptability), while controlling for salary. As shown in table 4, feature centrality dimensions predict a substantial amount of variance in age-type over and above median salary, $\triangle R^2 = .40$, $F(4, 53) = 15.23$, $p < .001$. Both negative feature centrality dimensions (competence and adaptability), and one positive dimension (stability) predicted the job's age-type. Specifically, as competence ($\beta = 1.8$, $t(53) = 3.05$, $p < .001$) and stability ($\beta = .63$, $t(53) = 2.26$, $p = .03$) increase in importance to job success, jobs were viewed as more appropriate for older workers. Alternatively, a negative relationship was found for adaptability ($\beta = -2.55$, $t(53) = -5.77$, $p < .001$), which suggests that jobs become viewed as less appropriate for older workers as adaptability features increase in importance. Since the important stereotypically older worker features do predict impressions of age-type, but only adaptability and stability were significant in the correct direction, hypotheses 1a and 1b were partially supported.

Proportional representation

In addition to assessing the importance of older worker stereotypes, my study also assessed the impact of the actual and perceived representation of older to younger workers in the job. Specifically, as the actual (*H2a*) and perceived (*H2b*) proportion of older to younger workers in the job increases, the job was expected to be perceived more as old-typed and as the proportion decreases, the job was expected to be perceived more as young-typed. Lastly, hypothesis 2c attempts to identify the importance of one's perceived environment over the actual environment. Specifically, the perceived proportional representation of older and younger

workers in an occupation was expected to be a better predictor of age-type than the actual proportional representation.

It was discovered that the actual proportional representation of older to younger workers has a moderately strong zero-order correlation with age-type ($r = .55$, $p < .001$), whereas the perceived proportional representation has a very strong relationship ($r = .89$, $p < .001$). Additionally, perceived proportional representation was significantly more related to age-type than actual proportional representation ($z = -4.29$, $p < .001$). This indicates that the *actual ages* of workers presently in a job somewhat predicts impressions of who should occupy that job, yet the *perceived ages* of current workers greatly predicts impressions of whom is more appropriate for the job, supporting hypotheses 2a-c.

Additionally, when age-type was regressed onto all hypothesized predictors, 85% of the variance in age-type was explained ($R^2 = .85$, $F(7, 51) = 41.55$, $p < .001$) and the only predictor to remain significant was perceived proportional representation ($\beta = .69$, $t(53) = 7.88$, $p < .001$) (see Table 4). This finding suggests that it is one's perception job holder ages rather than the actual job holder ages that predicts perceptions of a job's age-type, further supporting hypothesis 1c. Additionally, it is the general perception of whether a greater number of younger workers or older workers occupy a job, rather than specific older worker stereotypes that overwhelmingly predicts perceptions of who belongs in the job.

Exploratory Analyses

Demographic and cultural differences in the prediction of age-type

The findings of this study identify that feature centrality and proportional representation are significant predictors of age-type in the overall sample; however, exploratory analyses examined the possibility that the variables predict age-type differently for people representing

different demographic categories. To test this, the sample was split according to race, work experience, and gender. First, item scores for each occupation were averaged across respondents within the categories of Caucasian (n = 251), African-American (n = 37), Asian (n = 16), and Hispanic (n = 47). Since salary did not significantly predict age-type in the Asian and African-American groups, it was excluded as a control variable when assessing the differential prediction of hypothesized variables. Perhaps the most notable finding was the reduced overall amount of variance accounted for in predicting age-type for Asians (R^2 = .36, F(6, 53) = 4.92, p < .001) and Hispanics (R^2 = .63, F(6, 53) = 15.05, p < .001), compared to Caucasians (R^2 = .85, F(6, 53) = 49.66, p < .001) and African-Americans (R^2 = .69, F(4, 55) = 6.67, p < .001). Additionally, the Asian group was unique in that feature centrality was not a significant predictor of age-type (R^2 = .09, F(4, 55) = 1.39, *ns*) and actual proportional representation (β = .40, t(53) = 3.07, p < .01) was a stronger predictor of occupational age-type than perceived proportional representation (β = .28, t(53) = 2.21, p = .03). However, according to a dummy coded interaction model (Fox, 2008), the overall difference between predictor slopes of the Asian and Caucasian groups was only marginally significant ($\triangle R^2$ = .05, F(13, 106) = 9.76, p = .08).

Group differences were also assessed according to raters' years of worker experience. The data were grouped according to the number of years that the rater has been employed. The groups consist of no work experience (n = 75), fewer than five years (n = 207), and five years or greater (n = 79). The most notable finding was that the hypothesized variables did not predict age-type as strongly for those with five or more years of experience (R^2 = .79, F(6, 53) = 32.31, p < .001), relative to those who worked fewer than five years (R^2 = .85, F(53, 6) = 48.22, p < .001), and those who have never worked (R^2 = .84, F(53, 6) = 45.65 p < .001). Additionally, stereotypically older worker features are more strongly related to occupational age-type for those

who have never worked (R^2 = .47, F(4, 55) = 12.40, p < .001), relative to those who have worked five years or more (R^2 = .31, F(4,55) = 6.04, p < .001). However, a dummy coded interaction model was used to test for significant differences between those with no work experience and those with five years of more, as suggested by Fox (2008). It was discovered that there were no significant mean differences ($\triangle R^2$ = .01, F(7, 112) = 52.71, *ns*) and no significant slope differences ($\triangle R^2$ = .02, F(13, 106) = 29.29, *ns*) across the work experience groups.

As with the other demographic groups, the sample was split according to gender (n = 123 males and 238 females). The overall degree of variance explained by all hypothesized predictors was roughly the same for males (R^2 = .84, F(53, 6) = 46.31, p < .001) as it was for females (R^2 = .85, F(53, 6) = 49.66, p < .001). However, warmth/friendliness was the only significant feature centrality dimension for females, whereas the dimension of stability, as well as warmth/friendliness was significant for males.

Holland's RIASEC typology

The last exploratory analysis assessed the relationship between age-type and Holland's (1985) model of vocational personalities. Each occupation was coded according to their most relevant RIASEC dimension, as reported on O*NET. A one-way ANCOVA revealed that the RIASEC dimensions were significantly related to age-type (F(5, 52) = 2.45, p <.01, η^2 = .27), when controlling for salary. An LSD post-hoc analysis was conducted to assess the differences among the RIASEC dimensions. It was discovered that artistic dimensions were perceived as the most young-typed (M = 3.14, SD = 1.01), and they were significantly more young-typed than conventional (M = 4.75, SD = 1.18), realistic (M = 4.77, SD = .60), and investigative occupations (M = 5.38, SD = 1.01, p < 05).

CHAPTER 5: DISCUSSION

This study was conducted to identify the degree to which a wide array of occupations are age-typed, and then use theory to explain why these occupations are perceived as more appropriate for older or younger workers. It was discovered that people do hold age stereotypes of jobs and the degree to which each job was stereotyped as old or young is presented in table 2. Perceptions of age-type were predicted by the importance of stereotypically age-related features to the job (i.e., feature centrality), supporting prototype matching theory. However, the best predictor of age-type was the perceived representation of older and younger workers in the job (i.e., proportional representation), supporting career timetables theory. In fact, when all predictors were placed in the model, 85% of the variance was explained and the only significant predictor was perceived proportional representation. These results suggest that when determining who belongs in a particular job, people predominately rely on general impressions of current worker ages, rather than specific older worker features or stereotypes. These findings, along with their implications and limitations, are addressed below.

Which Occupations Are Age-Typed?

The degree to which each job was found to be age-typed is presented in table 2. Since the job context has been seen to impact the perceived fit of older workers, it is critical to account for the age-type of the job when conducting ageism research (e.g., Cleveland & Hollman, 1991; Cleveland & Landy, 1983). As a result, table 2 was created to help future researchers identify jobs that are stereotyped according to age.

Studies using a strongly young-typed occupation and a weakly old-typed occupation would likely cause the perceived fit of older workers in the strongly young-typed occupation to be worse than the fit of the younger worker in the old-typed design. Conversely, a weakly young-

typed job and a strongly old-typed job would cause the fit of the older workers in the weakly young-typed job to be better than the fit of the younger worker in the strongly old-typed job. Therefore, use of this list to choose old-typed and young-typed jobs of equal magnitude will improve future study designs, in addition to saving researchers effort in conducting pilot studies.

At the top of table 2 are the most young-typed jobs. In the future, if a researcher is interested in selecting the most young-typed jobs for a study, some options include recreation and fitness workers, bartenders, hosts, and hostesses, waiters and waitresses, teacher assistants, and cashiers. Conversely, if a researcher wants the most old-typed occupations, some choices are psychologist (clinical), bus drivers, librarians, postal service clerks, and dentists. However, it is important to note that the most old-typed jobs and most young-typed jobs identified in this study are not age-typed to the same degree. The young-typed jobs displayed a tendency to be viewed as more strongly age-typed than the old-typed jobs. As a result, if a researcher wanted to choose an old-typed job and a young-typed job that are age-typed to the same degree, then it would be important to choose jobs that are not as strongly young-typed such as preschool and kindergarten teachers, fire fighters, and hair stylists and cosmetologists. By choosing a job like kindergarten teacher for a young-typed job and psychologist for an old-typed job, both jobs will be age-typed to an equal degree, making it so the perceived fit of an older worker in the young-typed job is similar to that of a younger worker in the old-typed job. Additionally, each job in this study is listed on the occupation information network (O*NET). Therefore, when selecting occupations researchers will also be able to account for numerous other job features relevant to the study, such as industry, salary, RIASEC dimension, and expected growth.

Studies based on prototype matching theory (Perry, 1994) have operationalized age-type as the number of age-related features central to success in a job (e.g., Perry & Bourhis, 1996).

Researchers who wish to account for the centrality of age related features can use the results presented in Table 2 to quantify how each occupation is viewed in terms of older worker stereotypes (i.e., competence, adaptability, stability, and warmth/friendliness).

