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Ageist Perceptions In Personnel Selection Decisions: A Prejudice-reduction Intervention

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AGEIST PERCEPTIONS IN PERSONNEL SELECTION DECISIONS:
A PREJUDICE-REDUCTION INTERVENTION

by

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ABSTRACT

The purpose of the current study was to examine whether older job applicants are discriminated against relative to younger job applicants when changing careers, and to investigate whether an intervention designed to reduce stereotyping and prejudice could alleviate such unfair discrimination, if it was found. A between-subjects laboratory experiment with three factors was conducted, including age (young vs. old job applicant), career-transition type (within- vs. between-career transition), and a dual-identity based recategorization intervention (control vs. intervention), totaling 8 experimental conditions. Data were collected and analyzed from 157 undergraduate student participants. Participants were informed that they would be evaluating the viability of using video-resumes as a potential organizational selection tool, and were randomly assigned to watch a video-resume depicting a White male job applicant applying for the job of mechanical engineer. The job applicant was either younger or older and was either making a career change that was more similar to his previous career (i.e., naval architect) or less similar to his previous career (i.e., chiropractor). In the intervention conditions, the job applicant emphasized his age and the fact that he graduated from UCF; in the control conditions, he only emphasized his age and his educational background from a generic university. An actor in his early twenties played the role of the job applicant. Make-up was applied to age his face, and computer software was used to age his voice. After viewing the video-resumes, participants judged his suitability for hire, competence, warmth, loyalty, and suitability for training. A Multivariate Analysis of Covariance (MANCOVA) was conducted and a significant 3-way interaction was found between age, career-transition type, and intervention on both ratings of suitability for hire and on competence ratings. Counter to theory, the older job applicant was negatively impacted relative to the younger applicant when attempting to build a common

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ingroup identity with the younger decision-maker. These findings were discussed within the context of theories on attribution and impression management, and discussed relative to prior research utilizing the dual-identity based recategorization intervention method. Implications for older workers making career transitions are discussed.

Dedicated to my Mum, Suzy, and my Dad, Raj

ACKNOWLEDGMENTS

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CHAPTER I: INTRODUCTION

What is age, but an index of the passage of time? Insofar as societal perceptions of the aged are concerned, the answer appears to entail far more than merely horology. Age-based prejudice is less studied and not as thoroughly understood as either race- or sex-based prejudice, and is thus deserving of deeper investigation. The focus of this paper is to investigate age-based prejudice in the workplace, as applied to human resource selection. Specifically, the current research has two main goals: 1) To systematically investigate the interactive relation between age and type of career transition (within- vs. between-career) on hiring decision-makers' judgments regarding potential job applicants, and 2) To test an intervention aimed at reducing age-based prejudice and stereotyping, assuming it is found, and particularly in between-career transition situations, where age-based stereotypes would be salient. Given the burgeoning numbers of older adults in the workforce, historically high unemployment rates in the U. S. economy, and fundamental changes in the structure and stability of work itself, this topic is both important and timely.

I shall begin this paper by providing a literature review, starting with a review on the nature of prejudice. A simple causal chain which results in the culmination of prejudice will be provided. Delineation of this process will include discussions on both categorization and stereotype formation. Next, the concept of ageism as a particular form of prejudice shall be reviewed. The review will include a discussion on the nature of ageism, the nature of age-based stereotypes, a discussion on age-based discrimination in the workplace (both historical and contemporary), and a review of workplace-related ageism research. Then, one particular issue that possesses contemporary relevance to the study of ageism in the workplace will be analyzed – ageism as it relates to career changes, the intersection between personnel selection and career

transitions. This section will include a discussion on protean and boundaryless careers, the graying workforce, and theories of vocational fit. Prior research findings and limitations will be discussed, and a hypothesis will be provided.

I shall then shift gears to discuss strategies one can use to reduce ageism. The review will include exegeses on several different intervention strategies that have been employed to reduce prejudice, including psychodynamic, cognitive, affective, and categorization-based intervention strategies. Examples of these interventions, used to treat both ageism and other types of prejudice, will be provided. Having compared the various interventions, I shall then provide an argument as to why I am picking one intervention in particular: Recategorization based upon building dual identities. This intervention involves attempting to categorize a former outgroup member into a common ingroup by forming a common identity with the former outgroup, while simultaneously emphasizing group differences. Hypotheses are provided.

Following the literature review, I shall include a chapter regarding the specific methods used to test these hypotheses. Briefly, a between-subjects laboratory experiment was conducted utilizing a sample of undergraduate students enrolled in introductory Psychology courses at a large southeastern university. Next, the entire analytical procedure and associated results are discussed. Findings are then discussed within the context of theories on attribution and impression management, and discussed relative to prior research utilizing the dual-identity based recategorization intervention method.

CHAPTER II: LITERATURE REVIEW

<u>The Nature of Prejudice</u>

In-groups, Out-groups, and the Creation of Social Categories

Allport (1954/1979, p. 7) defined prejudice as "an aversive or hostile attitude toward a person who belongs to a group, simply because he belongs to that group, and is therefore presumed to have the objectionable qualities ascribed to that group". Explicit in Allport's definition is the notion that the process of prejudice begins with the formation of groups. Groups have boundaries that define the limits of group membership, thereby defining who the members of the group are (the "in-group"), and who the members of the group are not (the "out-group"). An "in-group" is defined as a group by which all of its members use the term "we" with a certain 'essential significance' (Allport, 1954/1979, p. 31). In other words, an in-group is a group that is used to distinguish between individuals along certain *categories* (e.g., race, age) that hold *value* to group members. A category is defined here as an "accessible cluster of associated ideas which as a whole has the property of guiding daily adjustments" (Allport, 1954/1979, p. 171). The most important categories to individuals are those that coincide with their personal values – these values are of such importance that reason and evidence bend in submission to them. An individual can hold multiple categories of ascending value, thereby forming multiple in-groups, in concentric circles, with the self as the nexus, the family unit being the most valued in-group, and succeeded in order by neighborhood, city, state, nation, demographic characteristics, and ultimately, humanity (Allport; Brewer, 2007). Hence, in-groups and out-groups are membership categories based upon distinctions of personal relevance to individuals.

The process of categorization has five important characteristics: 1) It forms large clusters for guiding daily adjustments 2) Categories assimilate as much as they can into the cluster 3) Categories enable us to quickly identify objects 4) Categories saturate all that they contain with the same ideational and emotional flavor 5) They may be more or less rational (Allport, 1954/1979, pp. 20-22). Categories are useful because they serve to simplify the environment by categorizing objects, enable us to generate expectations about the properties of those objects, and permit us to consider a greater amount of information at any one time (Wilder, 1981). Insofar as the stimuli under consideration are persons, the process of categorization naturally leads to the distinction of "groups" of such persons, whereby a group is defined as "a collection of persons who share some set of characteristics and who may interact with one another" (Wilder, 1981, p. 216). Categorization tags information by physical and social distinction, minimizes within-group differences and exaggerates between-group differences, and causes out-group members' behaviors to be interpreted uniformly (Taylor, 1981).

Individuals are categorized and grouped based upon sets of personally relevant values that are held by the perceiver, resulting in a phenomenon by which members of out-groups are viewed as verisimilar to each other and in broad terms, while members of in-groups are favored and viewed as individuals possessing distinct characteristics (Tajfel, 1981). Categorizing an individual as a member of a social out-group immediately increases the accessibility of category-based responses; thus, social categorization influences impressions of out-group members in systematic and significant ways (Dovidio & Gaertner, 1993). These impressions will systematically bias perception in favor of the in-group – it is not the case that out-groups are evaluated more negatively, but rather that individuals evaluate in-group members more positively (Brewer, 1999).

Meta-analytic evidence indicates the in-group bias effect to be moderate (ρ=.35; Mullen, Brown, & Smith, 1992). In-group bias is positively related to group size and in-group status, such that both larger groups and higher status groups display more in-group bias. Conversely, it is negatively related to group artificiality, such that weaker in-group bias is found when groups are only nominally significant to group members (e.g., "College of Sciences" vs. "College of Arts"), whereas stronger in-group bias is displayed toward groups that members are emotionally invested in and place social value upon (e.g., "Male" vs. "Female"; Mullen et al.).

Mere categorization into in-groups and out-groups leads to a number of consequences. First, categorization results in affective reactions, such that in-group members are found to be more attractive and more likeable than out-group members. Second, categorization influences retention such that less positive information is recalled about out-group members, and in-group similarities/out-group dissimilarities relative to oneself are recalled more easily. Third, categorization affects the attribution process, whereby internal attributions are made more often for in-group members positive behaviors while external attributions are made more often for out-group members' positive behaviors. Finally, categorization influences information preference, such that fewer individual characteristics of out-group members are remembered (Dovidio & Gaertner, 1993; Wilder, 1981).

The Nature of Stereotypes

Category-based perceptions produce stereotypes. Stereotypes may be defined as "A set of beliefs about the personal attributes of a group of people" (Ashmore & Del Boca, 1981, p. 16). Beyond simply being beliefs, however, stereotypes are *exaggerated* beliefs, and serve to justify individual conduct in relation to particular categories (Allport, 1979, p. 191; italics mine). Stereotypes help simplify the complex multitude of information that continuously bombards

individuals as they interact with their environments (Tajfel, 1981), by providing coherent organization that the individual can use to deal with new situations and previously unencountered stimuli (Tajfel, 1969). In plainer terms, stereotypes are "pictures in our heads" that help enable understanding of everyday encounters (Lippmann, 1922). Stereotypes have been postulated to form to serve a variety of functions, such that they protect the need to preserve self-esteem (Tajfel & Turner, 1979), arise as a function for individuals' evolutionary needs for trust and security (Brewer, 1991; 2007), and help reduce omnipresent existential fears that are fundamental to the very facts of life and death (Greenberg, Pyszczynski, & Solomon, 1986). In short, stereotypes held protect an individual's unique identity as a member of a specific, valued in-group, by creating affect-laden cognitions that produce favorable comparisons for said in-group vis-a-vie out-groups.

Ashmore and Del Boca (1981) outlined three general approaches to the study of stereotypes: Cognitive, psychodynamic, and sociocultural. Briefly, the cognitive approach assumes that stereotypes are formed to help process the abundance of information that inundate our information processing systems, the psychodynamic approach assumes that stereotypes are formed to help individuals feel better of themselves and feel less threatened by other groups, and the sociocultural approach explains stereotypes as being created by socialization processes which are endorsed and maintained to help individuals fit in and identify with members of their in-groups. The confluence of these three approaches may be used to garner insight into the nature of stereotypes – stereotypes are value loaded cognitions that are socially shared, influenced by cultural norms, and learned via socialization processes throughout the course one's development (Tajfel, 1969; 1981).

Stereotypes possess a number of important features. Although socially shared, and applied to social group membership, stereotypes are individually held (Pettigrew, 1981). Hence, the distinction is made between cultural stereotypes ("a communitywide, consensual set of beliefs"; Dovidio, Brigham, Johnson, & Gaertner, 1996, p. 280) and individual stereotypes ("a set of associations held by an individual about a group"; Dovidio et al., 1996, p. 281). Stereotypes can be either explicit (measured by asking how an individual feels toward a particular group, and involves conscious, deliberative, and controlled processes) or implicit (automatically activated and unavailable to introspection or deliberation; Greenwald & Banaji, 1995). Stereotypes contain distinct and independent affective and cognitive dimensions (Dovidio & Gaertner, 1993). In fact, cognitive and affective measures of stereotypes have been found to be only weakly correlated (Dovidio et al., 1996). Stereotypes are more resistant to change and more generalizable for out-group vs. in-group members because individuals only remember the concrete descriptive actions and behaviors of out-group members and not the underlying themes and motivations behind the behaviors (Gaertner & Dovidio, 2000). For example, individuals would remember that an out-group member volunteered to help clean up a room but would not remember that the out-group member was "helpful".

Stereotypes & Prejudice

Stereotypes and prejudice are linked (Katz & Braly, 1935), but evidence shows that the relation between stereotypes and prejudice is moderated by extraneous factors (Taylor & Falcone, 1982). Meta-analytic evidence indicates the relation to be weak (ρ=.25) and highly variable across studies, (Dovidio et al., 1996), indicating the presence of moderators. Specifically, individual differences, treatment type, measurement type, and study context have all been found to moderate the relation between stereotypes and prejudice.

More prejudiced individuals endorse stereotypes to a greater extent than less prejudiced individuals (Devine, 1989; Kawakami, Dion, & Dovidio, 1998). Demographic differences in endorsements of stereotypes have also been found – for example, women have been found to endorse age-related stereotypes more than men (Snyder & Miene, 1994). Implicit and unconscious activation of cognitions (automatic processing) produces stereotype activation in both more and less prejudiced individuals whereas explicit and conscious activation of cognitions (controlled processing) produces stereotype activation in only more prejudiced individuals (Devine, 1989). Stereotype activation is more likely to happen in situations whereby either the stereotypes or the categories that produce stereotypes are made salient (Fiske, 1998; Pettigrew, 1981). However, when stereotypes are primed, both more and less prejudiced individuals demonstrate stereotype activation; when categories are primed, only more prejudiced individuals demonstrate stereotype activation (Lepore & Brown, 1997). Deliberative and explicit measures of stereotypes (e.g., self-report scales) have been found to be more strongly related to prejudice than are spontaneous and implicit measures of stereotypes (e.g., response latency; Dovidio et al., 1996).

The tripartite model of prejudice postulates that the link between stereotypes and prejudice is such that stereotypes are cognitive, prejudice is affective, and discrimination, the consequence of prejudice, is behavioral (Eagly & Chaiken, 1998). However, as noted earlier, stereotypes have now also been found to contain affective as well as cognitive components. Furthermore, contemporary evidence indicates that stereotypes influence discrimination both directly, and indirectly, via prejudice (Dovidio et al., 1996). It has been shown that stereotypes mediate the relations between various social categories such a race and sex, and prejudice (cf., Glick, Zion, Nelson, 1988; King, Madera, Hebl, Knight, & Mendoza, 2006; Parks & Roberton,

2004). Figure 1 depicts this relation[1]. The notion that wholesale perceptions of out-group members based upon the categorization process lead to stereotypes and ultimately culminate in prejudice and discrimination against said out-group members has gained much currency in the literature and numerous theories of prejudice have been built upon this model (Fiske, 1998). It is to a few such theories that we turn to next.

<div align="center">Theories of Prejudice</div>

<div align="center">*Relational Demography Theory*</div>

Relational demography theory explains organizational diversity by studying the demographic distributions of groups in organizations, and using such distributions to explain intergroup relations (Alderfer & Sims, 2003).Groups may be formed on the bases of basic demographical attributes such as age, sex, race, educational level, length of service, and so forth (Pfeffer, 1985). One major distinction between groups is the number of individuals in any particular group, whereby the majority group is represented by the group with the highest proportion in a particular sample, and minority groups are defined as all groups that have lower sample proportions than the majority group (DiTomaso, Post, & Parks-Yancy, 2007). Groups may be balanced (approximately equal group representation among all groups), tilted (a roughly 70:30 split between groups in terms of size), skewed (when there is a large preponderance of members of one group over another, typified by ratios such as 85:15), or uniform (completely homogenous groups; Kanter, 1977, pp. 208-209).

Members who share certain demographic characteristics (e.g., younger workers) will form in-groups based upon these demographical similarities, a notion easily alluded to by the

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[1] It is important to note, however, that this figure only depicts the process at its most basic level.

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literature on categorization (cf. Allport, 1954/1979). To the extent that members of other categories within the said demographic characteristic (e.g., older workers) are underrepresented within the demographic distribution in relation to the numerically superior in-groups, they will become undervalued, possess less status in intergroup relations relative to the overrepresented demographic group, and may experience prejudice as a result of interaction processes with higher-status group members (DiTomaso et al.).Viewed from this perspective, relative group proportions in a population become inextricably linked with the power dynamics of a group. Members of groups that are disproportionately represented in the population become relatively visible and therefore receive undue attention, stand out in contrast to the majority group members and thereby have their differences with majority group members exaggerated, and become targets of stereotypes by majority group members because there do not exist enough members of the minority groups to provide a great deal of disconfirming evidence (Kanter).

As evinced by this theory, demographic dissimilarity (i.e., age) between an individual and his/her workgroup has been shown to be positively related to turnover intentions, and turnover, and negatively related to social integration, identification, organizational commitment, group performance, organizational citizenship behaviors, and within-group communication (see Shore & Goldberg, 2005, for a review). Although this theory acknowledges that prejudice begins with the formation of groups and the creation of social categories, it does not provide an adequate explanation for the causal process which culminates in prejudice.

Job Market Signaling Theory

Job market signaling theory (Spence, 1973) postulates that employers take into account both observable and transient characteristics of individuals (e.g., education), and observable and immutable characteristics of individuals (e.g., age) when making decisions regarding human

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resource selection and compensation. Such characteristics are termed "signals" (i.e., categories).

These signals, both transient and immutable, are often uncorrelated with each other (e.g., age and

education). Hence, they serve as independent sources of information (or signals), which

employers can use to make inferences regarding the productivity potential of employees, based

upon a comparison of the focal employee with other employees in the marketplace that share

similar signals. These signals then lead to inferences that disadvantage members of certain

groups (e.g., older job applicants) that share immutable characteristics. To the extent that other

members of such groups are seen by employers as having less potential for high job performance,

and to the extent that negative stereotypes and attitudes regarding such groups prevail, any

individual member of such a group may well experience unfair job discrimination.

At the crux of this theory is the notion that information available via individual's

memberships in certain out-groups is responsible for prejudice, thereby making this theory one

built upon the group formation/categorization model of prejudice. As with relational demography

theory, this theory's gravamen concerns demographic distributions, with the difference being

that the former concerns demographic distributions as they currently exist in a particular

organization and the latter concerns demographic distributions as they are thought to exist across

a variety of organizations. As with relational demography theory, this theory explains prejudice

as end result of certain factors, and pays little attention to process variables. The next few

theories outlined here serve to address this limitation.

Realistic Group Conflict Theory

Realistic group conflict theory (Campbell, 1965) strives to explain intergroup bias in

terms of conflicting goals and experienced in-group deprivation relative to some out-group.

Conflict is explained here to happen as result of individuals fighting for scarce resources; in-

group favoritism would not exist in the absence of such a conflict (Campbell). The classic study in this literature is that of Sherif (1958) where individuals who had pre-existing ties were made to form arbitrary groups and compete for resources. Conflict resulted when these groups were introduced to competitive conditions, and conflict was reduced when a superordinate goal was introduced such that a cooperative climate was fostered (Sherif).

Hence, realistic group conflict theory assumes that intergroup bias and in-group favoritism only occur as a result of conflict, and that in the absence of conflict, no such bias will occur. Because this theory incorporates a description of causal variables (i.e., conflict) that are responsible for prejudice formation, it is more theoretically satisfying than the previous two theories outlined in this section. However, the reasoning that prejudice would not occur in the absence of conflict, although intuitively satisfying, is quixotic. Evidence shows that prejudice and bias exist even in the absence of conflict (Tajfel & Turner, 1979, 1986).

Social Identity Theory

Social identity Theory (SIT) rejects the notion that individual self-interest and competition for scarce resources are prerequisite conditions for intergroup bias and conflict to exist, and blends the cognitive, psychodynamic, and sociocultural approaches to the study of prejudice. SIT posits that 1) Individuals strive to maintain a positive social identity, 2) Individual positive social identity is based upon making favorable comparisons relative to some out-group, and 3) When social identity is negative, individuals either strive to make their existing groups appear more positive or strive to leave their existing groups (Tajfel & Turner, 1979; 1986).

The earliest test of this theory lies in the work of Tajfel and colleagues (Tajfel, 1971; Tajfel, Billig, Bundy, & Flament, 1971). Tajfel et al. posited a 'minimal group paradigm', whereby the mere categorization of in- vs. out-groups was sufficient to create in-group bias; he

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reasoned that this would happen only so long as individuals place value upon the relevant social categories and derive self-esteem from membership in those categories. It was found that the experimental participants indeed demonstrated in-group favoritism and were biased against the out-group, despite the fact that the social categories in Tajfel's seminal experiment were artificially constructed and ephemeral. The effect of in-group bias based upon mere categorization has been found to happen even when groups are formed completely at random (Billig & Tajfel, 1973) and when groups are induced to compete for arbitrary 'rewards' that have no practical or monetary significance (Turner, 1979). Both adults (e.g., Turner, 1979) and minors (e.g., Turner, Brown, & Tajfel, 1979) have been found to be susceptible to this effect. Individuals have been found to sacrifice personal monetary gain for relative intergroup differentiation in favor of their in-groups (Tajfel et al., 1971) and to be less fair and more discriminatory toward the arbitrarily formed and irrelevant outgroups (Turner, Brown, & Tajfel, 1979).

In general, the evidence supports all the tenets of SIT except for the notion that a drive toward achieving positive self-esteem is the root cause of the bias itself (Taylor, Peplau, & Sears, 2003, pp. 188-190). This latter notion has been found to lack evidence of internal validity (Abrams & Hogg, 1988).

<div align="center">*Self-Categorization Theory*</div>

Like SIT, Self-Categorization Theory (SCT; Turner, 1985; Turner et al., 1987) developed to address the limitations presented by sociomotivational theories of intergroup conflict (i.e., realistic group conflict theory, Campbell, 1965; Sherif, 1958) in explaining the causal factors of in-group/out-group bias. SCT shares common ground with SIT by positing that the mere act of categorization into in-groups and out-groups that have value to perceivers is enough to trigger

bias. Unlike SIT, SCT makes explicit the role of the self in the categorization process, conceptualizing the self as a cognitive element in the information-processing system.

Drawing from Allport (1954/1979), the self is conceptualized as being the most basic categorical unit in a hierarchical system whereby each successively higher order of abstraction implies a more inclusive category. There are multiple concepts of the self, and particular self-concepts may be activated in particular situation – thus, the self-concept is situation-specific, and different aspects of the self may become salient in different situations (Turner, 1985). A distinction is made between the personal self that includes individuals' unique identity in relation to others (i.e., "me" as a person) and the collective self that includes shared characteristics of value with similar others (e.g., those based upon demographic differences such as age; Turner et al., 1987). The salience of any level of self-categorization is based upon the particular frame of reference, with the category becoming salient at one level less abstract than the one by which comparisons are made (Turner, 1985). Hence, the personal self becomes salient in comparisons with in-group members, while the collective self becomes salient in comparison with out-group members. Essentially, there exists a "functional antagonism" between the salience of varying levels of self-concept, whereby "the salience of one level produces intraclass similarities and interclass differences that inhibit the perception of such similarities and differences on other levels" (Turner, 1985, p. 96). Hence, "similar others" is a relative term that predicts favoritism toward those others at the expense of "dissimilar others" only insofar as the perceptual context makes such others similar or dissimilar.

An unfortunate limitation of SCT is that, like SIT, the theory alludes to the notion of self-esteem as the root cause underlying the creation of social categorizations and the consequent

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formation of prejudice and biases toward out-groups. As noted before, this explanation is causally untenable (Abrams & Hogg, 1988).

Theory of Optimal Distinctiveness

Brewer's (1991, 2007) Theory of Optimal Distinctiveness (TOD) builds upon the foundations of SCT and SIT in positing that group biases are created as the result of social categorization. According to TOD, human beings possess a need for differentiation in relation to others in order to maintain their unique identity as an individual but also possess a countervailing need for assimilation with similar others in order to become part of a larger collective and receive cooperation and support necessary for survival. If the collective becomes too large and inclusive, the individual will become motivated to differentiate himself as an individual to reestablish his unique identity; to the extent that the individual becomes overly distinct she/he is motivated to identify with others similar to himself in order to escape isolation. Hence, there is a drive toward achieving "optimal distinctiveness", whereby the individual is not isolated but also manages to maintain a sense of self as an individual. The capacity for social identification with groups satisfies both needs simultaneously, whereby the need for differentiation is met by comparisons with in-group members and the need for assimilation is met by comparisons with out-group members. A review of the literature indicates that activation of these needs increases the importance of distinctive group memberships and motivates overexclusion and intergroup differentiation, and that distinctive minority group categories engage greater identification and stereotyping than large and more inclusive categories, thereby providing support for this notion (Brewer, 2007).

The fundamental difference between TOD and both SCT and SIT is that the former argues that it is not self-esteem needs but trust and security needs that motivate individuals to

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form biases against out-groups (Brewer, 1991; 2007). The theory posits that these trust and security needs are rooted in the nature of societal evolution – an individual cannot survive without the aegis of a larger group. No man is an island. The in-group offers a safe haven to obtain trust and security through mutual support and reinforcement of views with in-group members. Conversely, out-group members cannot be given the same degree of trust as there is no guarantee of reciprocal support. Hence, social categorizations, stereotypes, and evaluations are formed that favor the in-group at the expense of derogating out-groups.

Terror Management Theory

Becker (1973) argued that while all animals possess the desire for survival, humans are unique in that they possess the intellectual capacities to understand that death is inevitable and that life is vulnerable; this creates an 'existential state of anxiety' that creates potentially paralyzing terror which has to be overcome. Building upon Becker's work, Terror Management Theory (TMT) postulates that this desire for survival in the knowledge of inevitable death creates a situation whereby individuals cling to cultural systems of belief to achieve psychological calm; to the extent that out-groups share different cultural worldviews, there exists the propensity for prejudice and discrimination (Greenberg, Pyszczynski, & Solomon, 1986; Greenberg, Schimel, & Martens, 2004). Hence, existential fears motivate individuals to form and uphold coherent worldviews that conform to the views of similar others. When one's worldview is threatened by the existence of out-groups with different sets of values and cultural norms, bias against out-groups is created (Hart, Shaver, & Goldenberg, 2005). A review of the literature indicates these basic tenets of TMT theory are supported (Hart et al.). Furthermore, findings also indicate that in-group/out-group bias is accentuated when individuals experience death salience (Hart et al.).

Summary of prejudice theories

Three theories reviewed here, namely, relational demography theory, job market signaling theory, and realistic group conflict theory, failed to provide adequate causal mechanisms to explain the formation of prejudice, and are thereby of no continued interest. Three other theories following the sociocultural approach that were reviewed here include Social Identity Theory (SIT), Self-categorization Theory (SCT), and the Theory of Optimal Distinctiveness (TOD). As discussed, these three theories are similar and build upon one another. However, SCT and SIT fundamentally differ from TOD in that the former postulate a drive toward self-esteem as the underlying raison d'être for prejudice formation while the latter replaces self-esteem with trust. Although it has been argued that trust needs represent a more viable explanation for prejudice than self-esteem drive (Brewer, 2007), there exists no published study regarding a formal causal test of these two competing explanations. Of the three, TOD provides the most intuitively appealing explanation for prejudice formation *in general*, by going further than the other two in specifying the drives toward assimilation and differentiation (optimal distinctiveness) in explaining in-group bias. However, as noted earlier, the specific prejudice addressed in this paper is ageism. As will be discussed further in the next section, although ageism is similar to other prejudices because it forms a result of categorization and stereotyping, it also differs from other prejudices in that in-group members (other older adults) also display biases toward older adults. TMT, with its concomitant focus on mortality salience and existential fears, provides a sound rationale for this counterintuitive facet of ageism. Before delving further, however, it is necessary to first define ageism itself.

Prejudice toward Older Workers

Ageism Defined

The term "ageism" was coined by Butler (1969, p. 243) as "a deep-seated uneasiness on the part of the young and middle-aged – a personal revulsion to and distaste for disease, disability, and old age, and fear of powerlessness, uselessness, and death". Ageism is defined to include three components: Negative evaluations toward, stereotypic beliefs about, and discriminatory behavior toward older adults[2] (Palmore, 2004). Ageism is similar to other forms of prejudice in that the process begins as a function of the categorization process but is different from the other "isms" such as racism and sexism in that not all individuals are black or are female, but all individuals must eventually grow old (Butler, 1980). Unlike discrimination based upon race or sex, which attacks people for who they are, age discrimination attacks us for what we become (Seagrave, 2001). Other forms of prejudice such as race and sex discrimination are socially constructed whereas age discrimination is based upon a real feature of individuals – we only age in one direction (Macnicol, 2006).

Individuals from all age groups and cultures have been found to be ageist, but middle-aged adults have been found to be more ageist overall than either young or old adults (Collete-Pratt, 1976). Although some have speculated that cultures where age and seniority are revered, such as Japan, are less likely to be ageist than cultures not so inclined (i.e., Western cultures; Palmore & Maeda, 1985), research shows that individuals from such cultures are ageist too; the

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[2] In a narrative review of 105 separate studies, Ashbaugh and Fay (1987) found that an "older worker" was defined to be on average as someone who is 53.4 years of age, with the minimum being 30 years of age, the maximum being 65 years of age, and the vast majority of studies (80%) conceptualizing "older worker" as one who is over 50 years of age. Hence, the specific chronological age used to denote "older adult or worker" will be one who is over 50 years of age.

former tend to be high-context cultures (cultures whereby communication is more non-verbal than it is verbal) and therefore ageism exists on a subtler level than it does in low-context, Western cultures (Koyano, 1989). Hence, neither age nor cultures debar the existence of ageism. Conceivably, however, older adults would expectedly be viewed as a natural in-group for other older adults, and research on the nature of prejudice indicates that there ought to be an in-group favoritism effect. Why, then, do older adults also discriminate against other older adults?

From a terror management perspective (Greenberg, Pyszczynski, & Solomon, 1986; Greenberg, Schimel, & Martens, 2004) ageism can be interpreted to stem from the threat of death and the existence of mortality salience in the presence of older adults, which trigger cognitions and affect that ultimately lead to prejudice and discrimination. To the extent that we are motivated to survive and avoid death, and to the extent that the presence of older adults reminds us of this very death we wish to avoid, there will be a propensity to differentiate ourselves from older adults and discriminate in favor of younger adults (Greenberg et al., 2004; Martens, Goldenberg, & Greenberg, 2005). Additionally, from a TMT perspective, because older adults trigger the fear of death, it is unlikely that the in-group (i.e., older adults) will show an in-group favoritism effect for other older adults. The results of a recent meta-analysis buttress this notion, with the finding that older adults also display prejudice against older adults (Finkelstein, Burke, & Raju, 1995). This property of ageism as being rooted in the threat of death and the desire for survival also manifests itself in the content of age-based stereotypes in the workplace.

Age-based Stereotypes in the Workplace

Older adults and workers are stereotyped as possessing less potential for development, less adaptable, less creative, less competent, more risk-averse, less flexible, less ambitious, less productive, more opinionated, lacking in physical strength, grouchy, less interested in new

training, less interested in technological change, less trainable, less energetic, physically inactive, forgetful, and less able to learn new things than younger workers (Gordon & Arvey, 2004; Gregory, 2001; Gringart, Helmes, & Speelman, 2005; Kite & Johnson, 1988; Kite, Whitney, Stockdale, & Johnson, 2005; McCann & Giles, 2002/2004; Minton & Schneider, 1985; Perry & Parlamis, 2006; Rosen & Jerdee, 1976a, 1976b; Shore & Goldberg, 2005; Warr, 1994). On the positive side, older adults and workers are stereotyped as warm (Cuddy & Fiske, 2002/2004; Minton & Schneider, 1985), friendly, warm, careful, cautious, reliable, loyal, stable, and conscientious (Gordon & Arvey, 2004; McCann & Giles, 2002/2004; Minton & Schneider, 1985; Perry & Parlamis, 2006; Warr, 1994).

From the preceding, it can be seen that the stereotypes of older adults and workers consistently refer to themes associated with death and decay. In other words, the "pictures in our heads" that are formed when older adults are brought to mind stem from the mere fact that they make mortality salient. Summarily, the content of age-based stereotypes subsumes both negatively and positively valenced stereotypes (Palmore, 1999). The negatively valenced stereotypes fall under the general rubrics of competence, and inability to learn (Posthuma & Campion, 2007). The positively valenced stereotypes fall under the general rubrics of dependability/loyalty (Posthuma & Campion, 2007) and warmth (Cuddy & Fiske, 2002/2004). An understanding of the nature and content of these stereotypes gives us an essential tool that enables deeper understanding of the central problem confronted in this paper – age-based discrimination in the workplace.

Historical Overview

Contemporary society evinces the existence of a 'youth bias' – the young and the new are celebrated in American media and business (Hedge, Borman, & Lammlein, 2006). An average of 16,500 additional age discrimination cases have been brought to the Equal Employment Opportunity Commission (EEOC) every year since 1995 (Hedge et al.). Survey based research in Britain indicates that roughly 40% of employers have admitted to practicing some form of age discrimination; eighty percent of respondents among the general public believe age discrimination in selection and promotion exists; 14-25% (estimates vary) of job applicants feel that they have experienced some form of age discrimination in employment (Macnicol, 2006). Thus, it appears that contemporary society is terribly ageist and is becoming even more so.

However, historical data indicate that such nostalgia may be based upon chimerical assumptions. Age discrimination in employment is not a recent phenomenon. Intense ageism and youth bias have been documented to exist in the late 19th and early 20th centuries, and cases of widespread age discrimination in both business and law have been recorded from as far back as 1866, spanning from then to now (Seagrave, 2001). For example, in the Depression era of the 1930s, older workers suffered chronically longer periods of unemployment than younger workers; in 1967, opponents of the first legislation to protect the rights of older workers, the Age Discrimination in Employment Act (ADEA)[3], argued that it was a business necessity to terminate older workers who, by virtue of age and seniority, would cost more than they were

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[3] The Age Discrimination in Employment Act (ADEA) was signed into law by President Lyndon Johnson in 1967, and was designed to protect individuals aged 40 and over from being unfairly discriminated against in jobs. It has been amended twice – in 1974, to cover government employees, and in 1978, to abolish mandatory retirement for federal employees (Hedge, Borman, & Lammlein, 2006).

worth in productivity (Macnicol, 2006). Probably the only major change from before age

discrimination was made unlawful and the present day is that overt and blatant forms of age

discrimination no longer exist as they used to in yesteryears – instead, contemporary age

discrimination, like contemporary race and sex discrimination, is more subtle and covert

(Seagrave, 2001).

Studies of Age-based Discrimination in the Workplace

Although age discrimination in the workplace has existed since the very beginnings of

the industrial era, the scientific, psychological study of this topic is a fairly recent development.

The seminal studies on age discrimination in the workplace were conducted by Rosen and Jerdee

(1976a, 1976b). These authors used simulated employment contexts with convenient samples of

undergraduate students to examine age stereotypes in managerial decision making, and found a

moderate age bias in favor of younger workers. In the decades since these initial studies, age

discrimination in the workplace has been studied in a variety of contexts, including job search

and unemployment, selection, job performance, absenteeism, training, and career development

(Shore & Goldberg, 2005).

The relations between age and both job search behavior and employment outcomes is

negative, such that older workers who are laid off engage in less job search behavior and are less

likely to be re-employed (Kanfer, Wanberg, & Kantrowitz, 2001). Almost 2/3 of older workers

who changed jobs also changed occupations, and financial need has most frequently been cited

as the reason for late career-change (Johnson, Kawachi, & Lewis, 2009). Older workers

involuntarily change careers (due to layoffs or company closings) tend to find new work that is

characterized by lower wages (about 1/5 less pay), fewer benefits, and less responsibility

(Johnson et al.).

Age bias appears to be greater toward older job applicants than older job incumbents (Gordon & Arvey, 2004), suggesting that there may be greater age-based discrimination in the selection context. However, a meta-analysis of experimental studies studying ageism in selection found only moderate effect sizes in regards to age bias when decision-makers were asked to rate how qualified and how much potential for development the job applicant possessed (Finkelstein et al., 1995). However, these effect sizes become much stronger in situations where age is salient Finkelstein et al.). Field studies have found more inconsistent results with regards to the main effect of age on ratings of suitability for hire of older job applicants (Shore & Goldberg); however, these studies all used applicants with median ages in their twenties and thirties, thereby limiting the generalizability of such inferences to older workers.

Voluntary absenteeism is negatively related to age for male employees, but not related to age for female employees; conversely, although it is clear that older workers suffer from more illnesses and disabilities, involuntary absenteeism is only weakly correlated with age (Warr, 1994). Recent data from the Bureau of Labor Statistics also suggests that there is very little actual difference between older and younger workers in terms of total absence rate; despite this fact, stereotypes abound that older workers are expected to have higher absenteeism rates because of health-related problems (Shore & Goldberg). In reality, data suggest that there is essentially no correlation between age and sickness-related absences, a weak negative correlation between age and non-sickness related absences, and a moderate negative correlation between age and tardiness (Ng & Feldman, 2008).

As discussed earlier, older workers are stereotyped to be less trainable than younger workers. These stereotypes manifest themselves in discriminatory behavior toward older workers – older workers receive fewer training and development exercises than do younger workers,

particularly so when they are older than their managers or peers (Shore & Goldberg). Although older workers report having higher quality mentoring experiences, older protégés receive less frequent mentoring and spend less hours per week with their mentors (Finkelstein, & Allen, & Rhoton, 2000, cited in Shore & Goldberg).

Although age has been found to be largely unrelated to task performance and positively related to contextual performance (Ng & Feldman, 2008), perceptions regarding competence and general evaluations of older workers remain negative, with moderate standardized mean differences (Kite & Johnston, 1988; Kite et al., 2005). Results summarized in McEvoy and Cascio (1989) suggest older employees in professional jobs are evaluated negatively, whereas older employees in non-professional jobs are evaluated positively. Shore and Goldberg (2005) note some jobs may be age-typed (i.e., jobs that are technological in nature); perceptions of suitability for hire into young-typed jobs may be unfairly biased against older workers. The degree of age bias on performance ratings of employees has been found to vary as a function of the type of job (Cleveland & Landy, 1981), and age bias has been shown to be greater when employees' age is inconsistent with the age-type of the job (Cleveland & Landy, 1983). Overall, small to moderate correlations between age bias and ratings have been found, such that older adults are rated less favorably vis-a-vie younger adults (Gordon & Arvey, 2004; Kite & Johnson, 1988; Kite et al., 2005). A number of moderators of this relation have been found.

Individual differences have been found to moderate the relation between age and prejudice. Middle-aged adults tend to give the lowest ratings of competence and are most likely to attribute older workers' successes to luck instead of effort (Kite et al.). Overall, younger raters provide more negative evaluations than older raters with regard to job qualifications (how qualified an older worker is for a particular job), and how much potential for development an

older worker possesses (Finkelstein et al.). Undergraduate and graduate students provide more negative ratings than supervisors (Gordon & Arvey, 2004), and undergraduates have been found to be more ageist than graduate students (Kite et al.). Results regarding participant sex have been found to be more inconsistent and less readily interpretable (Kite et al.). Additionally, to the best of my knowledge, no quantitative review exists documenting the moderating role of either race or culture.

Study characteristics have also been found to moderate this relation. Perceived overall ageism has been found to be larger when women as opposed to men are rated; however, ageism in regards to perceived worker competence is greater when older males as opposed to older females are contrasted (Finkelstein et al.).When age is salient, ratings of older workers in regards to job qualifications, potential for development, and stability tend to be lower than when age is not salient (Finkelstein et al.). Younger workers are rated as slightly more highly qualified when age-neutral or age-stereotyped jobs in favor of younger adults (e.g., disc jockey) are considered; however, there is no difference in ratings of younger and older workers when jobs are stereotyped in favor of older adults (e.g., security guard; Finkelstein et al.). When participants are presented with no information regarding the type of job that a hypothetical job applicant is applying for, there exists a larger mean difference in favor of younger workers than when participants have specific information regarding the Knowledge, Skills, Abilities, and Others (KSAOs) of the job (Kite et al.; Gordon & Arvey, 2004). Studies that provide the most limited information about the hypothetical job applicant show the largest mean differences in favor of younger workers (e.g., studies that use videotaped actors show smaller age bias than studies that use only resumes or 'paper-people; Gordon & Arvey). With regards to study type, larger effects of ageism have been found to exist in laboratory studies (Gordon & Arvey).; however, this

distinction is probably caused by the fact that laboratory studies generally provide more limited information than field-based studies. Overall, evidence shows as the research setting becomes more impoverished and artificial, negative stereotypes and evaluations against older adults and workers increase in magnitude. With regards to study type, studies that employ between-subject designs have been found to obtain larger correlations than studies that employ within-subject designs (Gordon & Arvey)[4]. Finally, weaker correlations have been found in more recent studies (Gordon & Arvey; Kite et al.), which is a counterintuitive finding given that more recent studies in Industrial & Organizational Psychology generally employ better developed theory and methods (Austin, Scherbaum, & Mahlman, 2002/2004).

From the preceding review, it can be seen that we now possess an understanding regarding the nature of ageism, the nature of age-based stereotypes, the consequences of age-based discrimination in diverse employment contexts, and the role of methodological characteristics and individual differences in the relation between age and ageism. It has also been firmly established that age prejudice and discrimination exist in the workplace. However, the boundary conditions that exacerbate or alleviate workplace related ageism remain obfuscated. In other words, what features of the employment context possess significant impact upon ageist behaviors and attitudes?

One particular employment context that has received little to no attention is the discrimination that older workers face when they apply for jobs that are incongruent with their past job experience. Although counterintuitive from a vocational fit theory perspective, workers are more likely than ever before to make such incongruent job transitions, because of economic

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[4] Although a prior meta-analysis by Finkelstein et al. (1995) found the opposite conclusion with regards to study design, re-analyses of these authors' work by Gordon & Arvey (2004) suggest that their conclusion was erroneous, and resulted from restriction of range in their data.

necessity, and because of structural changes in the nature of work. As highlighted in a recent Associated Press news article, older workers facing job cuts in the current economic recession are facing difficulty finding new jobs, because the skills and experience they have amassed over a lifetime are no longer relevant when making a switch to a different industry (http://www.msnbc.msn.com/id/31715378/ns/business-careers//). This situation is potentially exacerbated by two other factors: 1) The workforce is rapidly graying and 2) Modern jobs and careers are no longer characterized by stable and lifelong tenures in organizations.

<u>Ageism and Career Change</u>

The Graying Workforce

The proportion of older adults and workers in society is burgeoning. According to the Bureau of Labor Statistics (summarized in Hedge, Borman, & Lammlein, 2006, pp.7-12), by 2010, the number of workers aged 55 and over is expected to increase from 18.2 million individuals to 26.6 million individuals – a 46% increase. By 2030, it is expected that there will be approximately 70 million individuals aged 65 and over in the United States – twice the number in 2000. By 2050, it is estimated that 20% of the world's population will be aged 60 and over. Data from the Federal Interagency Forum on Aging Related Statistics (AARP, 2005, p. 4) corroborate these figures – the number of persons aged 65+ in the US is gradually increasing, from 25.5 million in 1980, to 35 million in 2000, a projected 40.2 million in 2010, and 71.5 million by 2030. Although it can be argued that the proportion of the population under age sixty five has also increased, the proportion of older adults in the population has increased from about 4% at the beginning of the twentieth century to about 13% at the beginning of the 21st century (Palmore, 2004). These data make sense in light of the fact that advances in health care and fertility science have served to both increase life length and decrease the birth rate, thereby

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creating a rapidly aging population (Cowgill, 1974). The question is: Does the graying

population translate to a graying workforce?

When one takes a historical perspective, it seems that the labor force participation rate of

older workers is in steep decline. As reported in Sterns and Miklos (1995, p.249),in 1950, 87%

of males and 27% of females aged 55-64 were working. Forty-six percent of males and 14% of

females aged 65 and over were working during this period. Conversely, in 1990, 65% of males

and 46% of females aged 55-64 were working; 14% of males and 7% of females aged 65 and

over were working in 1990. As reported in Macnicol (2006, p.210, p. 257), the proportion of men

aged 65+ in the US labor force has continually declined, from 68.3% in 1890, to 54% in 1930,

24.8% in 1970, and 17.5% in 2000. Men who are relatively younger have fared little better – the

proportion of men aged 55-64 in the workforce has dropped from 83% in 1970 to 67.3% in 2000

while the proportion of men aged 45-54 in the workforce has dropped from 94.3% in 1970 to

88.6% in 2000. Surprisingly, the labor force participation rates of women overall have actually

increased. For women aged 45-54, the proportion in the workforce has increased from 54.4% in

1970 to 76.8% in 2000; for women aged 55-64, the corresponding proportions have increased

from 43% in 1970 to 51.8% in 2000 (Macnicol, 2006, p. 257). However, these increases for

women can be attributed to advances in equal opportunity in employment rights for women and

therefore a grimmer picture of declining labor force participation rates is depicted if one only

looks at the historical trends for men.

In fact, the historical perspective may be misleading. The historical decline in labor force

participation rates among the aged may be attributed to increased socioeconomic status among

the aged as the economy has gradually moved from an agricultural model to an industrial model

over the course of the last century, thereby giving older workers the luxury to retire if they please

(Macnicol, 2006). Conversely, it may also be the case that industrialization has led to the deskilling of traditional craftsperson jobs (e.g., weaver, blacksmith) and a shift to the urban economy, resulting in a situation whereby older workers are replaced in the labor force with younger and cheaper workers (Seagrave, 2001; Cowgill, 1974). The picture becomes less obfuscated when only labor force participation rates over the last 25 years are examined, because the last 25 years represent an era in the US economy that is heavily industrialized, thereby restricting analyses to the modern era of work. During this period, the labor force participation rates of workers aged 65 and over has continually increased, from 18.4% in 1985, to 21.8% in 1995, and 27.7% in 2004 (AARP, 2005, p. 12). Furthermore, a recent study found that 69% of workers aged 45-74 were either working or planning to look for work in some capacity during retirement (AARP, 2005). Hence, although labor force participation rates of older workers are lower than it was a century or even a half-century ago, the proportion of older workers as a percentage of the workforce is increasing in tandem with the rapid graying of the population.

The Changing Nature of Work

Friedman (2000) argues the conflation of advances in transportation technology, communications technology, international financial systems, mass media, and changes in cultural norms throughout the industrialized nations of the world has given rise to the hyper-powered era of globalization. The 21st century world is flat – geographical separations between nations no longer impede interactions between societies (Friedman, 2005). Corporations are free and able to outsource talent from all four far-flung corners of the world in order to maximize profit; workers are at liberty to maximize personal gain, selling their talents to the highest bidder (Cascio, 2003). Thus, the inexorable force that is globalization has fundamentally altered the psychological contract between employers and employees.

A summary of the transformed employer-employee psychological contract (Cascio, 2003, pp. 402-404) is provided in Table 1. As shown in Table 1, one aspect of this changed psychological contract is the number of careers a worker has over the course of a working lifetime. While the old psychological contract characteristically allowed workers to linearly grow in a single career (e.g., from Assistant Professor to Full Professor), the new psychological contract is characterized by workers often switching careers multiple times over the course of a lifetime (e.g., from Assistant Professor to pastor). Labor experts now predict that new workers entering the labor market will hold 7 to 10 jobs in their lifetimes, and 10% of the American workforce actually switches occupations every year (Cascio).

On the employer side of the equation, a growing number of companies are providing one-time, lump-sum, monetary awards for meritorious performance in place of increases to an employee's base pay, eliminating or reducing health care coverage to employees, reducing employee benefits, and reducing pension costs and obligations, as defined-benefit pension plans (plans that provide a guaranteed fixed benefit at retirement) gradually give way to defined-contribution plans (plans that tie the value of pension to investment funds; Sicker, 2002). This fosters a culture of work that emphasizes individualism and discourages loyalty to the organization.