Why Occupations Are Age-Typed

Importance of Stereotypically Older Worker Features To the Job

In addition to identifying the age-type of jobs, another goal of this study was to explain why occupations are age-typed. Consistent with prototype matching theory (Perry, 1994), I predicted that the degree to which stereotypically older worker features are central to the job would be an important predictor of age-type. Feature centrality dimensions (i.e., competence, adaptability, stability, and warmth/friendliness) predicted 40% of the variance in age-type, when controlling for salary. This finding supports prototype matching theory (Perry, 1994), in that age-type was related to the fit between stereotypically older worker features and the features central to the job. Past studies have operationalized age-type and feature centrality as the same construct. Though feature centrality substantially predicted age-type, the correlation is not high enough to view them as the same construct. Therefore, future studies should view feature centrality as conceptually distinct from age-type.

Using prior occupational sex-typing research as a guide (e.g., Cejka & Eagly, 1999), my study extended the ageism literature by looking at the degree to which each age-related feature is relevant to the job. Past studies merely assessed the impact of the quantity of age-related features or tasks (Cleveland & Hollman, 1990; Perry & Bourhis, 1998). Instead of just assessing the *number* of age-related features associated with the job, my study assessed the *importance* of each feature to the job. Additionally, past studies used ratings of suitability as their outcome variables rather than age-type. Therefore, this was the first study to assess the relationship between age-

type and the importance of stereotypically older worker features. In response to Finkelstein et al.'s (1995) request to include commonly accepted features of older workers in age-type research, my study found that the degree to which stereotypically older worker features are central to a job is associated with impressions of who belongs in that job.

Though the feature centrality dimensions were found to significantly predict age-type, the relationship between the dimension of competence and age-type was not in the hypothesized direction. According to past research (Kite et al., 2005), older workers are stereotyped to be less competent. However, I found that jobs viewed as more appropriate for older workers require a higher degree of competence. Therefore, even if older workers apply for old-typed jobs, they will still be viewed as a poor fit on one feature centrality dimension. This finding may help explain Perry et al.'s (1996) finding that older workers were evaluated significantly lower than younger workers in the young-typed job, but there was no significant difference in the old-typed job. This asymmetrical relationship between age and age-type makes it so older workers are never at an advantage over younger workers, they can only level their playing field by applying to old-typed jobs. Unfortunately, roughly three times fewer workers are needed to fill the strongly old-typed jobs than the strongly young-typed jobs (U.S. Census Bureau, 2000). As a result, older workers are not only limited in their ability to become hired, they are also limited in the ability to simply find openings and apply for jobs that are congruent with their ages.

The Relationship between Who We Think Occupies the Job and Who We Think Should Occupy the Job

Under the guidance of career timetables theory, this study also hypothesized that the proportion of older workers relative to younger workers in each job predicts perceptions of who should be in that particular job (i.e., younger or older workers). These hypotheses were supported

in that both actual proportional representation (from U.S. Census data) and perceived proportional representation (from subjective ratings) significantly predicted age-type. This finding is consistent the career timetables perspective that perceptions of job occupants' ages (i.e., proportional representation) should be the best predictor of who we believe should occupy that particular job (age-type). The finding that perceived proportional representation is the best predictor of age-type supports the career timetables perspective for how age-type is formed. The career timetables perspective also theoretically extends the present findings. Specifically, the likelihood of discrimination is greatest for older workers applying for jobs identified in this study as young-typed. Therefore, my findings supports career timetables theory's notion that the age of those who occupy the job predict the age of who we believe should be in the job, and through this theory, it is possible to logically determine the jobs wherein older workers are most likely to experience discrimination (i.e., jobs most strongly young-typed).

The results of this study are also consistent past empirical studies, such as Cleveland and Hollmann's (1990) study assessing the impact of proportional representation on age-type. Through an experimental design, they discovered that proportional representation explains 30% of the variance in age-type. Their study, however, did not use real jobs and operationalized proportional representation through telling participants that the job is composed of all younger workers, all older workers, or 50/50. My study differed by using actual jobs and attaining data representing the actual age composition and perceptions of the age composition in these jobs. By operationalizing proportional representation separately as actual and perceived, my study found that perceived proportional representation explains 79% of the variance in age-type.

Additionally, perceived proportional representation is the only one that remains significant. Therefore, our perception of who occupies a particular job is the greatest predictor of

who we think belongs in that job (i.e., older or younger workers). This finding is consistent with past sex-typing literature. Krefting et al., (1978) found that perceived proportional representation was the greatest predictor of sex-type, even over the content of the job. Similarly, my study had the content of the job operationalized as feature centrality, which became non-significant when accounting for the perceived proportional representation. This pattern of results is noteworthy in that it provides an answer to the question of why we perceive jobs as age-typed. Specifically, perceptions of who occupies a particular job form impressions of who belongs in that job. However, my study was strictly correlational in design and additional studies are required to support the causal nature of these links.

According to career timetables theory and past empirical findings, the proportional representation of jobs also extends to discrimination. Specifically, age-type likely mediates the relationship between proportional representation and age-discrimination. Past studies have shown that when a worker's age exceeds the ages of those who occupies the job, discrimination is more likely (Cleveland & Shore, 1992; Lawrence, 1988). Since my study demonstrated that proportional representation predicts age-type, and past studies have shown that proportional representation leads to discriminatory behavior, it is likely that age-type mediates the relationship between proportional representation and discrimination. In other words, it is likely that our impressions of the workers who occupy a particular job leads to our impression of should occupy the job, which ultimately impacts our behavior toward workers who differ from our impression of who belongs in that job.

The finding that perceived proportional representation is the strongest predictor of age-type, washing out the variance explained by actual proportional representation and feature centrality, greatly extends our current understanding of the age-type construct. With this greater

understanding of the age-type construct, the age-type literature is ready to bridge the gap between the predictors of age-type and discrimination. Both theory and past findings suggests that the mechanism through which proportional representation and feature centrality lead to discrimination is through age-type. Future researchers can use my findings to establish *a priori* hypotheses regarding the links between age-type antecedents (i.e., proportional representation and feature centrality) and outcomes (i.e., discrimination).

Occupational Classification Systems

One advantage of this study is that it used a sample of jobs representative of the standard occupational classification (SOC) system, which is also the classification system used by the US Census Bureau, Bureau of Labor Statistics, and O*NET. Matching occupations to those used by major data sources provides an advantage over Roe's (1956) classification system, which has been used by past researchers (e.g., Gordon & Arvey, 1986). Roe's (1956) classification system consists of 8 groups of occupations (i.e., service, business contact, organization, technology, outdoor, science, general cultural, and arts and entertainment) which are further grouped according to 6 ability and motivation levels (i.e., professional and managerial – 1, professional and managerial – 2, semiprofessional and small business, skilled, semiskilled, unskilled). The primary advantage of Roe's system is that it was based on psychological concepts, however, Holland's (1966) classification was also based on psychological concepts, developed through empirical means, and has been shown to be nearly identical to Roe's (1956) classification (Zytowski, 1986). Because O*NET lists Holland's classification dimensions for each job, future researchers can easily recategorize this study's jobs according to a more psychologically based classification system if desired.

Exploratory Analyses

Ethnic and Cultural Differences

Exploratory analyses suggest that there may be ethnic and cultural differences in occupational age-type perceptions. Though the dummy coded regression model revealed no significant overall difference between ethnic groups, general trends in the regression coefficients suggest that the results may be culturally bound. For example, Asians used the older worker stereotypes far less than Caucasians when forming impressions of age-type. This trend may be explained by Hofstede's (1991) individualism-collectivism cultural dimension, wherein cultures with loose ties amongst people are individualistic and those with strong ingroups to which people devote themselves for protection are collectivistic. Given that Caucasians are generally more individualistic and Asians are generally more collectivistic (Hofstede, 2001), the general trend in my findings lacks consistency with past research showing that older worker stereotypes are generally similar across individualistic and collectivistic cultures (Cuddy, Norton, and Fiske, 2005; Cuddy et al., 2009).

According to the stereotype content model (Fiske, Cuddy, & Glick, 2007), stereotypes share the dimensions of competence and warmth across cultures. The robustness of these stereotype content dimensions results from their ability to answer the primal questions of whether another person intends to harm and is capable of harm. Past studies have supported the use of these stereotypical dimensions across multiple individualistic (i.e., United States and Europe) and collectivistic nations (i.e., Eastern Asia) (Cuddy et al., 2009; Cuddy et al., 2005). Therefore, at least two out of the four stereotypical dimensions used in my study are also prevalent in Asian cultures, which is inconsistent with the finding that Asians used the stereotypes listed in my study less. Due to the inconsistencies with past literature as well as the

use of a sample that does not thoroughly represent individualistic and collectivistic cultures, it would be irresponsible to draw culturally-based conclusions from the present findings. Rather, the differences found among racial groups suggest that the results of this study are culturally bound. Additional research is needed to assess the use of stereotypes and perceptions of job occupants when forming impressions of age-type across cultures. Specifically whether different cultures use stereotypes to varying degrees or simply use different stereotypes.

Experience and Relevant Information

Though the dummy coded regression model revealed no overall difference between work experience groups, the general trends found in the regression coefficients are consistent with the literature on novice versus expert opinion (Fiske, Kinder, & Larter, 1983). It was discovered that those with 5 or more years of work experience used older worker stereotypes less when forming impressions of who belongs in particular occupations. In the present study, those without work experience may represent novices, whereas those with five or more years of experience may represent experts. Like past studies (see Herr, 1989), it was discovered that novices tend to rely on stereotypes more than experts when forming opinions. Those with greater experience in the workforce are more likely to possess knowledge that can be used when individuating jobs. Since people with access to individuating information tend to use stereotypes less (Fiske & Neuberg, 1990; Kite et al., 2005), it makes sense that those with experience and knowledge did not rely on older worker stereotypes as much when forming impressions of age-type. Since the fluctuations were not significant, but the general trends were consistent with past literature, future researchers may want to further examine the relationship between work experience and impressions of age-type in a more controlled setting.