Economic data mirror this psychological trend. Median employment tenure in the U. S. is only six years for managerial and professional jobs, and four and a half years for all jobs (Arthur, 1994). A majority of U. S. firms are small companies with fewer than 500 employees, even as firms have become increasingly decentralized; this provides less employment security and stability in the overall economy (Arthur, 1994). As organizations restructure, change, and become smaller, the work lives of individuals become inevitably altered, as organizations and

careers reciprocally affect each other (Arthur, 1994). The overall trend thus indicates that work is now temporary, self-reliant, and unstable. The modern career is boundaryless and protean. Given that median job tenure has declined for workers 55 and over (http://www.bls.gov), and older workers show the lowest occupational mobility rates (Shniper, 2005), the protean and boundaryless career does not bode well for older workers.

Boundaryless and Protean Careers

The Greek god Proteus is a shapeshifter, changing forms at will. Judging by the just-noted trends, the same could possibly be said for 21st century careers. Whereas 20th century careers were thought of as courses of professional advancement, 21st century careers are better characterized as work experiences that sequentially unfold over time (Arthur & Rousseau, 1996b). Hall (1976, p. 201) defines the "protean" career as "… a process which the person, not the organization, is managing. It consists of all of the person's varied experiences in education, training, work in organizations, changes in occupational fields, etc.… …In short, the protean career is shaped more by the individual than by the organization and may be redirected from time to time to meet the needs of the person". Individual success is defined in psychological terms, by obtaining pride and accomplishment from one's work, as opposed to a definition of success in strictly material terms (Hall, 1996). People, not organizations, manage their individual careers, and the career is seen as a lifelong series of identity changes which provides a path for continuous learning and development (Hall, 1996). The career cycle is defined as a series of learning cycles, whereby individuals hold multiple positions over the course of their work lives, advance across organizations by holding progressively more senior-level jobs, and engage in continuous professional development and maturation; this is in contrast to the traditional model of work, whereby individuals would "mature" as they became established in their lines of work

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and eventually hit a plateau, when chances of upward mobility across one organizational hierarchy would decelerate or end (Mirvis & Hall, 1996). Professional development, ergo, is no longer viewed strictly in the sense of formal training and promotions up a corporate ladder; for career success, employees now need to learn how to learn, and build transportable skills that may be applied in various contexts (Hall & Mirvis, 1995, cited in Hall, 1996).In order to achieve career success, it is necessary for workers to build self-management skills, knowledge-based technical specialties, and gain cross-functional and (preferably) international experience (Allred, Snow, & Miles, 1996). Learning is thus now viewed not simply as the acquisition of knowledge but also as a process by which individuals may collectively interpret, transform, and adapt to, in continuous cycles throughout the career path (Arthur & Rousseau, 1993; 1996b).

From the preceding discussion, it can be seen that the protean career is a psychological phenomenon, defined at the level of the individual, and characterized by lifelong learning and development. The "boundaryless" career represents the flip side of the coin, in that it is a physical phenomenon applied to organizations (Briscoe, Hall, & DeMuth, 2006). The boundaryless career is typically associated with careers that transcend organizational boundaries (Briscoe & Hall, 2006). Organizations no longer dictate core competencies (e.g., technical competence in engineering) that workers should build, and have become complex to the point that different mixes of core competencies are required across diverse organizations, even within the same career path (Allred et al.). Organizations are no longer characterized by formal hierarchies and division of labor; organizational structures have become flattened, and workers now work across interorganizational networks (Arthur & Rousseau, 1993; 1996b). Whereas "organization" used to describe a static entity, the term can now be thought of in dynamic terms, as a process that accommodates the notion of constantly shifting interorganizational relationships

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(e.g., via acquisitions and mergers) and the transportable nature of work (Arthur & Rousseau, 1996a). Hence, organizational boundaries have become transient. Put simply, then, the boundaryless career refers to a career that unfolds over multiple employment settings, as opposed to the traditional organizational career that unfolded over a single employment setting (Arthur & Rousseau, 1996a). It stands in contrast to the traditional organizational career in that it is cyclical (workers periodically need to acquire new KSAOs), lateral (workers advance horizontally across multiple organizational boundaries instead of vertically through a single organizational hierarchy), and individualistic (the individual is primarily responsible for career development, as opposed to the collective organizational establishment; Mirvis & Hall, 1996).

From the preceding, it can be seen that work has evolved to imply that individuals may now need to hold multiple jobs, positions, and careers throughout their lifetimes. Conceivably, jobs in different career paths attract and consist of individuals with very different personalities, because different types of jobs attract and retain different types of individuals (Schneider, 1987). To this end, vocational behavior theories tell us a lot about how people choose careers and career changes. One influential theory of vocational behavior is Holland's (1997) RIASEC model. The theory suggests that people are far more likely to choose within-career rather than between-career transitions. According to Holland (1997), there are six basic personality types that can be used to classify people – Realistic (R), Investigative (I), Artistic (A), Social (S), Enterprising (E), and Conventional (C). Moreover, jobs can be classified into six basic environment types, RIASEC, based on which of the six types of personality dominate that environment. In other words, people with similar personality types tend to congregate and form environments that reflect the interests, competencies, and activities of that type. A detailed description of the six personality types is presented in Table 2, reproduced from Minton & Schneider (1985, p. 236).

Although it is beyond the scope of this paper to describe all of the tenets of Holland's theory, one important component of his theory that is relevant to the current study is the hexagonal model. Holland states that, "The relationships within and between personality types or environments can be ordered according to a hexagonal model in which the distances among the types or environments are inversely proportional to the theoretical relationships between them" (p. 5). In other words, certain personality types (and environments) are theorized to be more closely related to one another than others, and the relationships can be depicted with a hexagonal model. If we know the Holland environment codes for 2 jobs, we can calculate their similarity, according to the 6 types. The hexagon forecasts person-vocation (P-V) fit, with P-V fit being the similarity between an individual's personality and that of a vocational environment (Kristof, 1996). Therefore, based upon the RIASEC model, some jobs and careers will be congruent with the job that a job applicant currently or previously held (i.e., similar in terms of personality type of the job) and some jobs and careers will be less congruent with the job that a job applicant currently or previously held (i.e., dissimilar in terms of personality type of the job). Furthermore, as reviewed earlier, financial need due to layoffs or stress-related turnover has been found to be the most prevalent reason for late-life career transitions; 2/3 of older workers who change jobs also change occupations (Johnson et al., 2009).

The Interaction between Age and Career-Transition Type

To the extent that potential decision makers in organizations may view an older job applicant transitioning from a previous career that is different from the job in question in terms of personality, there exists the likelihood that both age and job previously held may interact to predict ageism. Intuitively, a job applicant who transitions into a new career should possess potential for development, be flexible, be willing and able to learn new things, be speedy in work

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without wearing easily, and be both open-minded and adaptable. These qualities may logically be expected to be particularly relevant in the context of a between-career transition, where new hires may be expected to rapidly develop new KSAs that are very different from those required for their previous job. However, older workers and adults are stereotyped with qualities that run contrary to such ideals. Therefore, older job applicants that make between-career transitions will be placed in a specific hiring context that makes such stereotypes particularly salient. As indicated by the extant literature on stereotyping and prejudice, prejudice and unfair discrimination is more likely to occur when stereotypes are salient (i.e., they are primed in the minds of perceivers; Fiske, 1998; Pettigrew, 1981). Furthermore, if age-based stereotypes are salient in a particular context, it can be expected that age would also become salient; as noted earlier, age bias in selection studies has been found to be greatest when age is salient (Finkelstein et al., 1995). Thus, older job applicants making between-career transitions may be expected to encounter a greater age bias than older job applicants making within-career transitions. However, it is also possible that if a career-transition is too extreme, decision-makers will pay no attention to the age of the job applicant and instead uniformly make evaluations simply based upon the disparity of the career-transition.

Using a series of experimental studies, Marcus and Fritzsche (2009) examined the interaction between age and career-transition type, employing the RIASEC model (Holland, 1997; Gottfredson & Holland, 1996) as a theoretical paradigm. We found a statistically significant interaction between job applicant age career-transition type, such that older job applicants were discriminated against relative to younger job applicants when applying for the job of restaurant manager if the transition to this job involved a career change that was moderately different (i.e., electronic print operator), but were not discriminated against relative

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to younger job applicants if the career change was a within-career change (retail manager) or a drastically different career change (agricultural technician). This interaction is depicted in Figure 2.

In a separate study, we also investigated the potential confounding influence of job experience. Because older job applicants would be expected to possess more years of experience, and by default, would be expected to receive a higher pay level, we expected that the age bias in favor of the younger job applicant would be especially pronounced when no information regarding years of experience is provided, as decision makers would be relatively unwilling to pay the higher salary that the more experienced applicant would expect. Furthermore, because the between-career transition represents a situation that makes negative stereotypes of older job applicants salient, we expected this bias to be even more pronounced when the career-transition was a between-career transition as opposed to a within-career transition. Our results showed full support for this hypothesized three-way interaction between age, job experience, and career-transition type (Fritzsche & Marcus, under review). These interactions are depicted in Figures 3a and 3b.

Although these prior studies established that age and career-transition type interact to predict unfair discrimination toward older workers when the career-transition is moderately different from the focal job, they were resume based 'paper-people' and had research participants read fictional cover letters and resumes before making their evaluations. As reviewed earlier, studies that use such impoverished stimuli find larger effects than studies that possess higher fidelity (Gordon & Arvey, 2004) – it is possible that the age x career interaction that was found in these studies may not generalize to actual field settings, where weaker effects are expected. Therefore, one purpose of the current study is to replicate these experiments using a higher

fidelity design. Specifically, in a between-subjects lab experiment, video resumes will depict

older and younger job applicants applying for the job of Instructor at a local university;

participants will be informed that they will be playing a role in evaluating the quality of these

resumes for feedback and resume development purposes, thereby helping create participant

involvement and treatment fidelity[5].

If the interaction is found to be significant using the higher fidelity and more involving

manipulation, it will strengthen the conclusions made in the prior studies, and help rule out

design artificiality as a potential confound.   The postulated moderating effect is depicted in

Figure 4, and the specific procedures and materials are described in more detail in Chapter III

(Method).

> *Hypothesis 1: Job applicant career-transition type will moderate the relation between job*
>
> *applicant age and perceptions of suitability for hire, such that older job applicants who*
>
> *make between-career transitions will be more discriminated against relative to younger*
>
> *job applicants than older job applicants who make within-career transitions.*

Although this improvement in design possesses more treatment fidelity, it is arguably not

ideal and is by no means equivalent to using actual human resource decision makers in actual

selection contexts. However, the replication aspect is only the secondary purpose of this paper.

As noted in the Introduction, the primary purpose of this paper is to causally investigate the

influence of an intervention designed to alleviate bias and prejudice against older job applicants.

Hence, to the extent that the validity of causal inferences takes precedence over the validity of

generalizations drawn from those inferences when conducting basic research into the nature of

relations between scientific phenomena (Shadish, Cook, & Campbell, 2002), it is best to eschew

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[5] More details may be found in the Method section.

venturing into an actual organizational setting in favor of staying in the experimental laboratory, at the current time.

Hence, in addition to documenting the bias that is expected to be found, given that such a bias has largely been documented in the literature (c.f., Gordon & Arvey, 2004; Kite & Johnson, 1988; Kite et al., 2005; Rosen & Jerdee, 1976a, 1976b), this study will focus on testing an intervention to reduce ageism, and particularly in the context of human resource decisions involving between-career transition. The prejudice process model (see Figure 2) shows that stereotypes mediate the relations between social categories and prejudice. As such, interventions designed to reduce prejudice have either been targeted to reduce reliance upon the category before the formation of stereotypes, or to weaken the link between stereotypes and prejudice. The latter types of interventions have largely been cognitive in nature, although psychodynamic interventions have also been used. A review of two types of cognitive based interventions and a psychodynamic intervention will be presented. Interventions targeted at the categorization process itself have consisted of decategorization and recategorization, using both superordinate and dual identities; affective interventions are also included under the rubric of categorization based interventions because positive affect has been found to reduce stereotype-inducing categorizations. In the review that follows, examples of these four types of interventions will also be presented. On a side note, the interventions presented in the next section will not all incorporate examples to reduce ageism in particular. Although ageism does differ in some respects from other types of "isms", ageism is similar to other types of prejudices in that it results from categorization and stereotypes. Therefore, it is expected that the processes involved in reducing other types of prejudices apply to ageism as well.

Prejudice Reduction Interventions

A Psychodynamic Intervention

The psychodynamic approach to the study of stereotypes and prejudice assumes that stereotypes are formed to help individuals feel better of themselves and feel less threatened by other groups (Ashmore & Del Boca, 1981). As applied to the study of ageism, TMT (Greenberg, Pyszczynski, & Solomon, 1986; Greenberg, Schimel, & Martens, 2004), a psychodynamic theory, indicates that individuals will be threatened by the fear of death (mortality salience) in the presence of older adults. In turn, this will lead to stereotypes that allude to themes of death and decay, resulting in prejudice and discrimination against the aged. Adopting this perspective, Snyder and Miene (1994) developed an "ego-protection" intervention to help alleviate the threat of death in the presence of older adults. Specifically, in two separate studies, male and female undergraduate psychology students read a story describing the experiences of a same-sex character who somewhat reluctantly volunteered to spend time with a variety of older people in nursing homes and other settings; the character subsequently gained insight that the reason for his/her bias was fear of ageing and the belief that old age would result in death and decay, that he/she had been blaming older adults for difficulties associated with old age (pp. 69-70). Their findings revealed that although the intervention worked, results were mixed with respect to sex. In the control conditions, females held more stereotypical beliefs and prejudiced attitudes against older females than male participants did of older males. In the treatment conditions, the intervention worked to reduce stereotyping and bias where females were concerned, but either increased bias (Snyder & Miene, Study 1) or produced no significant change (Snyder & Miene, Study 2) with male-male relationships. These results are interpreted to mean that psychodynamic interventions help reduce bias by reducing stereotypes against the target group, but that this

effect is qualified by the specific nature of the stereotypes in question (i.e., stereotypes of older males may be more positive than stereotypes of older females).

<center>*Cognitive Treatments*</center>

A Dissonance Based Intervention

In a between-subjects field experiment sampling respondents from private Australian companies, Gringart, Helmes, and Speelman (2008) mailed a request to hiring managers to sign and mail back (using a stamped and addressed envelope that was provided) a reply to a request for names of decision makers who oppose age discrimination in employment, explaining that such discrimination militated against fundamental Australian principle of fairness and meritocracy. One month later, respondents were mailed a questionnaire in which was embedded a question asking them to rate their preference for hiring older or younger workers. A second intervention was also added, whereby some respondents were e-mailed a fact sheet listing commonly held stereotypes against older workers, and providing empirical evidence disputing these stereotypes. As maintained by the original authors, results of this study showed that although the fact sheet did not reduce prejudice as operationalized by this behavioral intention measure, the cognitive intervention dissonance did, such that respondents who signed and mailed the request for names were less likely to discriminate against older workers[6]. Furthermore, an interaction was found, such that dissonance coupled with the fact sheet produced the greatest reduction in discrimination. These results suggest that although merely providing information regarding the factual inaccuracies of stereotypes may not be effective at reducing prejudice, such

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[6] On the other hand, this finding could also be interpreted to mean that participants who sent the request for names were less likely to discriminate against older workers in the first place, thereby making this a measure of individual differences and not of the reduction of prejudice.

information may be coupled with interventions that attenuate the stereotype-prejudice and stereotype-discrimination links (see Figure 1) to produce particularly efficacious treatments.

Free Recall Interventions

Free recall interventions are memory based interventions whereby participants are asked to list a number of behaviors concerning targets of categorization processes (i.e., older adults) prior to making behavioral ratings. They may be structured or unstructured, whereby in unstructured free recall interventions, participants are simply asked to list a number of specific behaviors; in structured free recall interventions, participants are asked to specifically list positive (or negative) behaviors. While the former do not reduce bias, structured free recall interventions have been found to reduce prejudice by mitigating the effects of stereotypes on performance ratings in regards to both sex- and race-based prejudice (Baltes & Parker, 2000b; Baltes, Bauer, & Frensch, 2007; Bauer & Baltes, 2002). The causal process through which the structured free recall intervention works has been evidenced to be through its mitigating impact on stereotype valence in both recall and recognition memory (Baltes & Parker, 2000a).

One specific application of the structured free recall intervention is described in Baltes, Bauer, and Frensch (2007). Two between-subjects, randomized lab experiments were performed using a sample of undergraduate psychology students. Participants watched a series of videotaped vignettes depicting Black or White managers exhibiting various levels of performance on several different performance dimensions (e.g., developing employees). These hypothetical managers were then rated by participants on a seven-point performance rating scale. Findings suggested that performance ratings of White vs. Black managers did not differ in the structured free recall condition, but did differ in the control condition (Study 1) or in an unstructured free recall condition (Study 2). Results also suggested that participants' pre-existing

racial stereotypes of black managers only predicted performance ratings in the unstructured free recall and control conditions, thereby providing support for the notion that this intervention works by attenuating the links between stereotypes and prejudice/discrimination.

The Use of Affect

In a narrative review on the literature regarding the use of affect as an intervention, Dovidio, Gaertner, Isen, Rust, and Guerra (1998) found that although negative affect uniformly increases evaluative bias against out-group members, positive affect has mixed effects on the reduction of bias, sometimes *increasing* evaluative bias, and sometimes decreasing it. Resolving the contradiction, Dovidio et al. note positive affect decreases bias when intergroup relations are positive or neutral but increases bias when directly competing groups or groups with meaningful vested interests are considered. This happens because positive affect facilitates increased information processing and thereby promotes greater cognitive elaboration and flexibility in thinking, which in turn could "increase perception of intergroup differences and promote bias" (Dovidio et al., p. 348). So, for example, the influence of positive affect may increase the propensity for evaluative bias against females in a personnel selection context when males may provide evaluations, while females may be expected to decrease said evaluative bias.

From a causal standpoint, positive affect does not influence bias directly but only indirectly via the mediating effect of group representation. Specifically, two separate studies have found that positive affect increases evaluative bias against traditionally competing groups under a two-group representation and that this effect is partially mediated by group representation (Dovidio, Gaertner, Isen, & Lawrence, 1995; Dovidio et al., 1998). Conversely, evaluative bias is decreased under conditions of positive affect when a superordinate group identity (an overarching in-group identity that subsumes sub-group boundaries) is created, and

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this effect is completely mediated by group representation (Dovidio et el., 1995; 1998). Overall, these results suggest that affective interventions yield inconsistent results, and may not be applicable in situations characterized by vested competitive or hostile relations. These results also suggest that the induction of positive affect may produce a weaker effect than the recategorization of social categories themselves, because the mediation finding implies that affect is only distally related to prejudice and discrimination.

<div align="center">*Categorization Based Interventions*</div>

Decategorization

Interventions that utilize this technique begin with Allport's (1954/1979) contact hypothesis as a starting premise: that contact with individuals from traditionally competing or antagonistic groups, under appropriate conditions, can serve to reduce intergroup bias. Some boundary conditions regarding the efficacy of contact as a treatment for prejudice include the supportive presence of institutional norms, equal status between groups, intergroup cooperation, number of opportunities for contact, voluntariness, intimacy, and pleasantness of contact, and, in the case of traditionally inimical groups with long-standing histories of conflict, the extent to which the contact is framed as an interpersonal as opposed to an intergroup encounter (Gaertner & Dovidio, 2000; Islam & Hewstone, 1993). Hence, under the appropriate conditions, contact is expected to result in perceivers viewing the target of prejudice as an individual as opposed to a member of the stigmatized group, thereby resulting in individuation and decategorization (Hewstone & Lord, 1998).

However, because individuation occurs, the effects of this particular form of decategorization do not readily generalize to other members of the individual's out-group, as the connection between the individual and the social category become murky (Hewstone, 1996;

Hewstone & Lord, 1998). To counter this problem, Hewstone and colleagues advance the "Mutual Intergroup Differentiation Model" (c. f., Hewstone & Brown, 1986; Hewstone, 1996; Hewstone & Lord, 1998), postulating that contact with out-group members must be framed as an intergroup encounter and that group affiliations must be made more and not less salient if generalization is to occur. Hence, for the effects of decategorization to generalize, individuals must become aware of an out-group member who is a typical group representative, the outgroup member must be seen to represent the group at large, he or she must not be easily categorized into a recognizable subtype of that category (e.g., "grandmother" for the category "old female"), and where traditionally competitive groups are concerned, individuating information regarding the particular outgroup member must not be provided (Hewstone & Lord).

One[7] specific study that used decategorization based upon an intergroup (as opposed to interpersonal) encounter is summarized in Hewstone (1996). British participants in cooperative work situations were led to believe that their German work partner was either typical or atypical of his national group, which was alleged to be either more or less homogeneous that other European national groups. Although group homogeneity alone did not have an effect on attitudes toward the out-group, main and interactive effects for typicality were found such that evaluations of the out-group in general were higher when contact involved a typical outgroup members, and highest when contact involved a typical out-group member from a homogeneous group. These results provide support for the Mutual Intergroup Differentiation Model.

One problem with this model, however, is that while it effectively explains when bias may be reduced, it does not stipulate how. In fact, non-experimental evidence indicates that the relation between interdependence (i.e., cooperative interactions) and bias is mediated by

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[7] There were several studies summarized, but I am only describing one for the sake of exigency.

superordinate group representation; experimental studies triangulate toward this finding (Dovidio, Gaertner, & Validzic, 1998; Gaertner, Dovidio, Anastasio, Bachman, & Rust, 1993). Therefore, it is not cooperative intergroup interactions but rather superordinate group representations that are responsible for reductions in prejudice. Thus, the same problem arises here as for the use of positive affect as an intervention – distal relations between the independent variable (interdependence) and the dependent variable (prejudice).

Recategorization (Superordinate Identities)

Interventions that seek to recategorize individuals from different groups into superordinate groups draw from the self-categorization literature, which posits that individuals possess concentric circles of group identities, whereby the self constitutes the most micro category and a super-collective representing all of humanity represents the most inclusive category (Allport, 1954/1979; Brewer, 1999; Tajfel & Turner, 1979; Turner, 1985; Turner et al., 1987). Gaertner, Mann, Murrell, and Dovidio (1989) pioneered this intervention technique, using a between-subjects lab experiment. Participants were run in sessions of two 3-person groups, and instructed to work on an experimental task. Seating positions and names were manipulated such that a) there would be two distinct groups (two group condition), b) six distinct individuals (individuation condition), or c) one large group (superordinate group condition). Results showed that participants in the two group condition produced the largest evaluative biases against out-group members. Both individuation and superordinate representation served to reduce this bias, and the largest reduction in bias was achieved by building a superordinate representation.

Much research on recategorization as a prejudice-reduction intervention has been performed since this study, and the findings have been organized using a theoretical framework termed the "Common In-Group Identity Model" (Gaertner, Dovidio, Anastasio, Bachman, &

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Rust, 1993; Gaertner & Dovidio, 2000). Recategorization is posited to reduce intergroup bias by increasing in-group boundaries to include former out-group members, thereby creating a "common in-group". Other factors that have been found to create this common in-group are cooperative interdependence, linguistic representation (e.g., use of the word "we"), institutional and organizational norms that emphasize commonality, and positive affect (Gaertner & Dovidio). Superordinate representation has been found to have positive behavioral (e.g., increased cooperation, increased self-disclosure, increased productivity), affective (e.g., decreased evaluative bias, increased empathy), and cognitive (e.g., perceived group similarity, perceived group homogeneity) consequences (Gaertner & Dovidio). The intervention has been found to work in both laboratory settings with artificially created groups (e.g., Gaertner et al., 1989) and in field settings with naturally formed groups (e.g., Lipponen, Helkama, & Juslin, 2003), and across cultures (e.g., Gonzalez et al., 2008).

Despite its obvious successes, recategorization into superordinate group representations has been criticized on grounds of artificiality and ephemerality – it is unlikely that groups characterized by histories of entrenched inimicality and conflict will respond to a simple recategorization manipulation, and even if they do, the effects are unlikely to overcome strong prejudices in the long term (Hewstone, 1996; Hewstone & Lord, 1998). Furthermore, from a Theory of Optimal Distinctiveness (TOD) perspective (Brewer, 1991; 2007), individuals may become motivated to differentiate themselves if assimilation into the superordinate identity threatens optimal distinctiveness as an individual; to the extent that this happens, bias may actually increase, rather than decrease. In line with this reasoning, it has been found that superordinate-identity based recategorization interventions do not work well in strong situations,

where stereotypes and/or prejudice may be especially salient, for such situations heighten intergroup differences and trigger the need to differentiate. (Dovidio, Gaertner, and Saguy, 2009).

Recategorization (Dual Identities)

Recategorization based upon a dual identity representation has been advanced as one counter to these endemically problematic features of the superordinate identity intervention (Dovidio, Gaertner, & Saguy, 2007; 2009). Whereas superordinate identity representation seeks to eliminate subgroup boundaries by creating an overarching category, dual identity representation both creates the overarching category and recognizes that subgroup differences do exist. For example, under a dual identity representation, a Black student may emphasize that he/she is Black but also a UCF student, to a White UCF student; in a superordinate identity representation, the Black student would only emphasize that he/she is a UCF student to said White UCF student. From a theoretical perspective, this intervention is expected to work via the same mechanisms as superordinate identity based recategorization interventions – the breaking down of group boundaries to include former out-group members into a more inclusive in-group that subsumes former out-group members. The only difference between these two interventions is that the dual identity based recategorization intervention emphasizes subgroup as well as common group identities and the superordinate identity based recategorization intervention only emphasizes the common group identity (Dovidio et al., 2007; 2009).

Research using dual identity recategorization interventions has found that it produces greater reductions in out-group bias than either superordinate or decategorization procedures when the group members involved feel a need to differentiate themselves from an overly inclusive category (Dovidio et al., 2007; 2009). An early study that utilized this intervention, by Gonzalez and Brown (2003), sampled undergraduate students and used minimal groups, whereby

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participants were randomly assigned to one of two artificially created groups. These authors used minimal groups in an experimental setting to investigate the relative efficacy of dual-identity based recategorization on reducing in-group bias, vis-a-vie a two-group manipulation (group differences were salient), a decategorization intervention, and a superordinate-identity based recategorization intervention. Results showed that both the superordinate-identity and dual-identity interventions reduced bias significantly better than the other two manipulations, but that the two recategorization interventions performed equivalently in terms of reducing bias. However, in two follow-up studies that replicated this initial study, documented in Gonzalez and Brown (2006), these authors found that relative to both decategorization and superordinate-identity based recategorization interventions, the dual-identity manipulation performed better at reducing bias, whereby in-group bias, operationalized as a reward allocation measure, was absent when this latter intervention was used. Furthermore, consistent with the just-discussed critique of superordinate-identity based recategorization interventions, racial minorities were less likely to experience a reduction in bias than majority group members when a superordinate identity was induced; in contrast, the dual-identity intervention worked in eliminating bias for all participants, regardless of subgroup (i.e., Black vs. White) identification.

Overall, this pattern of results is consistent with the view that the dual identity intervention works better than both decategorization and superordinate identity based interventions, especially when group differences are salient and the need to differentiate is high (i.e., when racial minorities are involved). Research has also found that dual-identity interventions work to reduce prejudice even when more salient group differences, such as national identity (e.g., "British" vs. "European"; Crisp, Stone, & Hall, 2006) are employed. Unfortunately, research using this intervention strategy is relatively new, and few studies exist

that examine its potential to reduce prejudice,[8] thereby precluding a more informed analysis on

its pros and cons.

The Choice of an Intervention

The psychodynamic and cognitive interventions reviewed here alleviate prejudice by

weakening the link between stereotypes and prejudice. From a theoretical perspective, such

interventions are akin to bandages placed upon open wounds, for they seek to treat the problem

after the damage has been done, after negative stereotypes against the out-group have already

been formed. Furthermore, from an applied perspective, interventions such as these are

conceivably not as helpful for job applicants themselves, because they focus upon addressing the

problem via the organization's viewpoint (i.e., by training hiring decision makers to engage in

certain processes or actions). Unless one assumes that hiring decision makers will steadfastly

apply training given by the organization while selecting potential job applicants, this does not

help the individual older job seeker – what can the individual do that is within his or her control

in order to reduce prejudice potentially directed at him or her when applying for a job?

As illustrated via the use of examples in the previous section, interventions that rely upon

changing the dynamics of the categorization process itself lend themselves better to this goal.

However, the four types of interventions (affective, decategorization, superordinate-identity

based recategorization, and dual-identity based recategorization) are not equally efficient at

meeting the goal. As the research shows, both affective interventions and decategorization are

distal and address the problem only indirectly, for their effects upon bias have been found to be

mediated by the formation of common in-group identities. Given that distally related causes

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[8] I conducted a citation search on the following articles: Crisp et al. (2006), Dovidio et al. (2007; 2009), and Gonzalez & Brown (2003, 2006). I found only one additional study that utilized a dual-identity intervention to reduce intergroup bias (not mentioned here as it merely replicated the just-noted findings).

impact outcomes to a lesser degree than more proximally related causes, this leaves a choice of recategorization to create common in-group identities based upon either the superordinate or the dual identity interventions.

As noted above, superordinate-identity based recategorization interventions have been found to be less effective when group differences are salient or when biases are deep-seated. As explained via Terror Management Theory (Greenberg et al., 1986, 2004), ageism stems from insecurities and anxieties triggered by the fear of death and decay. In other words, prejudice based upon age stems from primal fears; it is thus a deep-seated bias. Additionally, ageism within the context of a between-career transition would represent a strong situation, because such transitions trigger age-based stereotypes (e.g., a new career would require learning new things, and the stereotype is that "you cannot teach an old dog new tricks). Therefore, the between-career transition creates situational salience in terms of age-based group distinctions. Therefore, it is unlikely that a superordinate identity that includes both the older job applicant and (presumably) the younger hiring decision maker could effectively be created to eliminate the category "older worker" altogether.

Fortunately, the dual identity intervention offers a viable alternative. As just discussed, it possesses greater effectiveness at reducing bias than superordinate-identity based interventions, where in-group differences are real and entrenched. Furthermore, creating a dual identity does not introduce the cumbersome burden of having to eliminate the older worker category altogether. As applied to the selection context, the job applicant would embrace his or her identity as an older (younger) adult, and simultaneously emphasize the common ground that is shared with the hiring decision maker. Based upon the reviewed literature, it is expected that this intervention will help reduce ageism. The hypothesis is depicted in Figure 2.

Hypothesis 2: The effect of a dual-identity based recategorization intervention on job applicant evaluations will be moderated by job applicant age, such that the effect will be stronger for older job applicants than for younger job applicants.

Stereotypes represent the causal link between social categories and prejudice (Katz & Braly, 1935), and fully mediate the relations between the two (Glick, Zion, Nelson, 1988; King, Madera, Hebl, Knight, & Mendoza, 2006; Parks & Roberton, 2004). Because the dual identity manipulation is expected to change the category altogether, it is also expected that the formation of stereotypes will be similarly attenuated. If the intervention works, the former out-group would become included as part of the in-group. Individuals remember more positive information about in-group members, view in-group members to be more to the self, and are more likely to remember individuating information about in-group members (Dovidio & Gaertner, 1993; Wilder, 1981). In turn, this should reduce the likelihood that the former out-group will be negatively stereotyped. The hypothesis is depicted in Figure 2.

Hypothesis 3: The effect of a dual-identity based recategorization intervention on age-based stereotypes of job applicants will be moderated by job applicant age, such that the effect will be stronger for older job applicants than for younger job applicants.

Although dual identity based recategorization interventions are expected to reduce evaluative bias against target out-groups (i.e., older workers), past applications of the interventions have found only small to medium standardized mean differences (c.f., Crisp et al., 2006; Dovidio et al., 2007; 2009; Gonzalez & Brown, 2003; 2006). One potential problem with these prior studies is that the bias-reducing intervention was largely applied in situations with artificially constructed and minimal groups – if there was not much prejudice or bias to reduce in the first place, then it is only plausible to expect a weak effect for an intervention designed to

reduce that bias. In the one case where the dual-identity intervention was applied in the context of reducing a deeper-seated prejudice (i.e., national identity; Crisp et al., 2006, Study 2), the study context did not create salience of either stereotypes of national identity or national identity prejudice itself. In that study, British participants' national identification was simply measured after the recategorization intervention (being told that they should view themselves as both British and European) and compared to a control condition. Overall, no prior studies have studied the effectiveness of the dual-identity intervention in a context where prejudice is strong and stereotypes are salient.

Conversely, a between-career transition for an older worker represents a particularly strong situation, whereby both stereotypes and prejudice may expected to be salient. The nature of age-based stereotypes against older workers dictates that these stereotypes would be especially salient in this particular context, given that a between-career transition would require flexibility, trainability, potential for development, adaptability, and competence on the part of the job applicant. In this sense, the between-career transition represents a social context that would exacerbate the use of age-based stereotypes when hiring managers form an impression regarding the older job applicant (Bodenhausen & Macrae, 1996). Put another way, the between-career transition would promote situational salience of age-based stereotypes. Stereotype activation is more likely to happen in situations whereby either the stereotypes or the categories that produce stereotypes are made salient (Fiske, 1998; Pettigrew, 1981). If stereotypes are more likely to be used, prejudice would be more likely to occur, as stereotypes mediate the relation between social categories and prejudice (Glick, Zion, Nelson, 1988; King, Madera, Hebl, Knight, & Mendoza, 2006; Parks & Roberton, 2004).

Therefore, the between-career transition for older job applicants represents a strong test for an intervention designed to reduce ageism and age-based stereotypes. Given that recategorization using a dual-identity intervention is theoretically expected to attenuate the link between the category of older job applicant and the formation of stereotypes and biases, it is expected that the intervention will work in both types of career-transition contexts. However, to the extent that there is a reduction in bias and prejudice, it can be expected that the strength of the intervention's effect should be stronger within the context of a between-group career-transition as opposed to a within-group career-transition, given that the former context is expected to generate greater prejudice to be reduced, in the first place. The hypothesis is depicted in Figure 2.

> *Hypothesis 4: There will be a three-way interaction between age, career-transition type, and intervention type such that the effect of a dual-identity based recategorization intervention will be most pronounced when older job applicants make between-career transitions.*

CHAPTER III: METHOD

<u>Participants</u>

A sample of N=182 undergraduate students from a large, southeastern university, enrolled in introductory psychology courses and voluntarily participating for extra course credit were sampled for this study. Because it was optional for participants to provide demographic information, some data were missing from all demographic variables. The amount of missing data ranged from 4.5% for participant age, to 1.1% for participant race and participant sex. Although data imputation procedures for missing data pertaining to these demographic variables were considered (i.e., mode imputation; c.f., Graham, Cumsille, & Elek-Fisk, 2003), because the goal here was to present only descriptive statistics and not to conduct Null Hypothesis Significance Testing (NHST), and because imputation techniques may have overrepresented the prevalence of the majority groups for all of these demographic variables, listwise deletion was used instead, and missing data were simply ignored for the purpose of reporting participant demographics.

Approximately 64% of participants were female and 35% were male (mode=female). Participant race breakdown is as follows: 53.3% White, 15.9% Black, 13.7% Hispanic; 11.0% Asian/Pacific Islander; 1.6% East Indian; 2.6% "Other" (mode=White). Participant political affiliation breakdown is as follows: 38.5% Democrat; 24.2% Republican; 20.3% Independent; 13.2% "Other" (mode=Democrat). Participant educational standing breakdown is as follows: 39.0% Freshman, 22.5% Sophomore, 18.7% Junior; 18.1% Senior (mode=Freshman). Participant age ranged from 18 to 37 (M=20.02; SD=2.56). Because the participant age variable was not normally distributed (skewness=3.60; kurtosis=28.13), the median is used here to interpret central tendency for this continuous variable, as opposed to the mean. Median

participant age was 19. Although only 17% of participants had previous experience with actually selecting an applicant for a job, 50% of participants had experience in selecting applicants for various types of organizations (e.g., college fraternity/sorority; sports team; extracurricular organization). Therefore, a majority of participants had some type of personnel selection experience. Additionally, 89% of participants had some previous job experience.

Design

A three-way factorial design was employed in this study. The factors include job applicant age (young vs. old job applicant), career-transition type (within-career transition vs. between-career transition), and absence/presence of a dual-identity recategorization intervention (control vs. treatment). The study conditions include: "Young job applicant, within-career transition, no intervention"; "Young job applicant, within-career transition, dual-identity based recategorization intervention"; "Young job applicant, between-career transition, no intervention"; "Young job applicant, between-career transition, dual-identity based recategorization intervention"; "Old job applicant, within-career transition, no intervention"; "Old job applicant, within-career transition, dual-identity based recategorization intervention"; "Old job applicant, between-career transition, no intervention"; "Old job applicant, between-career transition, dual-identity based recategorization intervention".

Procedure

Results summarized in McEvoy and Cascio (1989) suggests older employees in professional jobs are evaluated more negatively than older employees in non-professional jobs. Additionally, Shore and Goldberg (2005, p. 207) note some jobs may be age-typed (i.e., jobs that are technological in nature). Therefore, perceptions of suitability for hire into young-typed jobs may be unfairly biased against older workers. Ergo, a professional, age-neutral job was chosen,

both to maximize mean differences in evaluative ratings of older vs. younger adults, and to prevent age-type of the job from acting as a potential confound. One example of a professional, age-neutral job is supervisor. Lawrence (1988) found the typical age of supervisors ranged from 28-57 years of age (M=40.4, SD=6.1); youngest age of supervisors ranged from 20-52 years of age (M=32.4, SD=5.9); oldest age of supervisors ranged from 34-68 years of age (M=51.7, SD=9.2). Results of our prior research (Marcus & Fritzsche, 2009) found that mean differences were maximized when the younger adult was operationalized as being 26 years of age and the older adult was operationalized as being 52 years of age; results also found that there was not a significant difference between 26 (one standard deviation below the mean for younger supervisors) and 32 (mean age of younger supervisors), nor between 52 (mean age of older supervisors) and 61 (one standard deviation above the mean for older supervisors). Hence, consistent with that research, job applicant age will be operationalized here as either mid-twenties (younger job applicant) or early fifties (older job applicant).

As discussed earlier, the RIASEC model specifies that there are dimensions of difference between jobs, whereby the job furthest removed from the focal job would be 64 dimensions of difference away. Marcus & Fritzsche (2009) established that the age x career interaction was optimally significant when the between-career transition included a job that was moderately different from the focal job, whereby the within-career transition was operationalized as the job of retail manager (one dimension of difference from the focal job) and the between-career transition was operationalized as electronic print operator (40 dimensions of difference from the focal job. Marcus & Fritzsche (2009) also conducted a pilot study to determine that the job of electronic print operator was not significantly more age-typed than the other two jobs, as this job is of a technological nature. At power exceeding .95, which is the recommended power to obtain

if one wishes to draw inferences from non-significant findings (c.f., Cohen, 1988), dependent-sample t-tests found that the electronic print operator job did not significantly differ from the restaurant manager job or the retail manager job.

One problem with the prior research, however, is that the between-career job of electronic print operator may not have been perceived as a job that a college graduate might possess. Therefore, a new set of three jobs (focal, within-career, and between-career job) was identified and utilized for this study, based upon the same relative dimensions of difference that were previously used. All three jobs were matched according to salary, education, and rank, based upon information derived from O*Net, to account for the confounding influence of job prestige and/or socioeconomic status. Specifically, the focal job was that of mechanical engineer (Job Zone 4, $74, 900 annual income, IRC Holland code; http://online.onetcenter.org/link/summary/17-2141.00); the within-career job was that of naval architect (Job Zone 4, $74,140 annual income, IRA Holland code; http://online.onetcenter.org/link/summary/17-2121.02); the between-career job was that of chiropractor (Job Zone 5, $66,940 annual income, SIR Holland code; http://online.onetcenter.org/link/summary/29-1011.00).

These jobs, along with two other jobs for comparison purposes (aerospace engineer and materials engineer) were then pilot-tested to ensure that they were matched on income and age-type, and to ensure that the two jobs being contrasted were different in terms of perceived similarity to the focal job. Data from a sample of N=52 undergraduate students in Psychology participating for extra course credit were used for these analyses. Each participant rated all the jobs on the just-mentioned variables. The survey used is included in Appendix C. To test income and age-type equality, two sets of multiple dependent-samples t-tests were conducted at

Bonferroni-adjusted familywise alpha levels of $\alpha=.017$. Results indicated that all three jobs were comparable on age-type of job (t (51) = .466, $p > .05$ for mechanical engineer vs. naval architect; t (51) = .813, $p > .05$ for mechanical engineer vs. chiropractor; t (51) = .536, $p > .05$ for naval architect vs. chiropractor). Results indicated that both the within-career job and the between-career job were perceived as being of a significantly higher pay rate than the job of mechanical engineer (t (51) = -3.045, $p = .004$ for mechanical engineer vs. naval architect; t (51) = -4.171, $p < .001$ for mechanical engineer vs. chiropractor). However, the jobs of mechanical engineer and chiropractor were not significantly different from each other (t (51) = -1.643, $p > .05$). Hence, the two jobs that would be contrasted to the focal job were equivalent on both income and age-type. Finally, the between-career job (chiropractor) was significantly different from the within-career job (naval architect) in terms of similarity to the focal job of mechanical engineer (t (51) = 12.604, $p < .001$).

In order to create a more involving experimental design and thereby help increase both experimental realism and treatment strength, participants were informed that they were playing a role in helping to evaluate the quality of video resumes as a potential personnel selection tool. They were told that the results of this research would be directly used to inform practice on the potential viability of using video resumes as opposed to face-to-face interviews. Additionally, to further stimulate participant involvement and thereby increase experimental realism, participants were led to believe that they would be giving in-person feedback to the job applicant whose resume they were going to view, after answering some survey-based questions (they were debriefed regarding this deception at the end of the experiment).

In total, eight video clips were made, to match the eight study conditions. To prevent personality and attractiveness based confounds, the same actor played the role of Jack Smith in

all video clips. To prevent race and sex confounds, the actor was a White male. Make-up was applied to the actor to make him look like a man in his mid twenties, or early fifties, respectively (age ranges chosen based upon previously-noted discussion on age-graded career norms). The actor and make-up artist were undergraduate students at this university. Both had prior work experience in their respective roles. They were each paid $250 for their time.

The experimental scripts that the actor read from are provided in Appendixes D-G. In total, there were four scripts, varied to match the four different combinations of career-transition and treatment. The actor read these scripts once as a young job applicant, and once as an old job applicant. Every part of the script was read at eye level, via the use of multiple Microsoft PowerPoint slides. As shown in the script, the job applicant (actor) provided details regarding his education (held constant throughout experimental conditions), previous job experience (naval architect or chiropractor), a description of the job duties that he performed in his last job, his Knowledge, Skills, and Abilities (KSAs; varied to match previous job experience), and talked about his university education. In the control conditions, the university was a generic university. In the dual-identity based recategorization intervention conditions, the university was UCF. Consonant with the dual-identity aspect of this intervention, the fact that he was old (young) was emphasized as well, once at the beginning of the video clip, and once at the end.

Screenshots depicting the actor in the young (no make-up) and old (make-up on) are provided in Appendixes H-I. Adobe Elements Premiere was used to edit the video clip footage. Additionally, this software was used to age the voice of the actor in the old condition, by lowering the pitch of his voice. As a check to see that the age-manipulation worked, participants were asked to rate how old they perceived the job applicant to be, on an 8-point, ordinal scale (1=Mid-twenties; 8=Late fifties). Results indicated that the age manipulation worked as intended,

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whereby the applicant was rated as being significantly younger in the young (*M*=1.81; *SD*=.77) as opposed to the old (*M*=4.76; *SD*=1.23) conditions (*t* (155) = -17.948, *p* < .001).

As a check to see that the career manipulation worked as intended, participants were required to answer 4 questions regarding similarity of the job applicant's job to the focal job (see Materials section for an overview of this measure). Results suggested that the career manipulation worked as intended, whereby the within-career job of naval architect was rated as significantly more similar to the focal job of mechanical engineer (*M*=3.73; *SD*=.87) than the between-career job of chiropractor (*M*=1.84; *SD*=.74; *t* (155) = 14.547, *p* < .001). To check that all the video clips were equivalent in terms of both resume quality and the behavioral cues of the actor, participants were asked to rate the videos on a number of items related to body and head movement, eye contact, speed of speech, tone of speech, steadiness of speech, facial expressions, and resume quality (see Materials section for more information). These measures were all subject to a multivariate test, with a variable representing the eight conditions as the factor of interest. The multivariate test was not significant (*F* (56, 1036) = 1.339; *p* > .05), thereby indicating that all eight video resumes were behaviorally and qualitatively equivalent.

Participants were randomly assigned to study conditions using a random number generator created in SAS. Because multiple participants were ran in each session, each participant was sat at a desk-cubicle with a computer and provided earphones. After signing the Informed Consent form, participants viewed the video clip related to the condition they were randomly assigned to (see Appendix J for a copy of the IRB Approval Form, and Appendix K for a copy of the Informed Consent form). Next, they completed all study measures. These measures are described in more detail in the Materials section. Questions on the suitability for hire, stereotype, resume quality, and behavioral measures were all counterbalanced, to help prevent

hypothesis guessing and order effects. Participants completed these measures first, and then completed a number of prejudice measures, manipulation checks, and demographics, in that order. Participants completed the measures on a computer, via the use of Surveymonkey. Briefly, Surveymonkey is an electronic data collection tool. We used this format to collect data in order to preclude the need for manual data entry (hence eliminating transcription errors). To ensure that no data were missing, participants were required to answer every question, except the optional demographics. Finally, participants were debriefed (see Appendix L for a copy of the Debriefing Form) and thanked for their time.

<div align="center">Measures</div>

<div align="center">*Dependent variables*</div>

Age-Based Stereotypes

Given both positive and negative stereotypes of older adults and workers exists, it is argued that age-based stereotypes represent a multi-dimensional construct. Validation studies to develop an instrument to measure age-based stereotypes in the workplace supported this argument. Specifically, results indicated that a four-dimensional model of stereotypes, including the positive stereotypes of loyalty and warmth, and the negative stereotypes of competence and suitability for training, best fit the data. Although details regarding this study are beyond the scope of this study, they are available upon request.

The full four-dimensional scale included twenty-four items. A shortened version of this scale, with two items per stereotype, was included in this study. For each stereotype measure, to help decrease the potential for response sets, one face valid and one non-face valid item was chosen. These measures, listed by stereotype, are shown in Appendix M. The scale ranges from 1 ("Agree Very Much") to 6 ("Disagree Very Much"). Based upon a range of .15-66.12, Bass,

Cascio, & O'Connor (1974) found that the term "Very Much" was found to indicate a somewhat high estimation of magnitude (M=40.59, SD=2.94); the scale endpoints were chosen based upon these magnitude estimations. Reliabilities for these two-item measures are as follows: α=.63 (loyalty), α=.79 (warmth), α=.65 (suitability for training), and α=.65 (competence).