Occupational Classification Method

It was also discovered that the occupational categorization, whether task or psychologically based, had a significant relationship with age-type. Specifically, the standard occupational classification (SOC) and Holland's RIASEC occupational classification each individually accounted for 27% of the variance in age-type. These findings are consistent with past sex-type literature, which found that gender differences in both personality, as well as physical features, largely predict division of labor across occupations (Cejka & Eagly, 1999). According to our results, both the personality-based (i.e., RIASEC dimensions) and task-based (SOC) classifications, explain the same amount of variance in age-type, just in different ways.

When occupations were categorized according to the SOC, *service occupations* were found to be significantly younger in age-type than the other occupational categories. In the RIASEC model, *artistic* occupations were found to be viewed as significantly younger than other job categories. Therefore, depending on whether you categorize jobs by the nature of the work or the vocational personality of the worker, our perceptions of who belongs in various job categories may differ.

Operationalization of Age-Type

Past studies have operationalized the concept of age-type in a variety of ways, such as normative age (e.g., Gordon & Arvey, 1986) and optimal performance age (e.g., Panek et al., 2006). In my study, the alternative measures of age-type (normative age and optimal performance age) and the age-type measure had near perfect intercorrelations with one another. These relationships were strong enough for each variable to be considered representations of the same age-type construct. Not surprisingly, the variables had nearly identical relationships with hypothesized predictors. These findings suggest that it does not matter which operationalization

of age-type is used.

Limitations

Participant Sample

One limitation was the use of a student sample. The use of only students makes it so that my sample is not fully representative of individuals who would make hiring decisions, reducing external validity. However, since most raters have been employed and the rater's amount of work experience did not significantly impact ratings, the findings in this study should be generalizable to the workplace. The validity of this study is also limited in that the participants were not accountable for their decisions. Past ageism studies have shown that raters rely more on stereotypes when they had to defend their ratings to a panel of personnel managers (Gordon, Rozelle, & Baxter, 1988). Since older workers are viewed as more costly to the organization (Posthuma & Campion, 2008), it is possible that applicants held accountable will use that negative stereotype over more positive older worker features. By holding participants accountable for their answers, responses would have been more representative of that which would have occurred in a real employment context.

Another limitation is that the present study did not have a large enough representation of older and middle-aged adults to perform any analyses involving the age of the rater. Past research has shown that both the age of the rater, as well as whether the sample consists of students, impacts the outcomes. For instance, student participants have been shown to evaluate older workers more negatively than supervisors (Gordon and Arvey, 2004) and middle-aged raters are the most likely to prefer younger over older adults (Kite et al., 2005). By including a better representation of middle-aged and older workers, the sample would have been more representative of the population of interest and it would have been possible to assess for

differences across age groups.

Study Design

This study used a cross-sectional design, which limits the ability to establish temporal precedence and make causal inferences. Therefore, the effect sizes in this study simply indicate the strength of a relationship and any notions of temporal precedence and causality can only be justified through theory. A stronger study design would have been required to establish the direction of the relationship between the age-type and the identified predictors (i.e. feature centrality and proportional representation).

Availability of Census Data

It was expected that the 2010 census data regarding the age composition of jobs would be available prior to the completion of this study; however, release of the data was postponed to Fall 2012. Hence, 2000 census data were used and may not be as representative of the current work environment as desired.

Directions for Future Research

A major contribution of this study was identifying the links between age-type and its theoretical antecedents (i.e., feature centrality and proportional representation). The value of this contribution, however, would be much greater if it extends to behaviors and outcomes in the workplace. Past studies have used career timetables and prototype matching theory to link proportional representation and feature centrality to worker evaluations and other outcomes of the interaction between the age-type of the job and the age of the worker (e.g., Cleveland & Shore, 1992; Lawrence, 1988; Perry et al., 1996; Perry and Bourhis, 1998). However, no study has attempted to see if these antecedents lead to work outcomes through general impressions of age-type. Future studies will need to assess how age-type, feature centrality, and proportional

representation interact with the worker ages and stereotypical features of older workers to ultimately predict the evaluation and treatment of older workers in various jobs.

By establishing the links between age-type, its antecedents, and its outcomes, researchers will be able to answer several lingering questions. For instance, career timetables theory states that discrimination occurs when older workers exceed the typical age of job incumbents. However, it seems more likely that discrimination would result from a mismatch between worker age and *perceptions* of who makes up the workforce (perceived proportional representation) or even perceptions of who *should* make up the workforce (age-type). Analysis of these links would also allow future researchers to test for a curvilinear effect or ceiling effect, wherein the age-mismatch effect would begin to level off as the worker continues to exceed the normative age. To answer these questions and extend our knowledge of age-bias, future researchers should use data presented in this study to design controlled lab experiments and high fidelity field studies that will assess the degree to which proportional representation and feature centrality predict behavioral outcomes through the construct of age-type.

In addition to linking age-type and its antecedents to employer behaviors, it would be of value to assess how the match between age-type and worker age predicts older worker feelings of discrimination and the likelihood to file legal action against an employer. Archival data regarding the age of workers, their occupation, and their feelings of discrimination is readily available through sources like the General Social Survey. Also, data concerning the number of ageism claims filed and damages awarded for each occupation is also available through published case briefs. Through these archival sources, it is possible for researchers to assess the relationship between age-type and various measures of discrimination. Specifically, researchers can identify whether a lack of fit between a worker's age and job's age-type is associated with a

higher likelihood of older workers experiencing discrimination and a greater possibility for employers to face legal action.

Lastly, to account for the fact that those who make employment decisions are usually at least somewhat familiar with the job in question, my study pilot tested for familiarity prior to selecting jobs. Past literature states that individuals with relevant information tend to stereotype less (Herr, 1989). Therefore, it is likely that participants would have relied on stereotypes more if the jobs in this study were unfamiliar, falsely inflating the statistical effects. Future researchers should consider whether their populations of interest are generally familiar with the jobs in question, as an increase in familiarity will likely increase participant reliance on stereotypes.

Conclusion

This study sought to determine the degree to which a wide array of jobs are age-typed, as well as identify predictors of age-type. Through survey methods, jobs representative of every major SOC category were ranked from the most young-typed jobs to the most old-typed jobs, with age-neutral in the middle. This ranking will serve as an aid to future researchers when selecting occupations or controlling for age-type in future studies, by eliminating the need to conduct pilot studies. Additionally, the ranking formed in this study shows the degree to which each job is age-typed, allowing future researchers to select old and young-typed jobs that are age-typed to the same degree. Since the ranking also contains scores for feature centrality dimensions, perceived proportional representation, and actual proportional representation, researchers attempting to assess the impact stereotypically age-related features associated with the job (i.e., feature centrality), the representation of age in the job (i.e., actual proportional representation), or the perceived representation of age in the job (i.e., actual proportional representation), will also have an aid, eliminating the need for pilot studies.

The present study also extended our understanding of age-type by identifying the predictors of perceived proportional representation, actual proportional representation, and feature centrality. The finding that feature centrality predicts age-type added support to prototype matching theory by showing that the degree to which older worker features are central to the job impacts impressions of whether older workers should be in that job. However, the finding that perceived proportional representation is the strongest predictor of age-type provides the greatest support for career timetables theory, which states that it was the representation of individuals in the job that predicted impressions of who should be in the job. Since perceived proportional representation was the only variable to remain significant when all predictors were added to the regression model, it is likely that our impressions of who belongs in a job (i.e., age-type) is predominately a function of who we believe presently occupies that job (i.e., perceived proportional representation). Therefore, it is the general impressions of who occupies the job, rather than specific matching of stereotypical features that is most responsible for predicting our beliefs of whether older or younger workers *should* occupy the job.

APPENXID A: MEASURES

Sample Feature Centrality Items with Perceived Proportional Representation Embedded

Please identify the extent to which you believe the below worker features are necessary to be successful in the job of: *Secretary and Administrative Assistant*

	Disagree very much					Agree very much
	1	**2**	**3**	**4**	**5**	**6**
1 Competence	1	2	3	4	5	6
2 High drive for achievement	1	2	3	4	5	6
3 Capable	1	2	3	4	5	6
4 High degree of performance	1	2	3	4	5	6
5 Productive	1	2	3	4	5	6
6 Skillful in job	1	2	3	4	5	6
7 Suitable for training	1	2	3	4	5	6
8 Potential for development	1	2	3	4	5	6
9 Fast learning	1	2	3	4	5	6
10 Flexible	1	2	3	4	5	6
11 Ability to learn new things	1	2	3	4	5	6
12 Responsive to training	1	2	3	4	5	6
13 Loyalty	1	2	3	4	5	6
14 Devotion	1	2	3	4	5	6
15 Dedication to work and professionalism	1	2	3	4	5	6
16 Stability	1	2	3	4	5	6
17 Dedication to the job	1	2	3	4	5	6
18 Ability and willingness to stay with the company for the long run	1	2	3	4	5	6
19 Warmheartedness	1	2	3	4	5	6
20 Warm personality	1	2	3	4	5	6
21 Likability	1	2	3	4	5	6
22 Cold personality	1	2	3	4	5	6
23 Kindness	1	2	3	4	5	6
24 Friendliness	1	2	3	4	5	6

To the best of your ability, identify the proportion of workers 50 years of age or older relative to workers 39 years of age or younger in the job of: *Secretary and Administrative Assistant*

≥ 39				50 ≤
Far more workers age 39 and younger				Far more workers age 50 and over
1	2	3	4	5

Please identify the typical age of workers in the occupation of *Secretary and Administrative Assistant:* _____

Please identify the optimal performance age of workers in the occupation of *Secretary and Administrative Assistant*: _____

Occupational Age-Type (With Sample Occupations)

1. Please circle the number indicating the degree to which the following jobs are typically a younger person's job or an older person's job.