Ratings of Suitability for Hire

A six-item measure of "Overall Suitability for Hire", derived from our previous research (Marcus & Fritzsche, 2009) was used as the dependent variable. An example item is "I will hire this job applicant". Scale values range from 1 (*Disagree Very Much*) to 6 (*Agree Very Much*). For an overview of the measure, see Appendix N. The measure demonstrated excellent reliability (α=.96)

<div align="center">

Covariates

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Because individual differences in prejudice moderate the relation between stereotypes and prejudice, a measure of ageism was used as a covariate, and embedded within three other measures of prejudice, to help prevent hypothesis guessing by participants. The measure of ageism was adapted from Palmore (1999), and demonstrated good reliability (α=.75). An example item is "Older people usually take longer to learn new things". The first of the latter three measures of prejudice was a measure of racism toward Hispanics, adapted from Hing, Chung-Yan, Hamilton, and Zanna (2008). Racism toward Hispanics specifically is chosen here because the state of Florida has a much larger Hispanic population as compared to other racial minority populations. An example item in the racism measure is "There are too many foreign students of Hispanic descent being allowed to attend university in the U. S". Next, a measure of sexism, adapted from Swim, Aikin, Hall, and Hunter (1995) was also used; an example sexism item is "Discrimination against women is no longer a problem in the United States". Finally,

Social Dominance Orientation (SDO), adapted from Pratto, Sidanius, Stallworth, and Malle (1994) will be measured. An example SDO item is "Some groups of people are simply inferior to other groups".

As before, all measures were measured using a six-point Likert-type scale (1 = "Disagree Very Much"; 6 = "Agree Very Much"). The items from these four measures were counterbalanced and presented after the dependent measures, to help prevent both order effects and demand characteristics. For an overview of all these measures, see Appendix O.

Behavioral and Resume Equivalency Checks

Six-point Likert-type scales were used for all questions (1 = "Disagree Very Much"; 6 = "Agree Very Much"). Questions used to check for behavioral equivalency are included in Appendix P, and questions used to check for video-resume equivalency are included in Appendix Q.

Two questions were used to assess the amount of movement that the applicant engaged in, including both head and body movement (α=.67). One question was used to assess the amount of eye contact the applicant made with the camera. One question was used to assess the frequency with which the applicant frowned. One question was used to assess the frequency with which the applicant smiled. One question was used to assess the speed at which the applicant conversed. One question was used to assess the steadiness of the applicant's speech. One question was used to assess the tone at which the job applicant spoke. Six questions were used to assess the quality of the video resume, including the following aspects of the resume: Overall quality, presentation quality, information quality, clarity, sophistication, and potential benefit to the organization. This six-item scale demonstrated good reliability (α=.80).

Manipulation Checks

One question each was used to query participants on race, sex, age, whether or not the applicant identified the university he graduated from, previous job held, and focal job that the applicant applied for. A number of participants incorrectly identified these latter three questions. Thereby, to prevent substantial measurement attrition, only participants failing the most obvious manipulation check items (race and sex) were deleted from the dataset. Four questions measured perceptions regarding the suitability of the job applicant's previous job to the current job (e.g., "This job applicant's previous job is a good match for the job he is applying for"). This four-item scale demonstrated excellent reliability (α=.94).

Finally, one question was used to assess whether or not participants were engaged in the experiment and thoughtfully answering the questions. This question was embedded with the dependent, behavioral equivalency, and resume quality measures. Specifically, the question instructed participants to select response numbered "2" on the six-point scale. Participants failing to do so were deleted from the dataset. For an overview of all manipulation check items, see Appendix R.

Demographics Characteristics

Participants were asked to provide information regarding their race, sex, age, year in school, political affiliation, and whether or not they had previously held a job, and if so, the number of hours per week that they worked. For an overview, see Appendix S.

CHAPTER IV: ANALYSES

Data Preparation

Data preparation was conducted using SAS. The SAS code used for all data preparation procedures is provided in Appendix T. Non-numerical measures were transformed into numerical form, to enable quantitative analyses. These include relevant manipulation check items and all demographic characteristics items. Because of technical problems with Surveymonkey, each category in every demographic variable was recorded as a separate unary variable. Thus, for instance, the variable "Participant Race" was recorded as six separate variables, one for each category (White, Black, Hispanic, Asian/Pacific Islander, East Indian, Other). To solve this problem, new demographic variables representing the full range of categories were created by using the values of the original unary variables via conditional processing in SAS.

Another software-related problem was that the variables were named in forms not easily recognizable, and were not clearly labeled. Furthermore, none of the categorical variables had identifiers associated with the corresponding values. SAS Datastep processing was used to correct for all of these problems. All variables were renamed with names that reflected the actual function of the variables, and were all clearly labeled. Identifiers for the values of each categorical variable were also created. Redundant variables were then dropped – these included the original unary demographic variables, and several variables that were automatically created by Surveymonkey, and were not relevant to data analyses.

The dataset imported from Surveymonkey also included many blank cases. These blank cases were not participant responses; in fact, participants were required to answer all questions except optional demographic items, thereby eliminating the possibility of missing data. Rather,

the blank cases represented instances whereby Surveymonkey was opened up by the experimenters (Research Assistants) and the author, as part of the training that experimenters received prior to running experimental sessions. SAS Datastep processing was used to eliminate all of these blank cases, along with cases that represented bad observations. Here, a bad observation is defined as one that did not accurately recognize the race or sex of the job applicant, and/or selected the incorrect response (anything other than "2") on the question embedded within the dependent measures section of the questionnaire (as stated previously in the Materials section, this question was used to assess participant engagement with the experiment). In total, four participants were deleted for failing to correctly identify the applicant's race, one participant was deleted for failing to correctly identify the applicant's sex, and seventeen participants were deleted for selecting the incorrect response on the question designed to assess engagement in the experiment, thereby reducing the number of observations from $N=182$ to $N=160$. Following removal of bad observations and blank cases, variables representing the combined scales for each of the stereotype measures (competence, suitability for training, loyalty, and warmth), the measure of perceived suitability for hire of the job applicant, the measure of video-resume equivalency, the measure of career compatibility, and all four measures of prejudice (sexism, ageism, racism, and SDO) were next created using SAS Datastep processing. These new variables were all labeled accordingly.

One issue that is not adequately addressed in most contemporary studies is the effect of multivariate outliers upon significance values. Multivariate outliers are defined as outliers in the joint distribution of all variables in the statistical analysis, and can severely skew significance values in obtained results. For a more comprehensive treatment of multivariate outliers, the interested reader is referred to Fidell & Tabachnick (2003). SAS PROC REG was used to

identify these multivariate outliers on the primary dependent variable, ratings of suitability for

hire, using Cook's distance and the plot of Cook's distance by observation number. Using this

technique, observations that were both distant from the swarm of observations in

multidimensional space and were not in line with the rest of the swarm were deemed to be

extreme multivariate outliers (see Table 5 for plot of Cook's distance by observation number). In

total, three observations were discarded using this procedure. The final dataset thus contained

data from N=157 participants.

<center>Data Analyses</center>

Hypothesis 1 stated that career-transition type would moderate the relation between job

applicant age and ratings of suitability for hire, such that older job applicants who make

between-career transitions would be more discriminated against relative to younger job

applicants than older job applicants who make within-career transitions. Hypothesis 2 postulated

that the effect of a dual-identity based recategorization intervention on job applicant evaluations

would be moderated by job applicant age, such that the intervention's effect would be stronger

for older job applicants than for younger job applicants. Hypothesis 3 stated that the effect of a

dual-identity based recategorization intervention on age-based stereotypes of job applicants

would be moderated by job applicant age, such that the intervention's effect would be stronger

for older job applicants than for younger job applicants. Finally, Hypothesis 4 stated that there

would be a three-way interaction between age, career-transition type, and intervention type such

that the effect of a dual-identity based recategorization intervention would be most pronounced

when older job applicants make between-career transitions.

A Multivariate Analysis of Covariance (MANCOVA) was used to test the study

hypotheses, with ratings of suitability for hire and the four stereotype dimensions as the

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dependent variables, ageism as a covariate, and age, career-transition type, and absence/presence of the dual-identity recategorization intervention as factors. The test was conducted using SPSS GLM. For all effects in the model, the multivariate F-test was first evaluated, using Pillai's Trace, before interpretation of the univariate effects. This multivariate F-test was conducted at a significance level of $\alpha=.05$ for all main and two-way interactive effects, and at $\alpha=.10$ for the three-way interactive effect. Additionally, as a check to see that heteroscedasticity was not a threat to statistical conclusion validity, univariate Levene's tests of variance homogeneity were conducted for all dependent measures. For all measures, homoscedasticity was assumed if the Levene's test for each of these measures was not statistically significant, at $\alpha=.05$.

To test Hypothesis 1, the interactive effect of job applicant age and career-transition type on ratings of suitability for hire was examined, at a significance level of $\alpha=.05$. To test Hypothesis 2, the interactive effect of job applicant age and intervention absence/presence on ratings of suitability for hire was examined, at a significance level of $\alpha=.05$. To test Hypothesis 3, the interactive effect of job applicant age and intervention absence/presence on each of the four stereotype dimensions was examined, at significance levels equaling $\alpha=.05$. To test Hypothesis 4, the interactive effect of job applicant age, career-transition type, and intervention absence/presence on ratings of suitability for hire was examined, at $\alpha=.10$. Although not hypothesized, the just-noted three-way interactive effect on the four stereotype dimensions was also examined, at significance levels of $\alpha=.10$, because a stronger causal inference would be provided should results triangulate (see Shadish, Cook, & Campbell, 2002, for more on this issue).

Post-hoc tests were used to test sub-group differences for all statistically significant interactions, using Tukey-Kramer's Honestly Significant Difference (HSD) test statistic, at $\alpha=.05$

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for all statistically significant main effects and two-way interactions, and at α=.10 for all statistically significant three-way interactions. The use of Tukey-Kramer is advocated in place of Tukey's test, because sample sizes were not exactly equal across conditions in the design. These two tests are equivalent in structure, except for the fact that Tukey-Kramer uses the harmonic sample size (n_h) in place of actual subgroup sample sizes (n) in calculation of the associated formulas. SAS Datastep processing was used to conduct these post-hoc tests, by writing formulas in SAS code, because SPSS GLM does not allow post-hoc tests to be conducted using covariate-adjusted means.

<div align="center">Results</div>

Correlation coefficients between all study variables, reliabilities, and overall means and standard deviations for each variable are displayed in Table 3. As shown in Table 3, the covariate, ageism, was significantly correlated with the measure of ratings of suitability for hire (r=-.16), but not correlated with any of the stereotype measures. Additionally, the direction of the correlation between ageism and all other study measures was negative. This is concordant with what is expected by theory, indicating that applicants higher on ageism were more likely to provide lower ratings of the job applicant. Therefore, it was decided that this covariate be retained for all subsequent analyses. As shown in Table 3, all dependent measures were positively and moderately to highly correlated (r values range from r=.28 for the correlation between suitability for hire and warmth, to r=.72 for the correlation between suitability for hire and competence), thereby meeting the requirement in MANOVA/MANCOVA that dependent measures be correlated.

Results of the univariate Levene's tests of variance homogeneity are displayed in Table 4. Univariate Levene's tests of homogeneity of variances indicated that heteroscedasticity was not a

threat to statistical conclusion validity for any of the dependent measures used in this experiment. Therefore, analyses proceeded as planned.

Results of the omnibus F-tests for the three-way MANCOVA are displayed in Table 5. Contrary to Hypothesis 1, the multivariate test indicated that the job applicant age x career interaction was not statistically significant (F (5, 144) = .692; $p > .05$; $\eta^2 = .023$). This result indicated that Hypothesis 1 was not supported. Contrary to Hypotheses 2 and 3, the multivariate test indicated that the job applicant age x treatment interaction was not statistically significant (F (5, 144) = 1.8924 $p > .05$; $\eta^2 = .060$). This result indicated that Hypotheses 2 and 3 were not supported. The multivariate 3-way interaction between job applicant age, career, and treatment was statistically significant (F (5, 144) = 2.337; $p < .05$; $\eta^2 = .075$).

Results of univariate ANCOVAs for all dependent measures are displayed in Tables 6-10. Means and standard deviations for each measure, by condition, are displayed in Tables 11-15. Univariate tests indicated that the interactions were significant for ratings of suitability for hire (F (1, 148) = 6.686; $p = .01$; $\eta^2 = .044$), and for competence ratings (F (1, 148) = 3.122; $p < .10$; $\eta^2 = .021$).

Figure 6 displays the three-way interaction plot for ratings of suitability of hire. As shown in Figure 6, for control conditions, younger job applicants making within-career transitions (M=4.19; SD=.80) were rated slightly higher than older job applicants making within-career transitions (M=4.02; SD=.92). Counterintuitively, where between-career transitions were concerned, younger job applicants actually were rated slightly lower (M=2.47; SD=.74) than older job applicants (M=3.33; SD=1.01). As shown in Figure 6, this pattern of effects was reversed for the treatment conditions. For within-career transitions, younger job applicants were actually rated slightly lower (M=3.83; SD=.94) than older job applicants (M=4.09; SD=.03).

However, for between-career transitions, younger job applicants (*M*=2.81; *SD*=.99) were rated slightly higher than older job applicants (*M*=2.61; *SD*=1.21).

Figure 7 displays the three-way interaction plot for competence ratings. As shown in Figure 7, for control conditions, younger job applicants making within-career transitions (*M*=4.74; *SD*=.72) were rated slightly higher than older job applicants making within-career transitions (*M*=4.69; *SD*=.83). Counterintuitively, where between-career transitions were concerned, younger job applicants actually were rated slightly lower (*M*=3.94; *SD*=.79) than older job applicants (*M*=4.22; *SD*=1.03). As shown in Figure 7, this pattern of effects was reversed for the treatment conditions. For within-career transitions, younger job applicants were rated lower (*M*=4.36; *SD*=.81) than older job applicants (*M*=4.93; *SD*=.76). For between-career transitions, younger job applicants (*M*=3.92; *SD*=1.00) were rated equivalently with older job applicants (*M*=3.92; *SD*=.80).

As shown, the pattern of these means indicated that the dual-identity recategorization intervention did not work as intended. Contrary to the hypothesized direction, when the intervention was introduced, means on ratings of suitability for hire and on competence stereotypes either remained relatively unchanged (for within-career transitions) or were lowered (for between-career transitions) where older job applicants were concerned. For younger job applicants, when the intervention was introduced, these means generally appeared relatively unchanged, regardless of career-transition type. Hence, the pattern of these means indicated that Hypothesis 4 was not supported.

To further explore the statistically significant 3-way interactions, Tukey-Kramer's post-hoc tests were conducted. Table 16 displays the results of these tests for ratings of suitability for hire, and Table 17 displays the results for competence ratings. As shown in Tables 16 and 17, the

only significant differences found were for comparisons contrasting within- vs. between-career transition means for each subgroup. Although these results look tautological on the surface, a deeper examination of the pattern of significant vs. non-significant results reveals a far more interesting analysis.

As shown in Table 16, ratings of suitability for hire for younger job applicants making between-career transitions for the control group were significantly lower than the countervailing ratings for older job applicants making between-career transitions in the control group (Q=-4.07), but were not significantly lower when contrasted with older job applicants making between-career transitions in the treatment group (Q=-.66). Older job applicants making within-career transitions in the control group were not rated significantly higher than older job applicants making between-career transitions in the control group (Q=3.26), but were rated significantly higher than older job applicants making between-career transitions in the treatment group (Q=6.67). Furthermore, older job applicants making within-career transitions in the treatment group were not rated significantly higher than older job applicants making between-career transitions in the control group (Q=3.59) but were rated significantly higher than older job applicants making between-career transitions in the treatment group (Q=7.00). The overall picture that emerges from this pattern of results indicates that older job applicants were negatively impacted relative to younger job applicants, and even other older job applicants, when they attempted to find a common ingroup identity (while emphasizing their out-group differences) with the hiring decision maker. This pattern of results also emerged where competence ratings were concerned.

As shown in Table 17, older job applicants making within-career transitions in the control group were not rated significantly higher than older job applicants making between-career

transitions in the control group (Q=2.46), but were rated significantly higher than older job applicants making between-career transitions in the treatment group (Q=4.03). Furthermore, older job applicants making within-career transitions in the treatment group were not rated significantly higher than older job applicants making between-career transitions in the control group (Q=3.72) but were rated significantly higher than older job applicants making between-career transitions in the treatment group (Q=5.29). Hence, although the contrasts are not as striking, the previously-discussed pattern of results for the subjective prejudice measure (ratings of suitability for hire) replicates with at least one of the stereotype measures (competence ratings). Overall, results of the Tukey-Kramer post-hoc tests for both of these measures indicate that outgroup members (older job applicants) were penalized when attempting to recategorize themselves as ingroup members (UCF graduates) using a dual-identity based recategorization procedure.

As a check to ensure that results obtained from participants without prior human resource selection experience would be generalizable, independent-samples t-tests were performed comparing participants with some type of organizational selection experience to those without Participants possessing some type of organizational human resource selection experience (M=3.35; SD=1.11; n=77) did not significantly differ on ratings of suitability for hire of the job applicant than participants who did not possess that type of experience (M=3.56; SD=1.15; n=78; t (153) = -1.19). As an additional check, participants possessing actual previous experience in selecting job applicants (n=27) were compared to participants not possessing such experience (n=126). Because the Levene's test indicated that the variances were not significantly different across both these groups (F (1, 150) = 1.207, p > .05), the independent-samples t-test was performed and interpreted as usual, even though the subgroup sample sizes were severely

unbalanced. Results indicated that participants with actual job applicant selection experience (*M*=2.94; *SD*=1.01) rated the job applicant significantly lower on ratings of suitability for hire than participants who did not possess that type of experience (*M*=3.57; *SD*=1.14; *t* (151) = - 2.672).

Given that these two groups of participants differed significantly on ratings of suitability for hire, ANCOVAs were again conducted without the 27 participants who had previous job selection experience, using only the two previously significant measures, suitability for hire and competence. The three-way interaction between job applicant age, career-transition type, and intervention on ratings of competence did not reach statistical significance (*F* (1, 121) = 1.922; *p* = .168; η^2 = .016); however, the observed power for finding this interaction was low (1 − *β* = .28). The three-way interaction between job applicant age, career-transition type, and intervention on ratings of suitability for hire was statistically significant (*F* (1, 121) = 14.641; *p* = .0313; η^2 = .037); the observed power for finding this interaction was also low (1 − *β* = .57). Hence, despite low-powered tests of statistical significance, at least one of the previously significant interactions was significant even without the inclusion of participants who possessed previous job selection experience. These latter results provide some measure of generalizability to the study results, indicating that even decision-makers with no previous job selection experience negatively rate older job applicants making between-career transitions who attempt to identify themselves with younger decision-makers.

CHAPTER V: DISCUSSION

<u>General Discussion of Findings Related to Study Hypotheses</u>

The focus of this paper was to investigate age-based prejudice in the workplace, as applied to human resource selection. Specifically, the current research had two main goals: 1) To systematically investigate the interactive relation between age and type of career transition (within- vs. between-career) on hiring decision-makers' judgments regarding potential job applicants, and 2) To test an intervention aimed at reducing age-based prejudice and stereotyping, assuming it was found, and particularly in between-career transition situations, where age-based stereotypes would be salient.

Multivariate results were not statistically significant at the specified alpha levels for the tests of Hypotheses 1-3, thereby indicating that there was no interaction between job applicant age and career-transition type, and no interaction between job applicant age and absence/presence of a dual-identity based recategorization intervention. Hence, it remains unclear whether dual-identity recategorization can generally serve to reduce in-group bias, or reduce stereotyping against out-group members. It also remains unclear whether the age x career-transition effect that had been found in previous studies will replicate in higher-fidelity situations such as the one employed here.

In fact, it is necessary to mention here that for conditions contrasting the older and younger job applicants making between-career transitions, insofar as the control groups were concerned, the older applicant was actually rated slightly (but not significantly) more highly than the younger applicant. This result is contrary to the previous research that was conducted (Fritzsche & Marcus, under review; Marcus & Fritzsche, 2009). As noted earlier, manipulation checks indicated that the conditions were all equivalent from both behavioral and resume quality

standpoints. Although post-hoc, one plausible explanation for the current results is that the nature of the manipulation biased these ratings in favor of the older job applicant. Specifically, in order to create a dual identity, the applicant mentioned that he was a non-traditional age university student (note that the in-group identity, UCF graduate, was not emphasized in the control conditions). It is possible that this fact, coupled with the fact that he was also attempting to switch careers, made respondents more sympathetic to him and thereby increased ratings. However, it is also important to mention that because these particular results were not statistically significant, one should not read too much into the pattern of results that were found. Furthermore, it is possible that this pattern of results and the lack of a significant two-way interaction in the hypothesized direction between job applicant age and career-transition type occurred because of a statistically significant higher-order crossover interaction.

The multivariate test of the three-way interaction was statistically significant. Interpretation of the univariate results subsequently indicated significant three-way interactive effects of age, career-transition type, and intervention absence/presence on both ratings of suitability for hire, and competence stereotypes. However, the pattern of means did not turn out as hypothesized. Specifically, for both measures, the intervention did not appear to effect decision-makers' ratings for younger job applicants, regardless of career-transition type, and for older job applicants making within-career transitions. For both measures, there was found to be a significant difference between intervention and control groups for older job applicants making between-career transitions, but the effect was opposite of what was hypothesized – ratings on both suitability for hire and competence were significantly lower when the intervention was applied, vis-a-vie the control group.

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Overall, these results indicate that the dual-identity recategorization intervention does not reduce in-group bias, and may even negatively impact evaluations of out-group members in situations where group membership and stereotypes are salient, such as a between-career transition for an older job applicant. In this study, the older job applicant received the lowest ratings of suitability for hire in the intervention condition whereby he played the role of an applicant making a between-career transition. This counterintuitive pattern of results flies in the face of existing findings related to dual-identity based recategorization theory (e.g., Dovidio et al., 2007; 2009).

<u>Prior Research on Dual-Identity Based Recategorization Interventions</u>

Although there is a long tradition of research using categorization-based procedures to reduce prejudice (c.f., Gaertner, Mann, Murrell, & Dovidio, 1989; Gaertner & Dovidio, 2000; Hewstone, 1996; Hewstone & Lord, 1998), the use of the dual-identity based recategorization manipulations is relatively new. To the knowledge of this author, only three published studies have utilized this particular manipulation in order to test its potential effects on prejudice reduction.

Gonzalez and Brown (2003) sampled undergraduate university students, and found that both dual-identity and superordinate-identity recategorization interventions worked to reduce in-group biases in decisions regarding allocation of resources to both in- and out-group members, while subgroup-identification only and no identification did not reduce these in-group biases. The groups that were created in this experiment, however, were artificial - participants were either randomly assigned to groups either titled "Synthetic Group" or "Analytic Group". These groups had no significance outside of the laboratory context, and were thus only minimal groups.

In a related study, Gonzalez & Brown (2006) found that dual-identity recategorization was superior to both superordinate- and individual-identity recategorization in reducing in-group bias when group identity was threatened. However, as with their previous study, Gonzalez & Brown (2006) again used the artificially created "Synthetic" and "Analytic" groups in a controlled laboratory setting sampling undergraduate university students. A final study by Crisp, Stone, and Hall (2006; Experiment 4) found that the use of dual-identity recategorization served to reduce in-group bias, and did so regardless of participants' level of in-group identification. However, this study, as with the previous two, utilized a weak situation. Specifically, undergraduate university students from both Humanities and Science divisions within a university setting were sampled, and were asked the extent to which they would be willing to work with both their in- and out-group members. The recategorization intervention involved the overarching category of students (both Humanities and Science).