		Younger worker's job								Older worker's job
1	Secretaries and Administrative Assistants	1	2	3	4	5	6	7	8	9
2	Retail Salespersons	1	2	3	4	5	6	7	8	9
3	Driver/Sales Workers and Truck Drivers	1	2	3	4	5	6	7	8	9
4	Elementary and Middle School Teachers	1	2	3	4	5	6	7	8	9
5	Cashiers	1	2	3	4	5	6	7	8	9
6	First-Line Supervisors/Managers of Retail Sales Workers	1	2	3	4	5	6	7	8	9
7	Registered Nurses	1	2	3	4	5	6	7	8	9
8	Customer Service Representatives	1	2	3	4	5	6	7	8	9
9	Janitors and Building Cleaners	1	2	3	4	5	6	7	8	9
10	Laborers and Freight, Stock, and Material Movers, Hand	1	2	3	4	5	6	7	8	9
11	Cooks	1	2	3	4	5	6	7	8	9
12	Waiters and Waitresses	1	2	3	4	5	6	7	8	9
13	Nursing, Psychiatric, and Home Health Aides	1	2	3	4	5	6	7	8	9
14	Accountants and Auditors	1	2	3	4	5	6	7	8	9
15	Bookkeeping, Accounting, and Auditing Clerks	1	2	3	4	5	6	7	8	9
16	First-Line Supervisors/Managers of Office and Administrative Support Workers	1	2	3	4	5	6	7	8	9
17	Office Clerks, General	1	2	3	4	5	6	7	8	9
18	Carpenters	1	2	3	4	5	6	7	8	9
19	Sales Representatives, Wholesale and Manufacturing	1	2	3	4	5	6	7	8	9
20	Other Production Workers, Including Semiconductor Processors and Cooling and Freezing Equipment Operators	1	2	3	4	5	6	7	8	9
21	Child Care Workers	1	2	3	4	5	6	7	8	9
22	Stock Clerks and Order Fillers	1	2	3	4	5	6	7	8	9
23	First-Line Supervisors/Managers of Production and Operating Workers	1	2	3	4	5	6	7	8	9
24	Miscellaneous Assemblers and Fabricators	1	2	3	4	5	6	7	8	9
25	Construction Laborers	1	2	3	4	5	6	7	8	9
26	Maids and Housekeeping Cleaners	1	2	3	4	5	6	7	8	9
27	Receptionists and Information Clerks	1	2	3	4	5	6	7	8	9
28	Postsecondary Teachers	1	2	3	4	5	6	7	8	9
29	Chief Executives	1	2	3	4	5	6	7	8	9
30	Marketing and Sales Managers	1	2	3	4	5	6	7	8	9

2. Please circle the number indicating the degree to which the following jobs are more appropriate for younger or older workers.

		Highly more appropriate for younger workers								Highly more appropriate for older workers
1	Secretaries and Administrative Assistants	1	2	3	4	5	6	7	8	9
2	Retail Salespersons	1	2	3	4	5	6	7	8	9
3	Driver/Sales Workers and Truck Drivers	1	2	3	4	5	6	7	8	9
4	Elementary and Middle School Teachers	1	2	3	4	5	6	7	8	9
5	Cashiers	1	2	3	4	5	6	7	8	9
6	First-Line Supervisors/Managers of Retail Sales Workers	1	2	3	4	5	6	7	8	9
7	Registered Nurses	1	2	3	4	5	6	7	8	9
8	Customer Service Representatives	1	2	3	4	5	6	7	8	9
9	Janitors and Building Cleaners	1	2	3	4	5	6	7	8	9
10	Laborers and Freight, Stock, and Material Movers, Hand	1	2	3	4	5	6	7	8	9
11	Cooks	1	2	3	4	5	6	7	8	9
12	Waiters and Waitresses	1	2	3	4	5	6	7	8	9
13	Nursing, Psychiatric, and Home Health Aides	1	2	3	4	5	6	7	8	9
14	Accountants and Auditors	1	2	3	4	5	6	7	8	9
15	Bookkeeping, Accounting, and Auditing Clerks	1	2	3	4	5	6	7	8	9
16	First-Line Supervisors/Managers of Office and Administrative Support Workers	1	2	3	4	5	6	7	8	9
17	Office Clerks, General	1	2	3	4	5	6	7	8	9
18	Carpenters	1	2	3	4	5	6	7	8	9
19	Sales Representatives, Wholesale and Manufacturing	1	2	3	4	5	6	7	8	9
20	Other Production Workers, Including Semiconductor Processors and Cooling and Freezing Equipment Operators	1	2	3	4	5	6	7	8	9
21	Child Care Workers	1	2	3	4	5	6	7	8	9
22	Stock Clerks and Order Fillers	1	2	3	4	5	6	7	8	9
23	First-Line Supervisors/Managers of Production and Operating Workers	1	2	3	4	5	6	7	8	9
24	Miscellaneous Assemblers and Fabricators	1	2	3	4	5	6	7	8	9
25	Construction Laborers	1	2	3	4	5	6	7	8	9
26	Maids and Housekeeping Cleaners	1	2	3	4	5	6	7	8	9
27	Receptionists and Information Clerks	1	2	3	4	5	6	7	8	9
28	Postsecondary Teachers	1	2	3	4	5	6	7	8	9
29	Chief Executives	1	2	3	4	5	6	7	8	9
30	Marketing and Sales Managers	1	2	3	4	5	6	7	8	9

Demographics Measure

Please answer the following questions about yourself to the best of your knowledge. If you do not know the answer to the question or the question does not apply to you, please write "N/A" to indicate it is not applicable.

1. How old are you? _____

2. What is your sex? (circle one)
    a. Male
    b. Female

3. What is your race or ethnic background? (check "yes" or "no" next to each race or ethnic group; if you choose "Other" as your response, please specify your race or ethnic group)

Yes	**No**	
☐	☐	White (Non-Hispanic)
☐	☐	Black or African American (Non-Hispanic)
☐	☐	Asian
☐	☐	American Indian or Alaska Native
☐	☐	Native Hawaiian or Other Pacific Islander
☐	☐	Hispanic or Latino
☐	☐	Other: (Specify) _____

4. If you chose more than one race or ethnic group in the previous question, which one do you most identify with?
    a. White (Non-Hispanic)
    b. Black or African American (Non-Hispanic)
    c. Asian
    d. American Indian or Alaska Native
    e. Native Hawaiian or Other Pacific Islander
    f. Hispanic or Latino
    g. Other: (specify)_____

5. Where were you born? (City, State; Country if outside the US)
    _____

6. Please indicate if there is a country different from the country in which you were born

that you identify with more or it has more cultural influence on you?
_____

7. Do you work? If so, what is your job title?
_____

Occupational Familiarity Questionnaire (25 of 229 Occupations Shown)

Please circle the number that best indicates the degree to which you agree with the following statement:
I am familiar with the with the listed occupation

		Agree very much					Disagree very much
		1	**2**	**3**	**4**	**5**	**6**
1	Secretaries and Administrative Assistants	1	2	3	4	5	6
2	Retail Salespersons	1	2	3	4	5	6
3	Driver/Sales Workers and Truck Drivers	1	2	3	4	5	6
4	Elementary and Middle School Teachers	1	2	3	4	5	6
5	Cashiers	1	2	3	4	5	6
6	First-Line Supervisors/Managers of Retail Sales Workers	1	2	3	4	5	6
7	Registered Nurses	1	2	3	4	5	6
8	Customer Service Representatives	1	2	3	4	5	6
9	Janitors and Building Cleaners	1	2	3	4	5	6
10	Laborers and Freight, Stock, and Material Movers, Hand	1	2	3	4	5	6
11	Cooks	1	2	3	4	5	6
12	Waiters and Waitresses	1	2	3	4	5	6
13	Nursing, Psychiatric, and Home Health Aides	1	2	3	4	5	6
14	Accountants and Auditors	1	2	3	4	5	6
15	Bookkeeping, Accounting, and Auditing Clerks	1	2	3	4	5	6
16	First-Line Supervisors/Managers of Office and Administrative Support Workers	1	2	3	4	5	6
17	Office Clerks, General	1	2	3	4	5	6
18	Carpenters	1	2	3	4	5	6
19	Sales Representatives, Wholesale and Manufacturing	1	2	3	4	5	6
20	Other Production Workers, Including Semiconductor Processors and Cooling and Freezing Equipment Operators	1	2	3	4	5	6
21	Child Care Workers	1	2	3	4	5	6
22	Stock Clerks and Order Fillers	1	2	3	4	5	6
23	First-Line Supervisors/Managers of Production and Operating Workers	1	2	3	4	5	6
24	Miscellaneous Assemblers and Fabricators	1	2	3	4	5	6
25	Construction Laborers	1	2	3	4	5	6

Post Survey Quiz (solely used to encourage attention during the survey)

1

What job does the statement below describe?

Drive automobiles, vans, or limousines to transport passengers. May occasionally carry cargo.

2

What job does the statement below describe?

Direct the preparation, seasoning, and cooking of salads, soups, fish, meats, vegetables, desserts, or other foods. May plan and price menu items, order supplies, and keep records and accounts. May participate in cooking.

3

What job does the statement below describe?

Perform work involving the skills of two or more maintenance or craft occupations to keep machines, mechanical equipment, or the structure of an establishment in repair. Duties may involve pipe fitting; boiler making; insulating; welding; machining; carpentry; repairing electrical or mechanical equipment; installing, aligning, and balancing new equipment; and repairing buildings, floors, or stairs.

4

What job does the statement below describe?

Sort mail for delivery. Deliver mail on established route by vehicle or on foot.

5

What job does the statement below describe?

Assess, plan, organize, and participate in rehabilitative programs that improve mobility, relieve pain, increase strength, and decrease or prevent deformity of patients suffering from disease or injury.