<u>Contrasting the Current Results to Prior Research on</u>

<u>Dual-Identity Recategorization Interventions</u>

It can be seen that prior research within this theoretical paradigm has only ever tested the intervention whereby minimal groups are concerned, and no published research currently exists that tests the intervention when subgroup identities are made particularly salient (e.g.., age within a between-career job application context). This study is thereby the first to test this particular intervention in a strong situation. Consequently, the verdict remains bleak for dual-identity theory, insofar as the boundaries of the theory are tested – dual-identity based recategorization seems to have negative consequences for out-group members if applied in situations where stereotypes and consequently prejudice are strongest, and where out-group membership is most

salient (i.e., older job applicant making a between-career transition). There are a number of counter-arguments that could be made in light of these findings.

Firstly, one could suggest that the between-career transition scenario was not in fact a stronger situation than the within-career transition scenario, because the age x career interaction was not statistically significant. However, this interpretation of the current results is likely false, because the more plausible likelihood is that the higher-order three-way crossover interaction masked any potential effects at the lower levels. Secondly, one could argue that stereotypes were in fact not more salient in the between-career transition scenario, thereby implying that the current result was most likely a Type I error. This second interpretation is also likely false, because a statistically significant three-way interaction was also found for competence stereotype ratings, whereby these stereotypes were most biased against the older applicant in the between-career transition x intervention condition. Finally, one could argue that it was some aspect of the video resume or the behavioral cues of the applicant in the various conditions that created this pattern of results. As evinced by the manipulation checks, neither was this the case. Summarily, it can be argued that this pattern of results was not merely a consequence of construct validity issues inherent in the current study.

Rather, it is argued here that this pattern of results was found because raters in the intervention conditions negatively perceived the applicant's behavior of attempting to find the common ground. Specifically, it is likely they perceived the older job applicant to be attempting to ingratiate himself with them in the intervention conditions, as he did speak at length regarding the fact that he was, like them, a graduate of the current university. Additionally, and more importantly, these raters may also have been making the ultimate attribution error (Pettigrew, 1979).

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Ultimate Attribution Error Theory & Its Relations to the Present Study

Ultimate attribution error theory (Pettigrew, 1979) draws upon Allport's (1954) cognitive tradition in psychology, accepting the basic premise that prejudice is rooted in the categorization process and the formation of in-groups, out-groups, and consequently, stereotypical perceptions of out-group members. It is an extension of the fundamental attribution error (Heider, 1958), which posits that observers consistently underestimate the role that situations play in the formation of others' behaviors, and consistently overestimate the role of disposition in the formation of said behaviors. Research in this tradition indicates that individuals generally tend to attribute dispositional causes to negative behaviors and situational causes to positive behaviors (Ybarra, 2002). Defined as a "systematic patterning of intergroup misattributions shaped in part by prejudice" (Pettigrew, 1979, p. 464), ultimate attribution error theory posits that such dispositional attributions for negative causes will be more pronounced for out-group as opposed to in-group members. Positive behaviors by out-group members, on the other hand, may be attributable to any of the following: that the perceived individual is an exceptional instance of the larger out-group, that the perceived individual was fortuitous or was given some special advantage, that the perceived individual expended much effort, or that the behavior was a result of the situation itself. Additionally, the theory posits that fundamental attribution errors are most likely to be made when perceivers are highly involved in the actor's behavior, when group membership is especially salient, when the groups in question have entrenched differences, and/or when perceivers are highly prejudiced.

Reviewing the literature on intergroup causal attributions, Hewstone (1990) concluded that there is some support for Pettigrew's predictions. As predicted, negative outgroup behavior is most likely attributed to personal causes within the actor. Less dispositional attributions are

made for outgroup members' positive behaviors, and these have been found to be explained away in terms of luck, effort, or the situation. Group-serving attributions do tend to be stronger when groups have histories of entrenched differences. Although evidence regarding the role of individually-held prejudice on the formation of attribution errors has been found to be inconsistent, there is support for the notion that fundamental attribution errors are most likely to be made when group membership is salient.

For older job applicants, the between-career transition situation is a situation where their age-based out-group membership is likely to be most salient, because this particular situation highlights commonly held negative age-based stereotypes of older applicants (e.g., unsuitability for training or learning new things). Furthermore, the nature of dual-identity recategorization itself is such that the out-group member calls attention to his/her out-group identity, thereby making out-group membership even more likely to be salient. Therefore, it is likely that raters in the between-career transition x intervention condition perceived the older applicant to be ingratiating himself, attributed that behavior to dispositional causes, and thereby negatively evaluated him. Conversely, the ultimate attribution error would less likely be present in the within-career transition conditions, given that the situation does not make out-group membership or stereotypes particularly salient. Hence, the same behavior may have been attributed to situational causes, and thereby not negatively impacted the evaluations; this explanation also generally lends itself to conditions involving the in-group member, the younger job applicant.

Limitations

The obvious limitation of the line of reasoning presented in this discussion is that it is post-hoc. Furthermore, no data were collected regarding perceptions of ingratiation and attributions of situational/dispositional behavioral causes, or the relative negativity of evaluations

regarding the applicant. Because the inferences made in this discussion cannot be tested directly via use of the just-noted measures, the causal inferences made here regarding the processes which may have led results to turn out as they did are weak.

Another potential limitation of this study is generalizability, whereby undergraduate students made judgments regarding the suitability for hire of a supposed "job applicant". Although participant involvement in the decision itself was helped because they were led to believe that they would actually be meeting the applicant to give in-person feedback, the fact that this was a student sample still remains. However, prior research indicates that both lab- and field-based research studies are equally limited in terms of generalizability to the larger population of participants, stimuli, and settings (Dipboye & Flanagan, 1979). Furthermore, research shows that both students and managers similarly evaluate the age-type of jobs (Cleveland & Berman, 1987). Hence, it could be argued that the use of student participants to represent the judgments of managers making actual hiring decisions is not entirely invalid in terms of generalizability. Furthermore, as indicated in the Results section, the three-way interaction between job applicant age, career-transition type, and absence/presence of the intervention on ratings of suitability for hire was statistically significant regardless of whether or not individuals with prior job selection experience were included in the dataset. Hence, it is likely that data collected from individuals with no prior job selection experience may still be generalizable to individuals with such experience. Most importantly, however, this research focused on studying the underlying causal relations between age, career-transition type, and job experience; no prior research has yet investigated this phenomenon. To confidently infer causality, it was necessary to conduct the study in a controlled setting.

Low reliability of the stereotype measures may also have potentially threatened study validity. These measures were initially developed in a previous study, and included seven different types of stereotypes – four of which related to negative age-based stereotypes, and three of which related to positive age-based stereotypes. Each measure included six items, for a total of forty-two items. Because the current study also included a number of other measures, to help prevent participant fatigue, it was initially decided to include only 2 items from each larger six-item, previously created, age-based stereotype measure. At the point that the decision was made, validation studies were still underway, and our theory indicated that a two-factor model, including both positive and negative stereotypes of older adults, would best fit the data. As it turned out, a four-factor model fit the data best, including stereotypes related to warmth, loyalty, competence, and suitability for training. Therefore, instead of what was initially conceived to be eight and six items, respectively, for each of the two valenced measures of stereotype, the end result was a mere two items for each of four qualitatively distinct measures. Resultantly, construct validity of the stereotype measures may have been threatened in this study.

One potentially important individual difference variable is in-group identification. That is, participants who shared surface-level demographic characteristics (i.e., race, sex) with the job applicant may have reacted differently to the experimental stimuli. To the extent that random assignment was utilized, it was unlikely that degree of in-group identification confounded the study results. Buttressing this notion, chi-square tests of independence conducted comparing participant sex (males vs. females) and participant race (Whites vs. non-Whites), respectively, by treatment condition indicated that there were no problems with randomization. Nevertheless, because I did not control for this potential covariate, study results may have been attenuated to

the extent that students did/did not identify with either the category of "younger adult" or the category of "UCF student".

It is evidenced that there exists a positive correlation between in-group identification and inter-group bias, and a negative correlation between superordinate identification and intergroup bias (Stone & Crisp, 2007). Degree of in-group identification moderates this relation such that those more highly identified with their in-groups are less likely to respond to a recategorization intervention (Crisp & Beck, 2005). Although recategorization interventions in general increase in-group bias for high in-group identifiers, dual-identity recategorization has been found to similarly affect both high and low in-group identifiers in terms of bias reduction (Crisp, Stone, and Hall, 2006). One caveat with the just-noted study is that the situation was that of minimal groups (Humanities vs. Science students). Hence, given the possibility that greater amounts of in-group identification may be present where entrenched group differences are concerned (i.e., ageism), statistical power may have been attenuated.

Another potential measurement issue is that scores on the ageism measure that was used, the Facts on Aging Quiz (FAQ; Palmore, 1999), have been found to not be stable. Specifically, it has been found that exposure to information which increases awareness of aging issues alters scores on the FAQ such that individuals appear less ageist than they otherwise would (Stuart-Hamilton & Mahoney, 2003). In contrast, measures that are solely related to attitudes toward older adults are not changed by such information and are more stable (Stuart-Hamilton & Mahoney). Given that the dual-identity manipulation brought attention to the job applicant's age, and given that the job applicant also spoke of being a non-traditional student, and of his previous educational experience at a university, it is possible that participants were made more aware of aging issues as a result of the manipulation itself. Consequently, scores on the FAQ, which were

collected after the manipulation occurred, may have been range restricted. Therefore, given that FAQ scores were used as the covariate, the statistical power of the MANCOVA may have been lowered. As evidenced by the relatively low statistical power for the two-way interactions in the MANCOVA, the potential for making Type II errors did in fact exist in this study.

Finally, the lack of an objective measure of prejudice toward older adults limited understanding regarding the nature of the three-way interactions that were found. Although it was initially proposed that a response time measure would be used for this purpose, technical issues related to Surveymonkey's timestamp feature precluded that possibility.

<u>Directions for Future Research</u>

Clearly, more research is needed in order to support the post-hoc explanation that was advanced in this study. As a first step, measures relating to perceptions of ingratiation, attributions of situational/dispositional behavioral causes, and the relative negativity of evaluations regarding the applicant should be used in order to empirically test the explanations that were made. Additionally, each of the four stereotype dimensions should be measured with more items, in order to improve construct validity. Objective as well as subjective measures of prejudice should be included, to further understanding of the relation between job applicant age, career-transition type, and absence/presence of recategorization-based interventions. Measures of ageism that include attitudes should be used, to potentially maximize the range of responses when interventions designed to reduce prejudice toward older workers, but that draw attention to the older worker's age, are used.

A study is currently underway that addresses all of these measurement-related issues. Specifically, the experiment described in this paper is being directly replicated with better and more diverse measures. Ingratiation, attributions, and valence of evaluations are being measured

using relevant measures, and the full six-item scales of loyalty, warmth, competence, and suitability for training that were developed in previous research are being used. A measure of ageist attitudes (Fraboni Scale of Ageism; Fraboni, Saltstone, & Hughes, 1990), and a measure of ageist behaviors (Relating to Older People Evaluations; Cherry & Palmore, 2001) are also being included in addition to the Facts on Aging Quiz (Palmore, 1999), as the latter only measures cognitions. One item that asks how much time participants would be willing to spend giving feedback to the job applicant when meeting him in person (1 = 0 minutes; 7 = 30 minutes) is being used to measure prejudice objectively. Given the potential importance of in-group identification in reducing extraneous variability, future research within this paradigm may benefit from adding this variable as a covariate. The study that is currently underway therefore measures in-group identification by assessing the extent to which participants identify with their age.

Thus far, the discussion has focused upon improving measurement, as it is perceived by this author that most problems inherent in the study that was described here potentially stemmed from errors of measurement. Although the changes that were discussed above that pertain to measurement are important, of larger consequence, however, is the pattern of results that was found in this study. Specifically, it is unclear whether the pattern of results found in this study would generalize to career-transition situations that are less dramatic. In other words, would the same pattern of results hold if the situation were not as strong? From a theoretical viewpoint, this is an important question to address in order to delineate the limits of dual-identity recategorization interventions. Simply put, do interventions of this type only fail in extremely strong situations? Or do they fail in anything more than minimal group situations? Given that the

extant research has only tested the opposite ends of this spectrum, additional research is needed in order to understand if the intervention would work in moderate situations.

Implications for Theory and Practice

From a theoretical perspective, the current findings indicate that dual-identity based recategorization interventions may not alter attitudes and stereotypes where surface variables such as race, sex, or age are concerned. In fact, in strong situations (situations that make surface variable related stereotypes salient), the intervention may even backfire and negatively impact outgroup members who are attempting to forge a common ingroup with existing outgroup members. As noted in the previous section, it is unclear whether this intervention may be effective in reducing stereotyping and prejudice where deep-seated divisions are concerned. Given the current findings, the answer to this conundrum may very well be negative.

From a practical perspective, where older workers are concerned, the current findings indicate that they may be better off not utilizing this particular intervention. That is, when applying for jobs that are different from their previous jobs, older job applicants may be better off talking about the specifics of their work and educational experiences instead of attempting to find common ground with the hiring decision-maker. As the current results suggest, older job applicants are actually favored relative to younger job applicants when doing the former, but rated negatively in relation to younger job applicants insofar as the latter of these two options are concerned.

A caveat with these practical implications, however, is that as noted earlier, the sample of participants was young – median age was only 19. Therefore, it is unclear whether an older and more experienced participant sample, which has knowledge of the jobs themselves and personnel selection experience, would have reacted differently. Consequently, these practical implications

need be qualified with regards to a lack of field-based data. That being said, results showed that the minority of participants in this sample that actually had personnel selection experience (17%) provided uniformly lower ratings of suitability for hire across all conditions, vis-a-vie the rest of the participants. In other words, the majority of participants, who did not have personnel selection experience, provided more lenient ratings – these ratings were closer to the scale midpoints, implying that errors of central tendency may have attenuated the results that were found in this study. These results thereby lend some measure of confidence to the just-discussed practical implications, and imply that similar effects would be found in the field, albeit with potentially stronger effect sizes given a lack of central tendency errors. Nevertheless, the study should be repeated in the field, to examine whether results would replicate.

Overall Conclusion

The experiment described herein found that emphasizing one's age while attempting to find common ground with younger decision-makers was an ineffective strategy to reduce stereotyping and prejudice against older workers. In fact, in situations which made age-based stereotypes salient (i.e., career changes that were not similar to an older worker's previous career), older workers may actually have been negatively impacted when they attempted to find that common ground. These findings suggest a need to better understand the psychological processes through which the previously-discussed interactions occurred, and to examine whether results would replicate with objective measures of prejudice as opposed to only subjective measures. These findings also suggest a need to better understand the boundaries at which dual-identity based recategorization interventions are efficacious at reducing prejudice and stereotyping against out-group members in general and older workers in particular. At which point does recategorization work to reduce prejudice against older workers? Can such an

intervention even be used to attenuate such a deep-seated prejudice? As is so common with scientific inquiries in general, the present research has given rise to more questions than answers. The jury, then, is still out on an absolute answer to the question of whether or not dual-identity based recategorization interventions may successfully be used to counter prejudice against outgroups based upon surface variables such as age.

APPENDIX A: FIGURES
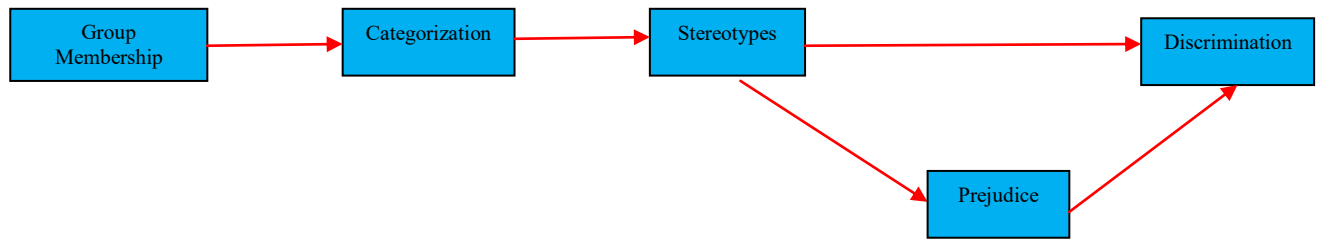
Figure 1: Prejudice Process Depiction
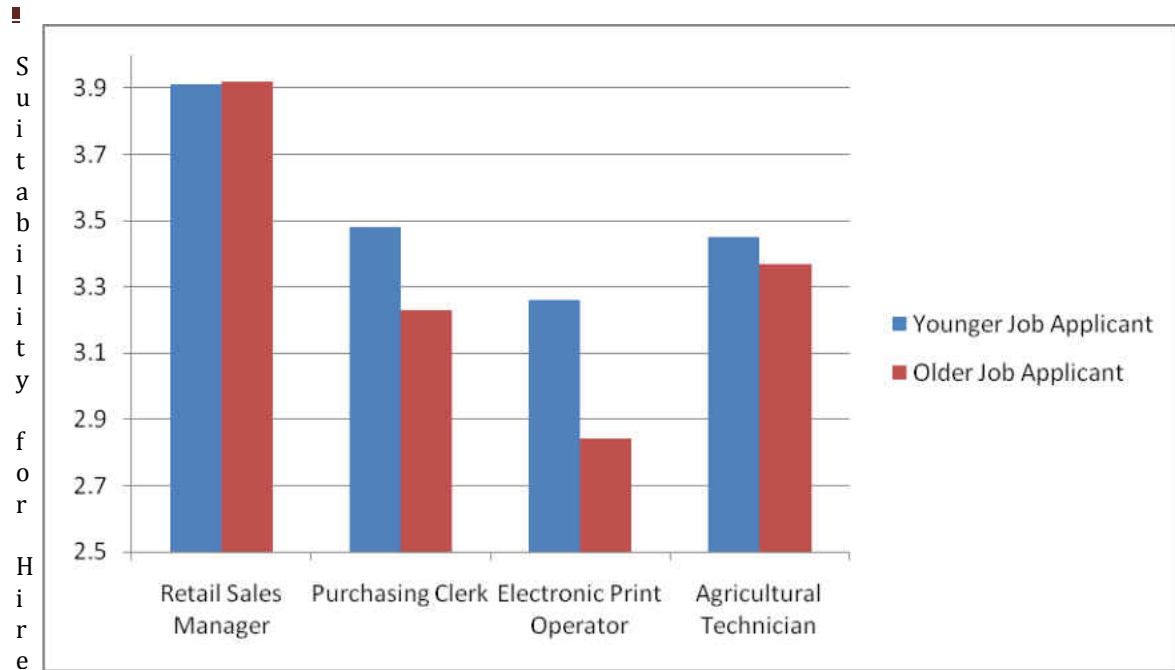
Figure 2: Interaction Plot Depicting the Relation between Age and Career-Transition Type

Experience Not Salient

Experience Salient
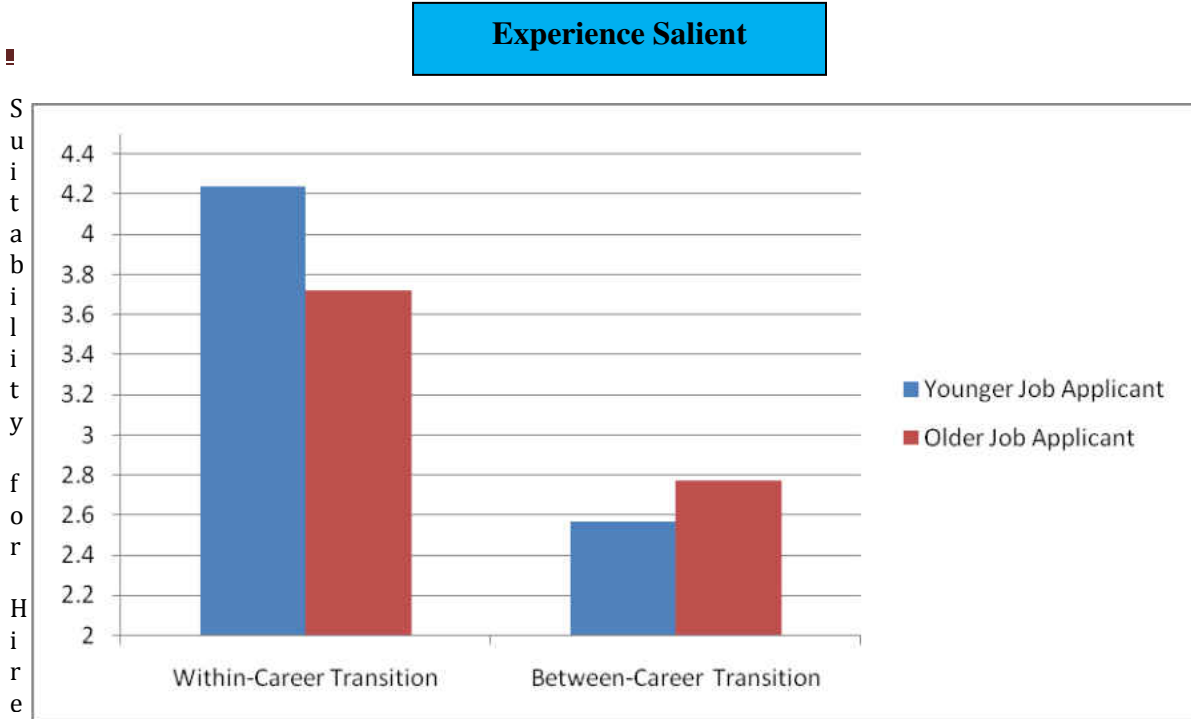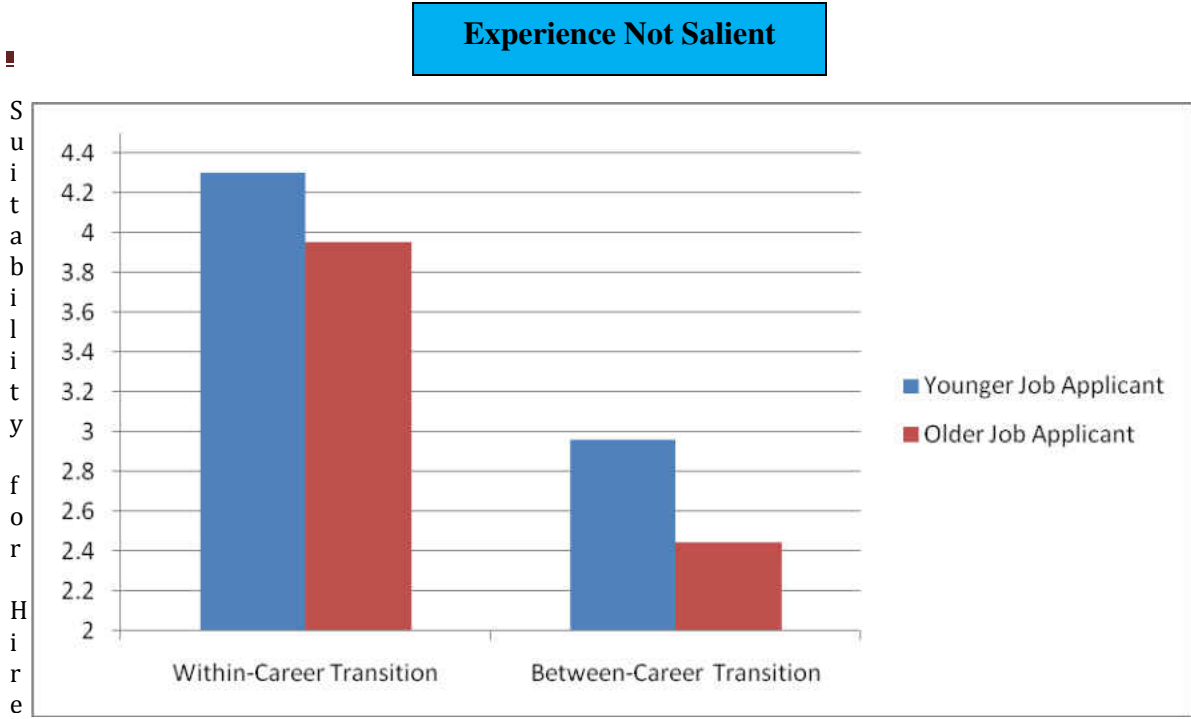
Figure 3: Interaction Between Age and Career-Transition Type When Experience is Not Salient/Salient

93
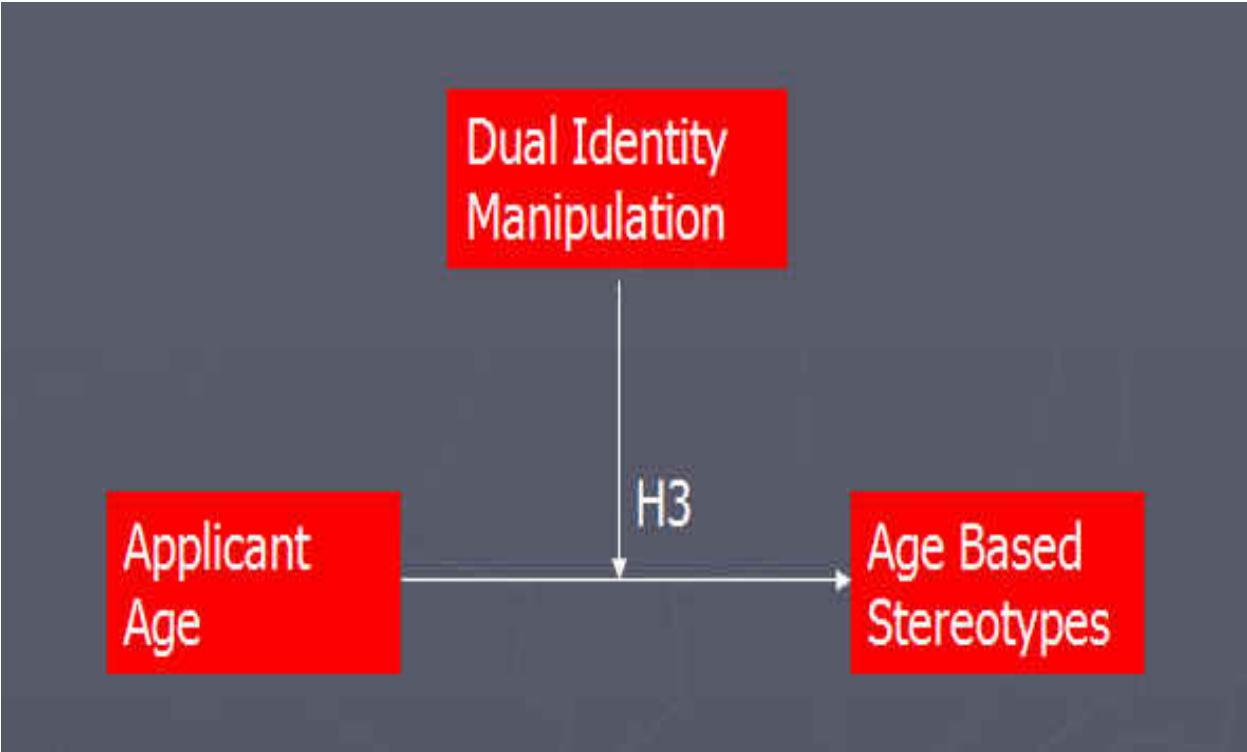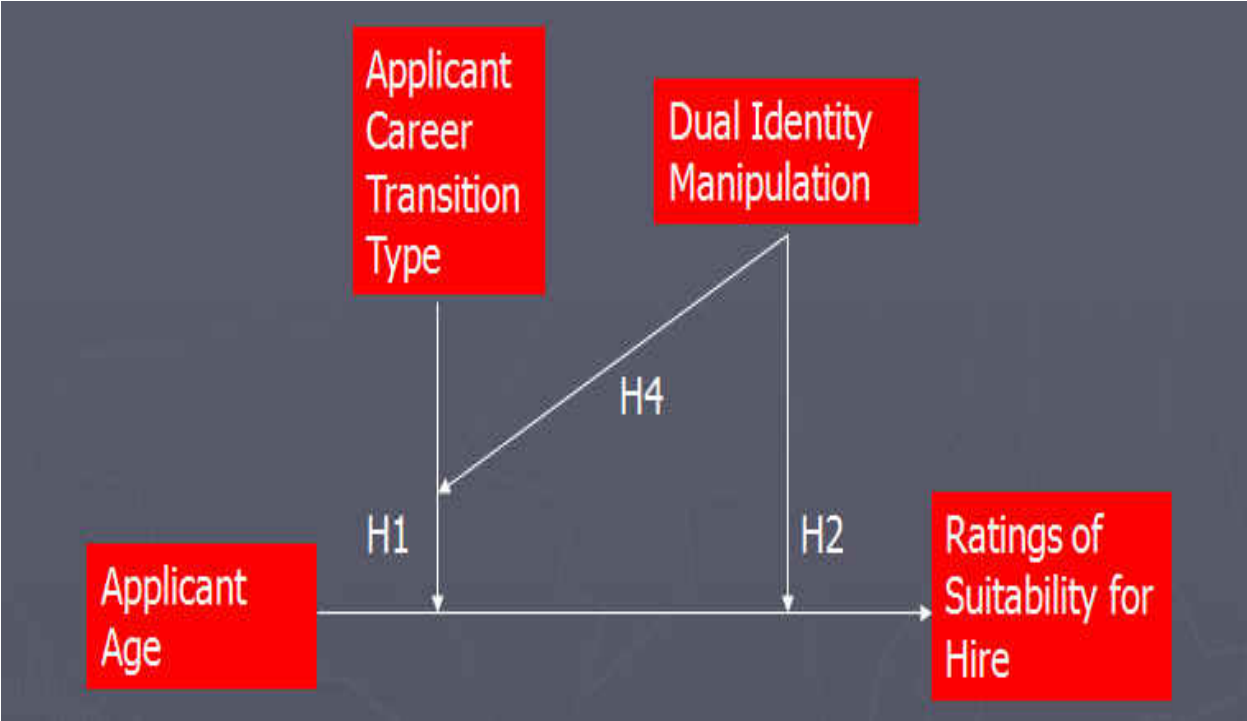
Figure 4: Theoretical Model

DV = 5.168 +0.1375 Applicant_Age - 1.1244 Career - 0.1454 Treatment

N
160

Rsq
0.2514

Adj Rsq
0.2370

RMSE
1
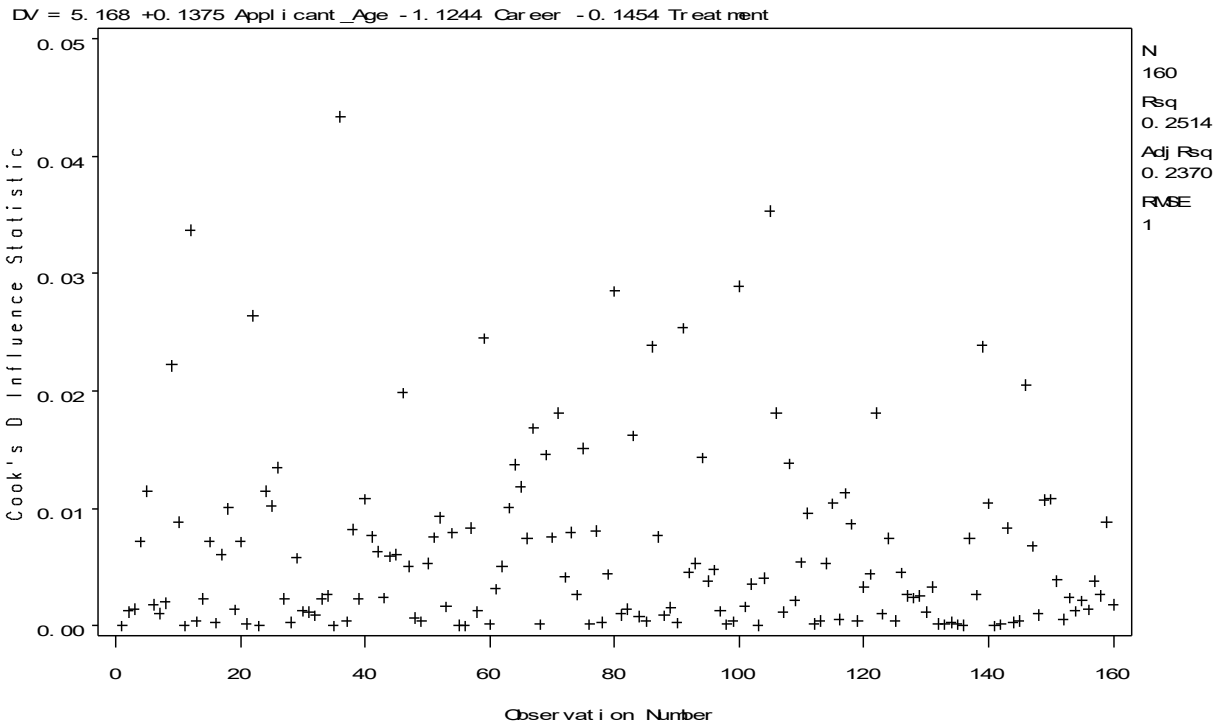
Figure 5: Plot of Cook's Distance by Observation Number
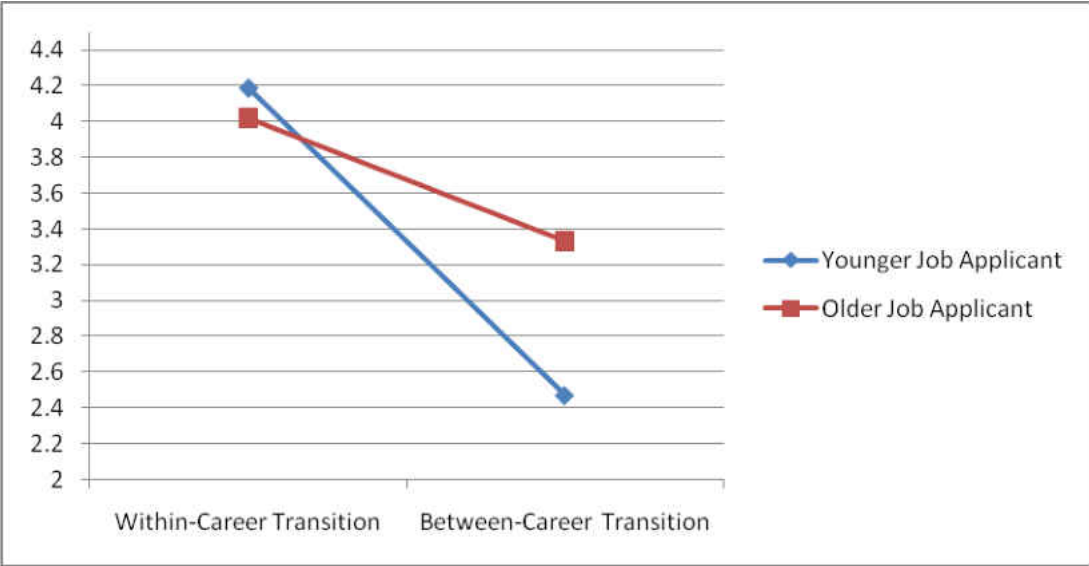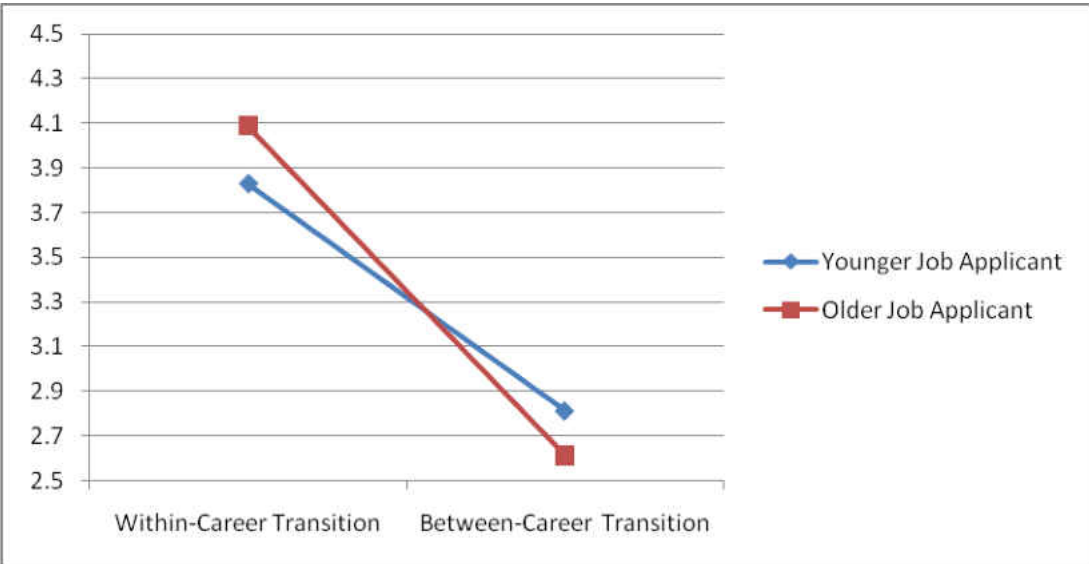
Figure 6: Interactive Effect of Age and Career-transition Type on Ratings of Suitability for Hire, Control/Treatment Groups
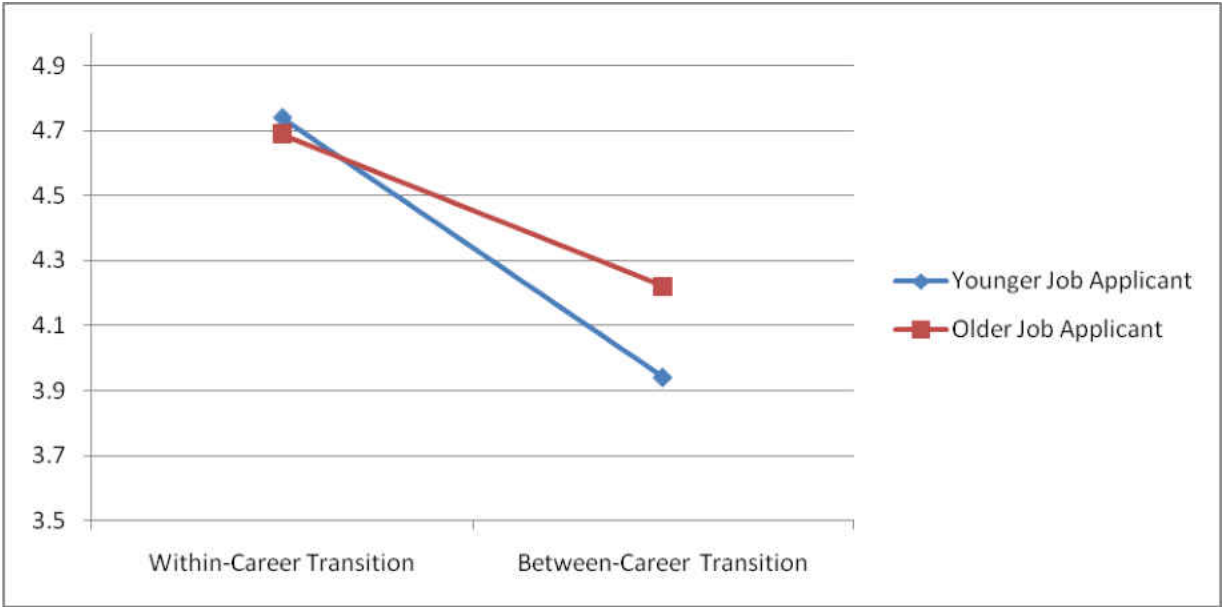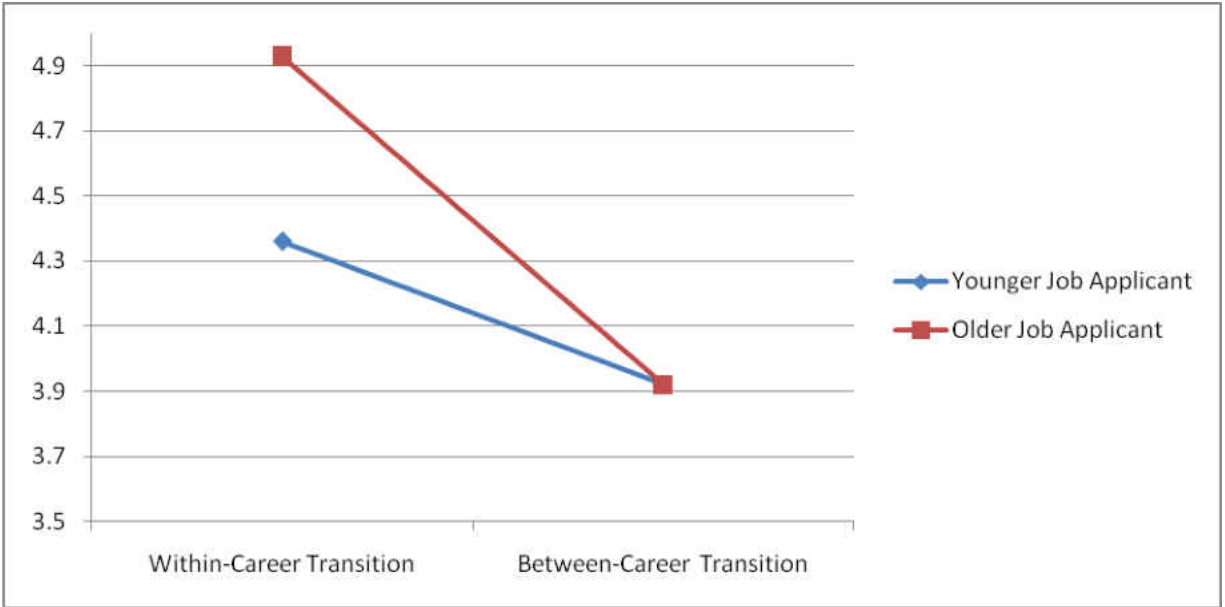
Figure 7: Interactive Effect of Age and Career-Transition Type on Competence Ratings, Control/Treatment Groups

APPENDIX B: TABLES

Table 1: The Changed Employer-Employee Psychological Contract

Old psychological contract	New psychological contract
Stability, predictability	Change, uncertainty
Permanence	Temporariness
Standard work patterns	Flexible work patterns
Paternalism	Self-reliance
Job security	Employment security
Linear career growth	Multiple careers
One-time learning	Life-long learning

Table 2: RIASEC Dimensions

Dimension	Description
Realistic (R)	Realistic people are oriented toward activities that call for motor coordination and the manipulation of objects, tools, and machines. They prefer to deal with concrete rather than abstract problems and to avoid situations requiring verbal and interpersonal skills. They perceive themselves as possessing mechanical and athletic ability and may be described as conforming, frank, natural, practical, stable, thrifty, and uninvolved.
Investigative (I)	Investigate individuals prefer activities that require a lot of thinking and understanding and tend to have a scientific orientation. They shy away from interpersonal and persuasive activities. They are confident about their scholarly or intellectual abilities and may be described as analytical, cautious, curious, independent, introspective, and reserved.
Artistic (A)	Artistic people prefer free and unstructured situations that maximize opportunities for creative self-expression. They value esthetic qualities and perceive themselves as expressive, original, instructive, nonconforming, and having artistic ability of some kind. Characteristic traits include complexity, disorderliness, emotionality, idealism, impulsiveness, introspection, and independence.
Social (S)	Social people prefer situations calling for interpersonal skills required in manipulating people in order to support them and help them improve their status; that is, they prefer activities that involve informing, training, developing, enlightening, or helping others. They value social and ethical concerns and view themselves as being humanistic, empathetic, having teaching ability, and lacking scientific and mechanical competence. Characteristic traits include cooperativeness, friendliness, helpfulness, persuasiveness, tactfulness, and understanding.
Enterprising (E)	Enterprising people are oriented toward the manipulation of others in order to achieve their own organizational or economic objectives. They value power and status, including political and economic achievement, and perceive themselves as aggressive, self-confident, sociable, and having leadership skills and oral skills. They may be described as adventurous, ambitious, domineering, energetic, exhibitionistic, optimistic, and sociable.
Conventional (C)	Conventional people prefer well-structured environments in which their task involves numerical or verbal data such as in filing materials, keeping records, or operating data processing machines. They value business and economic achievement and view themselves as being orderly and conforming and high in clerical and numerical skills. Characteristic traits include conscientiousness, efficiency, inflexibility, obedience, practicality, and self-control.