6

What job does the statement below describe?

Answer inquiries and obtain information for general public, customers, visitors, and other interested parties. Provide information regarding activities conducted at establishment; location of departments, offices, and employees within organization.

7

What job does the statement below describe?

Diagnose and treat diseases, injuries, and malformations of teeth and gums and related oral structures. May treat diseases of nerve, pulp, and other dental tissues affecting vitality of teeth.

8

What job does the statement below describe?

Install, maintain, and repair electrical wiring, equipment, and fixtures. Ensure that work is in accordance with relevant codes. May install or service street lights, intercom systems, or electrical control systems.

9

What job does the statement below describe?

Set up, operate, or tend machines to coat or paint any of a wide variety of products including food, glassware, cloth, ceramics, metal, plastic, paper, or wood, with lacquer, silver, copper, rubber, varnish, glaze, enamel, oil, or rust-proofing materials.

10

What job does the statement below describe?

Perform any combination of light cleaning duties to maintain private households or commercial establishments, such as hotels, restaurants, and hospitals, in a clean and orderly manner. Duties include making beds, replenishing linens, cleaning rooms and halls, and vacuuming.

11

What job does the statement below describe?

Attend to children at schools, businesses, private households, and child care institutions. Perform a variety of tasks, such as dressing, feeding, bathing, and overseeing play.

12

What job does the statement below describe?

Convert project specifications and statements of problems and procedures to detailed logical flow charts for coding into computer language. Develop and write computer programs to store, locate, and retrieve specific documents, data, and information. May program web sites.

APPENDIX B: TABLES AND FIGURES

Figure 1:
The Formation of Prejudice and Discrimination

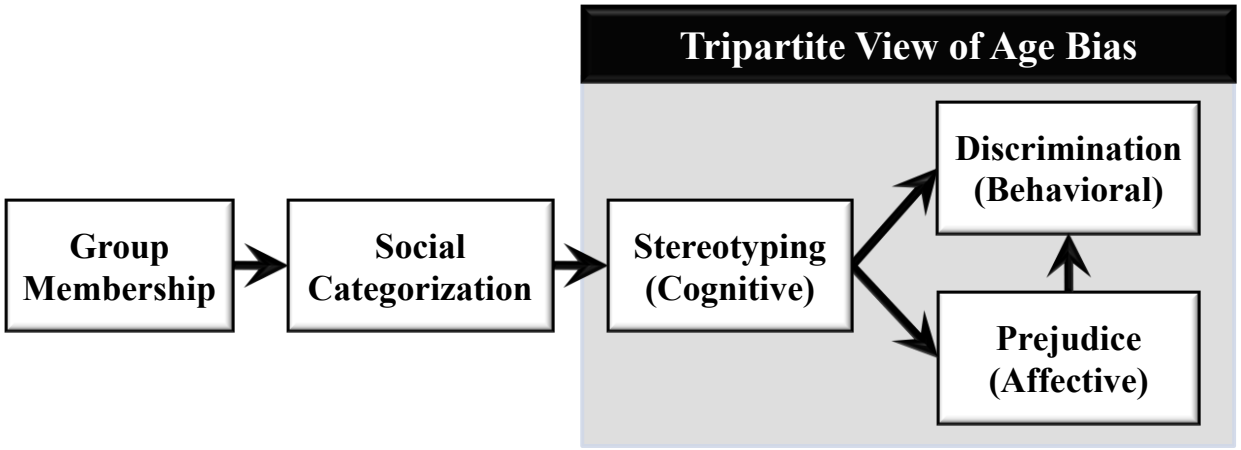


Figure 2:
Effects of Age-Type on Age Bias

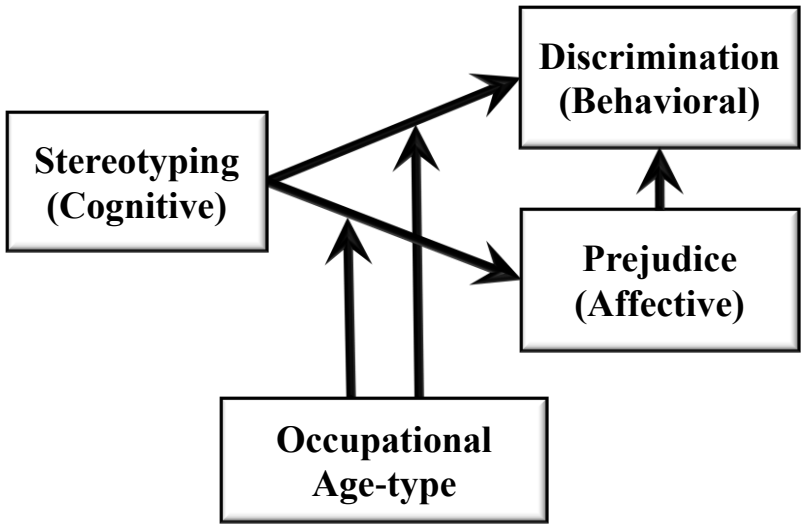
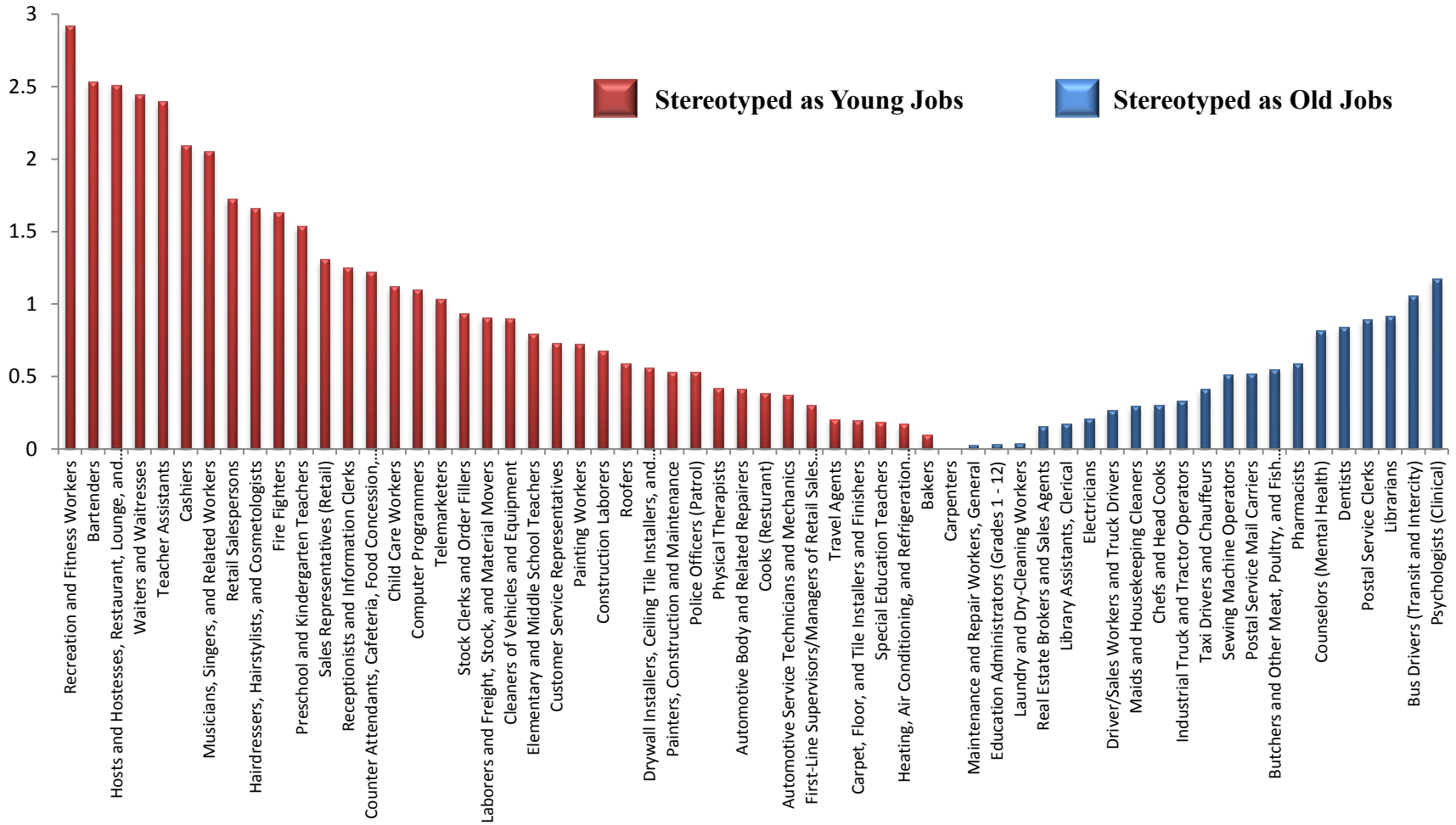


Figure 3:
Graphical Display of Age-Type by Occupation



Note: age-type is ranked from 0 (age-neutral) to 4.5 (strongly age-typed). Red bars represent young-typed jobs and blue bars represent old-typed jobs.

Table 1:
Occupational Categories Containing Age Data (US Census Bureau, 2000)

MANAGEMENT, PROFESSIONAL AND RELATED OCCUPATIONS:	**SERVICE OCCUPATIONS:**	**FARMING, FISHING, AND FORESTRY OCCUPATIONS:**	**CONSTRUCTION, EXTRACTION AND MAINTENANCE OCCUPATIONS:**	**PRODUCTION, TRANSPORTATION AND MATERIAL MOVING OCCUPATIONS:**
Management Occupations	Healthcare Support Occupations		Construction Trades	Production Occupations
Business Operations Specialists	Protective Service Occupations		Extraction Workers	Transportation and Material Moving Occupations
Financial Specialists	Food Preparation and Serving Occupations		Installation, Maintenance, and Repair Workers	
Computer and Mathematical Occupations	Building and Grounds Cleaning and Maintenance Occupations			
Architecture and Engineering Occupations	Personal Care and Service Occupations			
Life, Physical, and Social Science Occupations	Sales Occupations			
Community and Social Services Occupations	Office and Administrative Support Occupations			
Legal Occupations				
Education, Training, and Library Occupations				
Arts, Design, Entertainment, Sports, and Media Occupations				
Healthcare Practitioners and Technical Occupations				

Table 2:Descriptive Statistics

Occupational Title	*n*	Rank	Age-Type (α = .99) Mean	SD	Proportional Representation (Perceived) Mean	SD	Proportional Representation (Actual) Mean	SD	Feature Centrality Negative (Competence) (α = .98) Mean	SD	Feature Centrality Negative (Adaptability) (α = .94) Mean	SD	Feature Centrality Positive (Stability) (α = .99) Mean	SD	Feature Centrality Positive (Warmth/Friendliness) (α = .96) Mean	SD
Recreation and Fitness Workers	130	1	2.08	1.10	1.26	.70	6.74	-	4.87	.98	4.75	1.06	4.58	1.16	4.80	1.19
Bartenders	108	2	2.46	1.58	1.17	.52	6.08	-	4.39	1.33	4.67	1.25	3.57	1.40	4.73	1.45
Hosts and Hostesses, Restaurant, Lounge, and Coffee Shop	108	3	2.49	1.49	1.22	.66	5.74	-	4.05	1.37	4.32	1.36	3.57	1.35	5.01	1.46
Waiters and Waitresses	127	4	2.56	1.57	1.21	.60	5.82	-	4.13	1.46	4.34	1.34	3.62	1.48	4.84	1.49
Teacher Assistants	108	5	2.60	1.52	1.20	.64	7.35	-	4.95	1.07	5.13	1.00	4.87	1.09	5.15	1.08
Cashiers	130	6	2.91	1.80	1.46	.88	5.15	-	3.40	1.33	3.80	1.37	3.30	1.35	4.29	1.40
Musicians, Singers, and Related Workers	127	7	2.94	1.40	1.57	.93	5.84	-	5.04	1.22	4.80	1.26	4.45	1.54	4.32	1.47
Retail Salespersons	108	8	3.27	1.53	1.74	.98	6.61	-	4.52	1.21	4.56	1.15	3.88	1.28	4.99	1.31
Hairdressers, Hairstylists, and Cosmetologists	130	9	3.34	1.44	1.70	.80	6.04	-	4.53	1.27	4.53	1.25	4.18	1.29	5.00	1.23
Fire Fighters	108	10	3.37	1.52	1.74	.92	7.97	-	5.66	.71	5.49	.84	5.36	.97	4.44	1.32
Preschool and Kindergarten Teachers	130	11	3.46	1.56	1.47	.83	7.24	-	4.86	1.14	4.89	1.03	4.99	1.06	5.39	1.01
Sales Representatives (Retail)	127	12	3.69	2.00	1.60	.88	5.81	-	4.53	1.35	4.45	1.31	4.18	1.42	4.80	1.40
Receptionists and Information Clerks	108	13	3.75	1.73	1.65	.89	6.53	-	4.64	1.16	4.58	1.13	4.29	1.17	5.03	1.15
Counter Attendants, Cafeteria, Food Concession, and Coffee Shop	108	14	3.78	2.24	2.06	1.40	.11		3.62	1.38	3.82	1.40	3.19	1.51	4.67	1.30
Child Care Workers	127	15	3.88	1.49	1.79	.97	6.86	-	4.81	1.17	4.75	1.12	4.81	1.18	5.37	1.14

Computer Programmers	127	16	3.90	1.73	1.65	.85	5.33	-	5.25	1.00	4.97	1.18	4.47	1.34	3.39	1.55
Telemarketers	130	17	3.97	1.68	1.73	.96	4.28	-	3.08	1.47	3.44	1.51	2.76	1.34	3.45	1.66
Stock Clerks and Order Fillers	130	18	4.07	2.04	1.70	.95	4.73	-	3.67	1.36	3.74	1.32	3.40	1.24	3.62	1.36
Laborers and Freight, Stock, and Material Movers	108	19	4.09	1.56	2.07	1.20	4.10	-	3.79	1.49	3.68	1.48	3.14	1.40	3.15	1.52
Cleaners of Vehicles and Equipment	108	20	4.10	1.61	1.74	1.06	4.40	-	3.49	1.42	3.49	1.39	3.02	1.28	3.32	1.51
Elementary and Middle School Teachers	108	21	4.21	1.96	2.25	1.05	7.35	-	5.15	.96	5.08	1.01	5.08	1.05	5.40	.96
Customer Service Representatives	127	22	4.27	1.60	1.79	1.03	5.70	-	4.42	1.40	4.46	1.33	4.07	1.43	4.75	1.39
Painting Workers	127	23	4.28	1.40	2.49	1.10	4.85	-	4.44	1.37	4.25	1.30	3.73	1.42	3.43	1.44
Construction Laborers	127	24	4.32	1.54	1.74	.89	4.59	-	4.53	1.36	4.36	1.33	3.83	1.40	3.27	1.42
Roofers	127	25	4.41	1.41	2.01	.96	4.81	-	4.60	1.27	4.30	1.25	3.79	1.33	3.28	1.39
Drywall Installers, Ceiling Tile Installers, and Tapers	130	26	4.44	1.53	2.10	.95	5.11	-	4.35	1.30	4.17	1.22	3.81	1.26	3.61	1.38
Painters, Construction and Maintenance	130	27	4.47	1.46	1.95	.88	4.92	-	4.27	1.33	4.18	1.26	3.83	1.29	3.49	1.40
Police Officers (Patrol)	127	28	4.47	1.65	2.08	.92	4.97	-	5.07	1.08	4.83	1.23	5.13	1.11	3.52	1.46
First-Line Enlisted Military Supervisors/Managers	127	29	4.55	2.00	2.63	1.36	-	-	5.34	1.01	5.14	1.13	5.42	.92	3.38	1.55
Military Enlisted Tactical Operations and Air/Weapons Specialists and Crew Members	130	30	4.56	2.04	2.03	.94	-	-	5.32	1.01	5.19	1.10	5.29	1.01	3.71	1.55
Physical Therapists	130	31	4.58	1.47	2.20	.95	7.59	-	5.31	.93	5.14	.96	4.98	1.11	5.11	1.07
Automotive Body and Related Repairers	127	32	4.59	1.37	2.05	.93	5.40	-	4.83	1.21	4.52	1.17	4.10	1.28	3.65	1.40
Cooks (Restaurant)	127	33	4.61	1.79	2.29	1.08	5.80	-	4.90	1.20	4.77	1.14	4.36	1.31	3.87	1.43

Automotive Service Technicians and Mechanics	127	34	4.63	1.34	2.18	1.01	5.23	-	4.91	1.19	4.67	1.19	4.20	1.32	3.57	1.36
First-Line Supervisors/Managers of Retail Sales Workers	130	35	4.70	1.41	2.23	1.00	5.88	-	4.39	1.19	4.42	1.17	4.33	1.24	4.36	1.25
Travel Agents	108	36	4.79	1.58	2.44	1.10	6.54	-	4.77	1.10	4.58	1.12	4.31	1.24	5.01	1.09
Carpet, Floor, and Tile Installers and Finishers	108	37	4.80	1.59	2.13	.99	5.10	-	4.56	1.26	4.38	1.22	3.84	1.29	3.60	1.33
Special Education Teachers	130	38	4.82	1.61	2.07	1.01	7.11	-	5.26	.97	5.12	1.03	5.29	.92	5.52	.90
Heating, Air Conditioning, and Refrigeration Mechanics and Installers	130	39	4.83	1.53	2.38	1.06	5.50	-	4.39	1.22	4.39	1.17	3.97	1.24	3.83	1.35
Bakers	127	40	4.90	1.53	2.69	1.17	6.00	-	4.89	1.15	4.69	1.17	4.51	1.28	4.31	1.43
Carpenters	108	41	5.00	1.51	2.77	1.12	5.87	-	5.01	1.06	4.80	1.09	4.24	1.24	3.85	1.28
Maintenance and Repair Workers, General	108	42	5.03	1.59	2.65	1.08	5.22	-	4.72	1.28	4.45	1.19	3.88	1.28	3.55	1.40
Education Administrators (Grades 1 - 12)	130	43	5.03	1.66	2.63	1.23	6.34	-	4.87	1.12	4.65	1.10	4.94	1.01	4.75	1.24
Laundry and Dry-Cleaning Workers	130	44	5.04	2.03	3.17	1.00	4.71	-	3.70	1.37	3.61	1.38	3.26	1.41	3.56	1.55
Real Estate Brokers and Sales Agents	127	45	5.16	1.36	2.20	1.00	6.91	-	5.18	.99	4.90	1.07	4.91	1.15	5.05	1.21
Library Assistants, Clerical	127	46	5.18	1.52	3.15	1.50	5.74	-	4.31	1.24	4.15	1.24	4.00	1.30	4.46	1.34
Electricians	108	47	5.21	1.56	2.53	.93	5.55	-	4.95	1.06	4.60	1.15	3.97	1.31	3.57	1.48
Driver/Sales Workers and Truck Drivers	130	48	5.26	1.50	2.70	1.09	4.70	-	3.73	1.30	3.77	1.34	3.63	1.30	3.53	1.46
Maids and Housekeeping Cleaners	130	49	5.30	1.51	2.72	1.19	5.05	-	3.82	1.40	3.75	1.36	3.67	1.41	4.08	1.37
Chefs and Head Cooks	130	50	5.30	1.73	1.67	1.05	5.78	-	4.86	1.16	4.77	1.14	4.60	1.20	4.06	1.36
Industrial Truck and Tractor Operators	127	51	5.33	1.39	2.97	1.14	4.29	-	4.08	1.50	3.89	1.44	3.52	1.48	3.17	1.54

Taxi Drivers and Chauffeurs	127	52	5.41	2.00	2.70	1.19	4.90	-	3.77	1.44	3.65	1.40	3.46	1.41	4.06	1.38
Sewing Machine Operators	130	53	5.52	1.84	3.32	1.41	4.72	-	3.93	1.38	3.90	1.33	3.58	1.28	3.48	1.52
Postal Service Mail Carriers	108	54	5.52	1.50	2.76	1.24	4.87	-	4.00	1.40	3.87	1.32	3.74	1.32	3.71	1.41
Butchers and Other Meat, Poultry, and Fish Processing Workers	108	55	5.55	1.67	2.94	1.18	4.74	-	4.17	1.34	3.92	1.30	3.56	1.29	3.45	1.44
Pharmacists	127	56	5.59	1.88	2.65	1.11	6.13	-	5.24	1.03	5.02	1.13	4.78	1.31	4.28	1.31
Military Officer Special and Tactical Weapons Leaders/Managers	108	57	5.74	1.96	2.70	1.25	-	-	5.68	.64	5.50	.84	5.58	.79	3.46	1.55
Counselors (Mental Health)	108	58	5.82	1.40	2.71	1.22	7.86	-	5.47	.87	5.26	.95	5.31	1.01	5.54	.95
Dentists	130	59	5.84	1.36	2.95	1.02	7.04	-	5.42	.84	5.11	.99	5.16	.99	4.82	1.19
Postal Service Clerks	130	60	5.89	1.47	3.30	1.18	5.19	-	3.86	1.26	3.95	1.24	3.91	1.30	3.76	1.38
Librarians	127	61	5.92	1.46	3.56	1.29	5.54	-	4.63	1.20	4.40	1.26	4.36	1.24	4.46	1.30
Bus Drivers (Transit and Intercity)	108	62	6.06	1.47	3.31	1.12	4.52	-	3.72	1.56	3.69	1.47	3.35	1.39	3.77	1.47
Psychologists (Clinical)	108	63	6.18	1.73	3.03	1.11	7.87	-	5.57	.76	5.37	.94	5.32	.96	5.46	.97

Note: ranking based on age-type means from 1 (strongly young-typed) to 9 (strongly old-typed), with 5 as age-neutral. Proportional representation (perceived) is on a 5 point scale from 1 (far more younger workers) to 5 (far more older workers). Proportional representation (actual) is the actual number of workers 50 years or older divided by the actual number of workers under 40. Feature centrality dimensions are rated on a 6 point scale with 1 indicating the dimension is not very important to the job and 6 indicating the dimension is highly important to the job.

Table 3:
Zero-Order Correlation Matrix among Variables

	Variable	*N*	*M*	*SD*	1	2	3	4	5	6	7	8	9	10	11
1.	Age-Type	60	4.48	1.00	-	.92***	.92***	.55***	.89***	.06	-.11	.01	-.26*	.44***	-.36**
2.	Normative Age	60	35.84	5.47		-	.97***	.56***	.96***	.04	-.13	.07	.56***	.36**	-.38**
3.	Optimal Perf. Age	60	34.80	4.70			-	.58***	.93***	.08	-.07	.13	-.15	.38**	-.33**
4.	Prop Rep (Actual)	60	.52	.42				-	.58***	.17	.11	.29*	.28*	.43***	.14
5.	Prop Rep (Perceived)	60	2.22	.61					-	-.05	-.20	-.02	-.25*	.31*	-.34**
6.	FC (Competence)	60	4.52	.60						-	.96***	.92***	.46***	.57***	.29***
7.	FC (Adaptability)	60	4.43	.51							-	.92**	.60**	.50***	.45***
8.	FC (Stability)	60	4.13	.65								-	.62***	.57**	.43***
9.	FC(Warm/Friendliness)	60	4.23	.72									-	.15	.70***
10.	Salary (Median)	59	37345.17	22989.54										-	.13
11.	Familiarity Rating	60	4.52	.45											-

* $p < .05$ ** $p < .01$ ***$p < .001$ (2 tailed)

Table 4:

Summary of Hierarchical Regression Analysis for Variables Predicting Occupational Age-Type (*N* = 59)

Variable	*B*	*SE B*	β
Step 1			
Salary (Median)	.00	.00	.44**
Step 2			
Salary (Median)	.00	.00	.35**
Feature Centrality (Competence)	2.90	.75	1.76***
Feature Centrality (Adaptability)	- 4.89	.85	-2.55***
Feature Centrality (Stability)	.94	.41	.63*
Feature Centrality (Warmth/Friendliness)	.03	.20	.02
Step 3			
Salary (Median)	.00	.00	.12
Feature Centrality (Competence)	.61	.52	.37
Feature Centrality (Adaptability)	- 1.06	.67	-.55
Feature Centrality (Stability)	.41	.26	.27
Feature Centrality (Warmth/Friendliness)	- .18	.14	-.13
Proportional Rep (Actual)	.15	.20	.06
Proportional Rep (Perceived)	1.11	.14	.67***

Note. R^2 = .19 for Step 1; ΔR^2 = .40 for step 2; ΔR^2 = .26 for step 3 (*p*s < .01)

*p < .05, **p < .01, ***p < .001

Table 5:

Summary of Hierarchical Regression Analysis for Variables Predicting Occupational Age-Type Across Racial Groups (N = 59)

	Asian			Caucasian			African-American			Hispanic		
Variable	*B*	*SE B*	β	*B*	*SE B*	β	*B*	*SE B*	β	*B*	*SE B*	β
Step 1												
Salary (Median)	.00	.00	.25	.00	.00	.44***	.00	.00	.33	.00	.00	.44***
Step 2												
Salary (Median)	.00	.00	.28	.00	.00	.36**	.00	.00	.26	.00	.00	.40**
Feature Centrality (Competence)	.81	.56	.39	2.12	.68	1.29**	2.00	.76	.88*	.89	.56	.67
Feature Centrality (Adaptability)	- 1.09	.55	-.48	- 4.23	.79	-2.26***	- 2.96	.78	-1.16***	- 1.57	.63	-1.01*
Feature Centrality (Stability)	- .45	.52	-.23	1.26	.45	.85**	.36	.50	.19	.37	.33	.31
Feature Centrality (Warmth/Friendliness)	.28	.28	.17	- .07	.20	-.05	- .15	.23	-.10	- .38	.18	-.32*
Step 3												
Salary (Median)	.00	.00	.04	.00	.00	.13	.00	.00	.02	.00	.00	.30**
Feature Centrality (Competence)	.61	.51	.43	.43	.41	.26	1.09	.56	.49	.03	.45	.02
Feature Centrality (Adaptability)	.92	.51	-.21	- .87	.55	-.46	- 1.22	.62	-.48	- .04	.53	-.024
Feature Centrality (Stability)	- .47	.49	-.42	.40	.26	.27	.17	.36	.09	.07	.25	.06
Feature Centrality (Warmth/Friendliness)	- .81	.27	.08	- .21	.13	-.16	- .10	.20	-.06	- .33	.16	-.27*
Proportional Rep (Actual)	.12	.44	.39**	.37	.19	.15	.28	.28	.11	.21	.26	.09
Proportional Rep (Perceived)	.52	.26	.26*	1.07	.12	.66***	.97	.17	.63***	.87	.17	.56***

Note.

Asian: R^2 = .06 for Step 1; ΔR^2 = .11 for step 2; ΔR^2 = .20** for step 3

Caucasian: R^2 = .20*** for Step 1; ΔR^2 = .37*** for step 2; ΔR^2 = .31*** for step 3

African-American: R^2 = .11 for Step 1; ΔR^2 = .26** for step 2; ΔR^2 = .31*** for step 3

Hispanic: R^2 = .44*** for Step 1; ΔR^2 = .23** for step 2; ΔR^2 = .26*** for step 3

*p < .05, **p < .01, ***p < .001

Table 6:

Summary of Hierarchical Regression Analysis for Variables Predicting Occupational Age-Type Across Work Experience Groups (N = 59)

	No Work Experience			Less than 5 Years			5 Years or more		
Variable	*B*	*SE B*	β	*B*	*SE B*	β	*B*	*SE B*	β
Step 1									
Salary (Median)	.00	.00	.42**	.00	.00	.42***	.00	.00	.44
Step 2									
Salary (Median)	.00	.00	.24	.00	.00	.42**	.00	.00	.43**
Feature Centrality (Competence)	2.13	.56	1.32***	2.25	.72	1.41**	.75	.83	.40
Feature Centrality (Adaptability)	- 3.54	.67	-1.77***	- 4.08	.78	-2.20***	- 2.37	.87	-1.14**
Feature Centrality (Stability)	.69	.37	.45	.92	.44	.62*	1.05	.50	.68*
Feature Centrality (Warmth/Friendliness)	- .20	.19	-.15	- .06	.20	-.04	- 2.48	.24	-.17
Step 3									
Salary (Median)	.00	.00	.05	.00	.00	.16*	.00	.00	.12
Feature Centrality (Competence)	1.20	.40	.74**	.30	.46	.19	- 3.44	.50	-1.8
Feature Centrality (Adaptability)	- 1.36	.54	-.68*	- .74	.56	-.40	.11	.57	.06
Feature Centrality (Stability)	- .01	.27	-.01	.43	.26	.29	.46	.30	.29
Feature Centrality (Warmth/Friendliness)	- .14	.14	-.11	- .14	.13	-.11	- .43	.16	-.29
Proportional Rep (Actual)	.44	.22	.19	.07	.20	.03	.33	.24	.13
Proportional Rep (Perceived)	.98	.17	.56***	1.16	.13	.74	1.14	.14	.69***

Note.

No Experience: R^2 = .17** for Step 1; ΔR^2 = .35*** for step 2; ΔR^2 = .26*** for step 3

Less than 5 years: R^2 = ..20*** for Step 1; ΔR^2 = .37*** for step 2; ΔR^2 = .30*** for step 3

5 years of more: R^2 = ..20*** for Step 1; ΔR^2 = .20** for step 2; ΔR^2 = .40*** for step 3

*p < .05, **p < .01, ***p < .001

Table 7:

Summary of Hierarchical Regression Analysis for Variables Predicting Occupational Age-Type Across Gender Groups (N = 59)

	Females			Males		
Variable	*B*	*SE B*	β	*B*	*SE B*	β
Step 1						
Salary (Median)	.00	.00	.42**	.00	.00	.45***
Step 2						
Salary (Median)	.00	.00	.34**	.00	.00	.43**
Feature Centrality (Competence)	1.87	.78	1.13*	1.62	.69	.96*
Feature Centrality (Adaptability)	- 3.98	.86	-2.03***	- 2.89	.80	-1.55**
Feature Centrality (Stability)	1.16	.48	.80*	.78	.42	.48
Feature Centrality (Warmth/Friendliness)	- .12	.25	-.08	- .15	.18	-.11
Step 3						
Salary (Median)	.00	.00	.13	.00	.00	.08
Feature Centrality (Competence)	.27	.51	.16	.34	.38	.20
Feature Centrality (Adaptability)	- .64	.65	-.32	- .67	.47	-.36
Feature Centrality (Stability)	.40	.31	.27	.38	.23	.24
Feature Centrality (Warmth/Friendliness)	- .21	.17	-.15	- .18	.11	-.14
Proportional Rep (Actual)	.12	.22	.05	.28	.20	.12
Proportional Rep (Perceived)	1.13	.14	.72***	1.27	.15	.72***

Note.

Females: R^2 = .18** for Step 1; ΔR^2 = .36*** for step 2; ΔR^2 = ..30*** for step 3

Males: R^2 = .20*** for Step 1; ΔR^2 = .22** for step 2; ΔR^2 = .42*** for step 3

*p < .05, **p < .01, ***p < .001

Table 8:
Analysis of Covariance Summary for Age-Type

Source	*df*	*F*	*η*
	Between subjects		
Salary	1	15.21***	.23
RIASEC Dimension	5	3.83**	.27
Error	52	(.64)	

Note. Values enclosed in parentheses represent mean square errors
*$p < .05$, **$p < 0.01$, ***$p < .001$

Table 9:
LSD Comparison for Holland's RIASEC Dimensions

Comparisons	Mean Difference (I-J)	Std. Error	95% CI Lower Bound	95% CI Upper Bound
Artistic vs. Realistic	-1.63*	.65	-2.94	-.31
Artistic vs. Investigative	-2.23**	.77	-3.78	-.68
Artistic vs. Social	-.64	.70	-2.03	.76
Artistic vs. Enterprising	-.96	.69	-2.34	.42
Artistic vs. Conventional	-1.60*	.72	-3.04	-.17
Realistic vs. Investigative	-.61	.48	-1.57	.35
Realistic vs. Social	.99	.34	.30	1.68
Realistic vs. Enterprising	.67	.32	.03	1.30
Realistic vs. Conventional	.02	.38	-.74	.78
Investigative vs. Social	1.60	.54	.52	2.67
Investigative vs. Enterprising	1.27	.52	.23	2.32
Investigative vs. Conventional	.63	.56	-.49	1.75
Social vs. Enterprising	-.33	.40	-1.13	.48
Social vs. Conventional	-.97	.45	-1.87	-.067
Enterprising vs. Conventional	-.64	.43	-1.51	.22

*$p < .05$, **$p < 0.01$, ***$p < .001$

Table 10:
Analysis of Covariance Summary for Age-Type

Source	*df*	*F*	*η*
	Between subjects		
Salary	1	15.63***	.23
Job Category	4	4.95**	.27
Error	53	(.63)	

Note. Values enclosed in parentheses represent mean square errors
*$p < .05$, **$p < 0.01$, ***$p < .001$

Table 11:
LSD Comparison for Standard Occupational Classification (SOC) Category

Comparisons	Mean Difference (I-J)	Std. Error	95% CI Lower Bound	95% CI Upper Bound
S vs. C	-1.09**	.37	-1.84	-.34
S vs. M	-1.02**	.37	-1.77	-.27
S vs. P	-1.33**	.37	-2.08	-.58
S vs. F	-.79*	.37	-1.54	-.04
P vs. C	.24	.37	.53	-.51
P vs. M	.31	.37	.41	-.44
P vs. F	.54	.37	.15	-.21
F vs. C	-.30	.37	.42	-1.05
F vs. M	-.23	.37	.54	-.98

Note:
M = management, professional and related occupations
S = service occupations
F = farming, fishing, and forestry occupations
C = construction, extraction, and maintenance occupations
P = production, transportation, and material moving occupations.
*$p < .05$, **$p < 0.01$, ***$p < .001$

APPENDIX C: IRB APPROVAL FORM

University of Central Florida Institutional Review Board
Office of Research & Commercialization
12201 Research Parkway, Suite 501
Orlando, Florida 32826-3246
Telephone: 407-823-2901 or 407-882-2276
www.research.ucf.edu/compliance/irb.html

Approval of Exempt Human Research

From: **UCF Institutional Review Board #1**
FWA00000351, IRB00001138

To: **Michael Reeves and Barbara Fritzsche**

Date: **February 02, 2011**

Dear Researcher:

On 2/2/2011, the IRB approved the following activity as human participant research that is exempt from regulation:

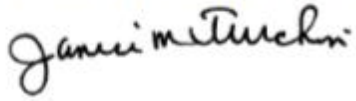
Type of Review:	IRB Initial Review Submission Form
Project Title:	Perceptions of occupations
Investigator:	Michael Reeves
IRB Number:	SBE-11-07406
Funding Agency:	None

This determination applies only to the activities described in the IRB submission and does not apply should any changes be made. If changes are made and there are questions about whether these changes affect the exempt status of the human research, please contact the IRB. When you have completed your research, please submit a Study Closure request in iRIS so that IRB records will be accurate.

In the conduct of this research, you are responsible to follow the requirements of the Investigator Manual.

On behalf of Joseph Bielitzki, DVM, UCF IRB Chair, this letter is signed by:

Signature applied by Janice Turchin on 02/02/2011 11:19:24 AM EST



IRB Coordinator

APPENDIX D: EXPLANATION OF RESEARCH (PILOT STUDY)

EXPLANATION OF RESEARCH

Title of Project: Familiarity with occupations

Principal Investigator: Michael Reeves

Other Investigators: Barbara Fritzsche

Faculty Supervisor: Barbara Firtzsche

You are being invited to take part in a research study. Whether you take part is up to you.

- The Purpose of the research is to better understand the level of familiarity college students have with a wide array of occupations
- Everything required of you will take place in the form of an online survey. You will be asked to complete one survey regarding your familiarity with multiple occupations.
- Completion of this survey is expected to take 40 minutes.

You must be 18 years of age or older to take part in this research study.

Study contact for questions about the study or to report a problem: If you have questions, concerns, or complaints contact Michael Reeves, Industrial/Organizational Psychology Program, College of Sciences, (707) 363-6895 or Dr. Barbara Fritzsche, Faculty Supervisor, Department of Psychology at 407-823-5350 or by email at bfritzsc@mail.ucf.edu.

IRB contact about your rights in the study or to report a complaint: Research at the University of Central Florida involving human participants is carried out under the oversight of the Institutional Review Board (UCF IRB). This research has been reviewed and approved by the IRB. For information about the rights of people who take part in research, please contact: Institutional Review Board, University of Central Florida, Office of Research & Commercialization, 12201 Research Parkway, Suite 501, Orlando, FL 32826-3246 or by telephone at (407) 823-2901.

APPENDIX E: EXPLANATION OF RESEARCH (MAIN STUDY)

EXPLANATION OF RESEARCH

Title of Project: Perceptions of occupations

Principal Investigator: Michael Reeves

Other Investigators: Barbara Fritzsche

Faculty Supervisor: Barbara Firtzsche

You are being invited to take part in a research study. Whether you take part is up to you.

- The Purpose of the research is to better understand what people think is most important to success in a variety of jobs, including the appropriate age of employees in particular jobs.
- Everything required of you will take place in the form of an online survey. You will be asked to complete several surveys regarding the aspects necessary to success in various occupations as well as a demographics questionnaire.
- Your responses will be kept anonymous. Your name will not appear on the surveys. Your data will not be published individually; it will be grouped with numerous responses.
- The estimated completion time for this survey is 95 minutes. You will complete the same 28 questions for 21 different jobs, which is estimated to take 55 minutes. You will then complete two more questions for 21 different jobs, which is estimated to take 15 minutes. Then, you will complete a short demographics questionnaire, estimated to take 15 minutes. Finally, you will complete a measure asking you to identify job titles mentioned earlier in the survey, estimated to take 10 minutes.
- The participants receiving the top 20 scores on the final measure will be awarded a gift card from Amazon.com or gamestop worth $5. You will need to provide your SONA Identification Code when completing the survey in order for the researcher to contact you if you are a top scorer. However, providing your identification code is not a requirement of participation.

You must be 18 years of age or older to take part in this research study.

Study contact for questions about the study or to report a problem: If you have questions, concerns, or complaints contact Michael Reeves, Industrial/Organizational Psychology Program, College of Sciences, (707) 363-6895 or Dr. Barbara Fritzsche, Faculty Supervisor, Department of Psychology at 407-823-4344 or by email at bfritzsc@mail.ucf.edu.

IRB contact about your rights in the study or to report a complaint: Research at the University of Central Florida involving human participants is carried out under the oversight of the Institutional Review Board (UCF IRB). This research has been reviewed and approved by the IRB. For information about the rights of people who take part in research, please contact: Institutional Review Board, University of Central Florida, Office of Research & Commercialization, 12201 Research Parkway, Suite 501, Orlando, FL 32826-3246 or by telephone at (407) 823-2901.

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