Table 3: Means, Standard Deviations, and Intercorrelations between Study Variables

Variable	M	SD	Suitability for Hire	Competence	Suitability for Training	Loyalty	Warmth	Ageism
Suitability for Hire	3.51	1.17	(.96)					
Competence	4.38	.93	.72**	(.65)				
Suitability for Training	4.40	.90	.59**	.62**	(.65)			
Loyalty	4.62	.83	.40**	.53**	.50**	(.63)		
Warmth	4.48	.96	.28**	.38**	.51**	.51**	(.79)	
Ageism	3.47	.81	-.16*	-.12	-.09	-.06	-.03	(.75)

Note: Coefficient alphas are shown in the diagonal. Variables for which coefficient alpha is not appropriate are indicated with -----
** Correlation is significant at the $\alpha=0.01$ level (2-tailed)
* Correlation is significant at the $\alpha=0.05$ level (2-tailed)

Table 4: Univariate Tests of Homoscedasticity

Measure	F	df1	df2	Sig.
Suitability for Hire	1.341	7	149	.235
Competence	1.417	7	149	.203
Suitability for Training	1.167	7	149	.325
Loyalty	.558	7	149	.789
Warmth	1.052	7	149	.397

Table 5: Tests of Multivariate Effects

Effect	Value	F	Hypothesis df	Error df	Sig.	Partial Eta-Squared	Observed Power
Ageism	.030	.883	5	144	.495	.030	.309
Applicant Age	.075	2.329	5	144	.045	.075	.735
Career	.322	13.661	5	144	<.001	.322	>.999
Treatment	.019	.551	5	144	.737	.019	.199
Applicant Age * Career	.023	.692	5	144	.630	.023	.245
Applicant Age * Treatment	.060	1.824	5	144	.112	.060	.611
Career * Treatment	.028	.825	5	144	.534	.028	.390
Applicant Age * Career * Treatment	.081	2.337	5	144	.045	.750	.737

Table 6: Between-Subjects Effects for Univariate Test of Ratings of Suitability for Hire

Effect	Type III Sum of Squares	df	Mean Squares	F	Sig.	Partial Eta-Squared	Observed Power
Ageism	2.683	1	2.683	3.078	.081	.020	.414
Applicant Age	1.431	1	1.431	1.642	.202	.011	.247
Career	54.281	1	54.718	62.90	<.001	.298	>.999
Treatment	1.440	1	1.440	1.652	.201	.011	.248
Applicant Age * Career	.752	1	.752	.863	.355	.006	.352
Applicant Age * Treatment	.812	1	.812	.931	.336	.006	.130
Career * Treatment	<.001	1	<.001	.000	>.999	<.001	.050
Applicant Age * Career * Treatment	5.984	1	5.984	6.686	.010	.044	.740
Error	137.76	148	.872	---	---	---	---

Table 7: Between-Subjects Effects for Univariate Test of Competence Ratings

Effect	Type III Sum of Squares	df	Mean Squares	F	Sig.	Partial Eta-Squared	Observed Power
Ageism	1.177	1	1.177	1.653	.201	.011	.248
Applicant Age	1.583	1	1.583	2.222	.138	.015	.316
Career	16.565	1	16.565	23.26	<.001	.136	.998
Treatment	.659	1	.659	.925	.338	.006	.159
Applicant Age * Career	.159	1	.159	.223	.637	.002	.076
Applicant Age * Treatment	.335	1	.335	.470	.494	.003	.105
Career * Treatment	.038	1	.038	.053	.818	<.001	.056
Applicant Age * Career * Treatment	2.223	1	2.223	3.122	.079	.021	.419
Error	105.40	120	.712	---	---	---	---

Table 8: Between-Subjects Effects for Univariate Test of Suitability for Training Ratings

Effect	Type III Sum of Squares	df	Mean Squares	F	Sig.	Partial Eta-Squared	Observed Power
Ageism	.530	1	.530	.680	.411	.005	.130
Applicant Age	.493	1	.493	.632	.428	.004	.124
Career	7.608	1	7.608	9.763	.002	.062	.874
Treatment	1.719	1	1.719	2.206	.140	.015	.314
Applicant Age * Career	.015	1	.015	.019	.891	<.001	.052
Applicant Age * Treatment	1.238	1	1.238	1.519	.209	.011	.240
Career * Treatment	.363	1	.363	.466	.496	.003	.104
Applicant Age * Career * Treatment	1.117	1	1.117	1.433	.233	.010	.221
Error	115.33	120	.779	---	---	---	---

Table 9: Between-Subjects Effects for Univariate Test of Loyalty Ratings

Effect	Type III Sum of Squares	df	Mean Squares	F	Sig.	Partial Eta-Squared	Observed Power
Ageism	.398	1	.398	.553	.458	.004	.014
Applicant Age	.682	1	.682	.946	.332	.006	.132
Career	.963	1	.965	1.338	.249	.009	.210
Treatment	.121	1	.121	.168	.683	.001	.069
Applicant Age * Career	.359	1	.359	.498	.481	.003	.108
Applicant Age * Treatment	.908	1	.908	1.260	.263	.008	.200
Career * Treatment	.074	1	.074	.102	.749	.001	.062
Applicant Age * Career * Treatment	.153	1	.153	.212	.646	.001	.074
Error	83.892	120	.699	---	---	---	---

Table 10: Between-Subjects Effects for Univariate Test of Warmth Ratings

Effect	Type III Sum of Squares	df	Mean Squares	F	Sig.	Partial Eta-Squared	Observed Power
Ageism	.129	1	.129	.138	.711	.001	.066
Applicant Age	1.470	1	1.470	1.580	.211	.011	.239
Career	.696	1	.696	.748	.388	.005	.138
Treatment	.530	1	.530	.570	.452	.004	.116
Applicant Age * Career	.027	1	.027	.029	.865	<.001	.053
Applicant Age * Treatment	.021	1	.021	.023	.880	<.001	.053
Career * Treatment	1.665	1	1.665	1.788	.183	.012	.264
Applicant Age * Career * Treatment	1.171	1	1.171	1.258	.264	.008	.200
Error	137.76	120	.931	---	---	---	---

Table 11: Means and Standard Deviations, by Condition, for Ratings of Suitability for Hire

Condition	Mean (M)	Standard Deviation (SD)	Sample Size (n)
Young, within-career, control	4.19	.80	21
Young, within-career, treatment	3.83	.94	21
Young, between-career, control	2.47	.74	17
Young, between-career, treatment	2.81	.99	19
Old, within-career, control	4.02	.92	21
Old, within-career, treatment	4.09	.83	21
Old, between-career, control	3.33	1.01	18
Old, between-career, treatment	2.61	1.21	19

Table 12: Means and Standard Deviations, by Condition, for Competence Ratings

Condition	Mean (M)	Standard Deviation (SD)	Sample Size (n)
Young, within-career, control	4.74	.72	21
Young, within-career, treatment	4.36	.81	21
Young, between-career, control	3.94	.79	17
Young, between-career, treatment	3.92	1.00	19
Old, within-career, control	4.69	.83	21
Old, within-career, treatment	4.93	.76	21
Old, between-career, control	4.22	1.03	18
Old, between-career, treatment	3.92	.80	19

Table 13: Means and Standard Deviations, by Condition, for Suitability for Training Ratings

Condition	Mean (M)	Standard Deviation (SD)	Sample Size (n)
Young, within-career, control	4.64	.81	21
Young, within-career, treatment	4.57	.83	21
Young, between-career, control	4.15	.93	17
Young, between-career, treatment	4.18	.65	19
Old, within-career, control	4.57	.78	21
Old, within-career, treatment	4.45	1.04	21
Old, between-career, control	4.36	1.07	18
Old, between-career, treatment	3.71	.90	19

Table 14: Means and Standard Deviations, by Condition, for Loyalty Ratings

Condition	Mean (M)	Standard Deviation (SD)	Sample Size (n)
Young, within-career, control	4.67	.81	21
Young, within-career, treatment	4.38	.86	21
Young, between-career, control	4.50	.85	17
Young, between-career, treatment	4.40	.72	19
Old, within-career, control	4.69	.75	21
Old, within-career, treatment	4.81	94	21
Old, between-career, control	4.44	.86	18
Old, between-career, treatment	4.53	.96	19

Table 15: Means and Standard Deviations, by Condition, for Warmth Ratings

Condition	Mean (M)	Standard Deviation (SD)	Sample Size (n)
Young, within-career, control	4.64	.92	21
Young, within-career, treatment	4.45	.97	21
Young, between-career, control	4.50	1.06	17
Young, between-career, treatment	4.39	.68	19
Old, within-career, control	4.62	.77	21
Old, within-career, treatment	4.14	.94	21
Old, between-career, control	4.08	1.09	18
Old, between-career, treatment	4.37	1.20	19

Table 16: Results of Tukey-Kramer's Post-hoc Tests of Mean Differences for Ratings of Suitability for Hire

Condition	vs. Condition	Q
Young, within-career, control	vs. Young, within-career, treatment	1.70
	Young, between-career, control	8.13*
	Young, between-career, treatment	6.53*
	Old, within-career, control	.80
	Old, within-career, treatment	.47
	Old, between-career, control	4.07*
	Old, between-career, treatment	7.47*
Young, within-career, treatment	vs. Young, between-career, control	6.43*
	Young, between-career, treatment	4.82*
	Old, within-career, control	-.90
	Old, within-career, treatment	-1.30
	Old, between-career, control	2.36
	Old, between-career, treatment	5.77*
Young, between-career, control	vs. Young, between-career, treatment	-1.61
	Old, within-career, control	-7.33*
	Old, within-career, treatment	-7.66*
	Old, between-career, control	-4.07*
	Old, between-career, treatment	-0.66
Young, between-career, treatment	vs. Old, within-career, control	-5.72*
	Old, within-career, treatment	-6.05*
	Old, between-career, control	-2.46
	Old, between-career, treatment	.95
Old, within-career, control	vs. Old, within-career, treatment	-.33
	Old, between-career, control	3.26
	Old, between-career, treatment	6.67*
Old, within-career, treatment	vs. Old, between-career, control	3.59
	Old, between-career, treatment	7.00*
Old, between-career, control	vs. Old, between-career, treatment	3.41

N_h = 19.5066; α = .10; $q\text{-critical}$ = 3.986; * denotes significance

Table 17: Results of Tukey-Kramer's Post-hoc Tests of Mean Differences for Competence Ratings

Condition	vs. Condition	Q
Young, within-career, control	vs. Young, within-career, treatment	1.99
	Young, between-career, control	4.19*
	Young, between-career, treatment	4.29*
	Old, within-career, control	.26
	Old, within-career, treatment	-.99
	Old, between-career, control	2.72
	Old, between-career, treatment	4.29*
Young, within-career, treatment	vs. Young, between-career, control	2.19
	Young, between-career, treatment	2.30
	Old, within-career, control	-1.72
	Old, within-career, treatment	-2.98
	Old, between-career, control	.73
	Old, between-career, treatment	2.30
Young, between-career, control	vs. Young, between-career, treatment	0.10
	Old, within-career, control	-3.92
	Old, within-career, treatment	-5.18*
	Old, between-career, control	-1.47
	Old, between-career, treatment	.10
Young, between-career, treatment	vs. Old, within-career, control	-4.03*
	Old, within-career, treatment	-5.28*
	Old, between-career, control	-1.57
	Old, between-career, treatment	.00
Old, within-career, control	vs. Old, within-career, treatment	-1.26
	Old, between-career, control	2.46
	Old, between-career, treatment	4.03*
Old, within-career, treatment	vs. Old, between-career, control	3.72
	Old, between-career, treatment	5.29*
Old, between-career, control	vs. Old, between-career, treatment	1.57

N_h = 19.5066; α = .10; $q\text{-critical}$ = 3.986; * denotes significance

APPENDIX C: PILOT STUDY SURVEY

Carefully review the job duties of the job listed below, and answer the following questions to the best of your ability (an older worker is a worker of age 52 or older):

Mechanical Engineer

Job duties:
➢ Read and interpret blueprints, technical drawings, schematics, and computer-generated reports

➢ Recommend design modifications to eliminate machine or system malfunctions

➢ Conduct research that tests and analyzes the feasibility, design, operation and performance of equipment, components and systems

➢ Investigate equipment failures and difficulties to diagnose faulty operation, and to make recommendations to maintenance crew

➢ Research, design, evaluate, install, operate, and maintain mechanical products, equipment, systems and processes

This job is best performed by older workers.

1	2	3	4	5	6
Disagree Very Much					Agree Very Much

This job is unsuitable for older workers.

1	2	3	4	5	6
Disagree Very Much					Agree Very Much

It is unlikely that an older worker would make a good fit for this job.

1	2	3	4	5	6
Disagree Very Much					Agree Very Much

The majority of workers performing this job are unlikely to be older workers.

1	2	3	4	5	6
Disagree Very Much					Agree Very Much

Estimate the amount of pay that a worker performing this job would require:

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A. $50,000
B. $60,000
C. $70,000
D. $80,000
E. $90,000
F. $100,000

Chiropractor

Job duties:

➤ Diagnose health problems by reviewing patients' health and medical histories, questioning, observing and examining patients, and interpreting x-rays

➤ Maintain accurate case histories of patients

➤ Perform a series of manual adjustments to the spine, or other articulations of the body, to correct the musculoskeletal system

➤ Advise patients about recommended courses of treatment

➤ Analyze x-rays to locate the sources of patients' difficulties and to rule out fractures or diseases as sources of problems

This job is best performed by older workers.

1	2	3	4	5	6
Disagree Very Much				Agree Very Much	

This job is unsuitable for older workers.

1	2	3	4	5	6
Disagree Very Much				Agree Very Much	

It is unlikely that an older worker would make a good fit for this job.

1	2	3	4	5	6
Disagree Very Much				Agree Very Much	

The majority of workers performing this job are unlikely to be older workers.

1	2	3	4	5	6
Disagree Very Much				Agree Very Much	

This job is a good match for the job of mechanical engineer.

1	2	3	4	5	6

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The job duties of this job fit well with the job duties of mechanical engineer.

1	2	3	4	5	6

Disagree
Very Much

Agree
Very Much

This job is similar to the job of mechanical engineer.

1	2	3	4	5	6

Disagree
Very Much

Agree
Very Much

Estimate the amount of pay that a worker performing this job would require:

A. $50,000
B. $60,000
C. $70,000
D. $80,000
E. $90,000
F. $100,000

Materials Engineer

Job duties:
➢ Analyze product failure data and laboratory test results to determine causes of problems and develop solutions

➢ Monitor material performance and evaluate material deterioration

➢ Evaluate technical specifications and economic factors relating to process or product design objectives

➢ Review new product plans and make recommendations for material selection based on design objectives, such as strength, weight, heat resistance, electrical conductivity, and cost

➢ Conduct or supervise tests on raw materials or finished products to ensure their quality

This job is best performed by older workers.

1	2	3	4	5	6
Disagree Very Much				Agree Very Much	

This job is unsuitable for older workers.

1	2	3	4	5	6
Disagree Very Much				Agree Very Much	

It is unlikely that an older worker would make a good fit for this job.

1	2	3	4	5	6
Disagree Very Much				Agree Very Much	

The majority of workers performing this job are unlikely to be older workers.

1	2	3	4	5	6
Disagree Very Much				Agree Very Much	

This job is a good match for the job of mechanical engineer.

1	2	3	4	5	6
Disagree Very Much				Agree Very Much	

The job duties of this job fit well with the job duties of mechanical engineer.

1	2	3	4	5	6
Disagree Very Much				Agree Very Much	

This job is similar to the job of mechanical engineer.

1	2	3	4	5	6
Disagree Very Much				Agree Very Much	

Estimate the amount of pay that a worker performing this job would require:

- A. $50,000
- B. $60,000
- C. $70,000
- D. $80,000
- E. $90,000
- F. $100,000

Naval Architect

Job duties:
➢ Design complete hull and superstructure according to specifications and test data, in conformity with standards of safety, efficiency, and economy

➢ Design layout of craft interior, including cargo space, passenger compartments, ladder wells, and elevators

➢ Study design proposals and specifications to establish basic characteristics of craft, such as size, weight, speed, propulsion, displacement, and draft

➢ Confer with marine engineering personnel to establish arrangement of boiler room equipment and propulsion machinery, heating and ventilating systems, refrigeration equipment, piping, and other functional equipment

➢ Evaluate performance of craft during dock and sea trials to determine design changes and conformance with national and international standards

This job is best performed by older workers.

1	2	3	4	5	6
Disagree Very Much				Agree Very Much	

This job is unsuitable for older workers.

1	2	3	4	5	6
Disagree Very Much				Agree Very Much	

It is unlikely that an older worker would make a good fit for this job.

1	2	3	4	5	6
Disagree Very Much				Agree Very Much	

The majority of workers performing this job are unlikely to be older workers.

1	2	3	4	5	6
Disagree Very Much				Agree Very Much	

This job is a good match for the job of mechanical engineer.

1	2	3	4	5	6
Disagree				Agree	

The job duties of this job fit well with the job duties of mechanical engineer.

1	2	3	4	5	6
Disagree Very Much				Agree Very Much	

This job is similar to the job of mechanical engineer.

1	2	3	4	5	6
Disagree Very Much				Agree Very Much	

Estimate the amount of pay that a worker performing this job would require:

A. $50,000
B. $60,000
C. $70,000
D. $80,000
E. $90,000
F. $100,000

Aerospace Engineer

Job duties:

➢ Direct and coordinate activities of engineering or technical personnel designing, fabricating, modifying, or testing of aerospace products

➢ Formulate conceptual design of aeronautical or aerospace products to meet customer requirements

➢ Plan and coordinate activities concerned with investigating and resolving customers' reports of technical problems with aerospace vehicles

➢ Analyze project requests and proposals and engineering data to determine feasibility, cost, and production time of aerospace products

➢ Evaluate product data and design from inspections and reports for conformance to engineering principles, customer requirements, and quality standards

This job is best performed by older workers.

1	2	3	4	5	6
Disagree Very Much				Agree Very Much	

This job is unsuitable for older workers.

1	2	3	4	5	6
Disagree Very Much				Agree Very Much	

It is unlikely that an older worker would make a good fit for this job.

1	2	3	4	5	6
Disagree Very Much				Agree Very Much	

The majority of workers performing this job are unlikely to be older workers.

1	2	3	4	5	6
Disagree Very Much				Agree Very Much	

This job is a good match for the job of mechanical engineer.

1	2	3	4	5	6
Disagree Very Much				Agree Very Much	

The job duties of this job fit well with the job duties of mechanical engineer.

1	2	3	4	5	6
Disagree Very Much				Agree Very Much	

This job is similar to the job of mechanical engineer.

1	2	3	4	5	6
Disagree Very Much				Agree Very Much	

Estimate the amount of pay that a worker performing this job would require:

A. $50,000
B. $60,000
C. $70,000
D. $80,000
E. $90,000
F. $100,000

APPENDIX D: EXPERIMENTAL SCRIPT, WITHIN-CAREER TRANSITION, CONTROL

Hi! My name's Jack Smith ☺

I'm submitting this video resume to be considered for the job of mechanical engineer.

I'm a naval architect. Though I'm happy with my line of work, I'm looking to grow professionally, by exploring new areas of industry.

As a naval architect, I conducted investigations into causes of ship failures and proposed solutions. I investigated problems that led to ship deterioration, and examined how ship-building products could be made better, from both technical and financial perspectives. I also reviewed new product plans and made recommendations for building material selection based on objectives relating to the ultimate design of the ships. Finally, I conducted and supervised tests on raw materials and finished products to ensure their quality.

I realize there are differences between my work as a naval architect and the work of a mechanical engineer. But, I believe the skills and abilities I gained as a naval architect are transportable over to this job of mechanical engineer. I am proficient in science and mathematics – in tackling on-the-job issues, I employ rational, scientific analyses and solutions, and have the ability to choose the right mathematical methods or formulas.

I also believe that the knowledge and experience I gained from my university education have helped prepare me to for the job of mechanical engineer. My university provided me with a first-class education and the ability to think critically to solve real-world problems. At university, I learned how to think outside the box, analyze complex issues, and interact with many different types of people.

As a matter of fact, I recently had the chance to revisit my alma mater for an afternoon. The university is growing, with construction and renovations all over campus. The football team is getting a lot of national recognition – great that we have our own stadium now! Go Team! I'm very proud that I received my education there.

Looking forward to hearing from you, and thanks for your time ☺

APPENDIX E: EXPERIMENTAL SCRIPT, WITHIN-CAREER TRANSITION, TREATMENT

Hi! My name's Jack Smith ☺

I'm submitting this video resume to be considered for the job of mechanical engineer.

I'm a naval architect. Though I'm happy with my line of work, I'm looking to grow professionally, by exploring new areas of industry.

As a naval architect, I conducted investigations into causes of ship failures and proposed solutions. I investigated problems that led to ship deterioration, and examined how ship-building products could be made better, from both technical and financial perspectives. I also reviewed new product plans and made recommendations for building material selection based on objectives relating to the ultimate design of the ships. Finally, I conducted and supervised tests on raw materials and finished products to ensure their quality.

I realize there are differences between my work as a naval architect and the work of a mechanical engineer. But, I believe the skills and abilities I gained as a naval architect are transportable over to this job of mechanical engineer. I am proficient in science and mathematics – in tackling on-the-job issues, I employ rational, scientific analyses and solutions, and have the ability to choose the right mathematical methods or formulas.

I also believe that the knowledge and experience I gained from my university education at the University of Central Florida have helped prepare me to for the job of mechanical engineer. UCF provided me with a first-class education and the ability to think critically to solve real-world problems. At UCF, I learned how to think outside the box, analyze complex issues, and interact with many different types of people.

As a matter of fact, I recently had the chance to revisit my alma mater, UCF, for an afternoon. The university is growing, with construction and renovations all over campus. The football team is getting a lot of national recognition – great that we have our own stadium now! Go Knights! I'm very proud that I received my education at UCF.

Looking forward to hearing from you, and thanks for your time ☺

APPENDIX F: EXPERIMENTAL SCRIPT, BETWEEN-CAREER TRANSITION, CONTROL

Hi! My name's Jack Smith ☺

I'm submitting this video resume to be considered for the job of mechanical engineer.

I'm a chiropractor. Though I'm happy with my line of work, I'm looking to grow professionally, by exploring new areas of industry.
As a chiropractor, I diagnosed health problems by reviewing patients' health and medical histories, questioning, observing and examining patients, and interpreting x-rays. I maintained accurate case histories of patients, and advised patients about recommended courses of treatment. During treatment, I routinely performed a series of manual adjustments to the spine or other body areas, to correct the musculoskeletal system. Finally, I analyzed x-rays to locate the sources of patients' difficulties and to rule out fractures or diseases as sources of problems.

I realize there are differences between my work as a chiropractor and the work of a mechanical engineer. But, I believe the skills and abilities I gained as a chiropractor are transportable over to this job of mechanical engineer. I am socially perceptive and am sensitive to problems – in tackling on-the-job issues, I am aware of others' reactions and understand why they act the way they do, and have the ability to tell when something is wrong or is likely to go wrong.

I also believe that the knowledge and experience I gained from my university education have helped prepare me to for the job of mechanical engineer. My university provided me with a first-class education and the ability to think critically to solve real-world problems. At university, I learned how to think outside the box, analyze complex issues, and interact with many different types of people.

As a matter of fact, I recently had the chance to revisit my alma mater for an afternoon. The university is growing, with construction and renovations all over campus. The football team is getting a lot of national recognition – great that we have our own stadium now! Go Team! I'm very proud that I received my education there.

Looking forward to hearing from you, and thanks for your time ☺

APPENDIX G: EXPERIMENTAL SCRIPT, BETWEEN-CAREER TRANSITION, TREATMENT

Hi! My name's Jack Smith ☺

I'm submitting this video resume to be considered for the job of mechanical engineer.

I'm a chiropractor. Though I'm happy with my line of work, I'm looking to grow professionally, by exploring new areas of industry.
As a chiropractor, I diagnosed health problems by reviewing patients' health and medical histories, questioning, observing and examining patients, and interpreting x-rays. I maintained accurate case histories of patients, and advised patients about recommended courses of treatment. During treatment, I routinely performed a series of manual adjustments to the spine or other body areas, to correct the musculoskeletal system. Finally, I analyzed x-rays to locate the sources of patients' difficulties and to rule out fractures or diseases as sources of problems.

I realize there are differences between my work as a chiropractor and the work of a mechanical engineer. But, I believe the skills and abilities I gained as a chiropractor are transportable over to this job of mechanical engineer. I am socially perceptive and am sensitive to problems – in tackling on-the-job issues, I am aware of others' reactions and understand why they act the way they do, and have the ability to tell when something is wrong or is likely to go wrong.

I also believe that the knowledge and experience I gained from my university education at the University of Central Florida have helped prepare me to for the job of mechanical engineer. UCF provided me with a first-class education and the ability to think critically to solve real-world problems. At UCF, I learned how to think outside the box, analyze complex issues, and interact with many different types of people.

As a matter of fact, I recently had the chance to revisit my alma mater, UCF, for an afternoon. The university is growing, with construction and renovations all over campus. The football team is getting a lot of national recognition – great that we have our own stadium now! Go Knights! I'm very proud that I received my education at UCF.

Looking forward to hearing from you, and thanks for your time ☺

APPENDIX H: VIDEO RESUME SCREENSHOT, YOUNG JOB APPLICANT

APPENDIX I: VIDEO RESUME SCREENSHOT, OLD JOB APPLICANT

APPENDIX J: IRB APPROVAL FORM

University of
**Central
Florida**

Approval of Human Research

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

To: **Justin Marcus**

Date: **December 02, 2009**

Dear Researcher:

On 12/02/2009, the IRB approved the following human participant research until 12/1/2010 inclusive:

Type of Review:	UCF Initial Review Submission Form
Project Title:	AGEIST PERCEPTIONS IN PERSONNEL SELECTION DECISIONS: A PREJUDICE-REDUCTION INTERVENTION
Investigator:	Justin Marcus
IRB Number:	SBE-09-06516
Funding Agency:	
Grant Title:	
Research ID:	N/A

The Continuing Review Progress Report must be submitted 2 – 4 weeks prior to the expiration date for studies that were previously expedited, and 8 weeks prior to the expiration date for research that was previously reviewed at a convened meeting. Do not make changes to the study (i.e., protocol, methodology, consent form, personnel, site, etc.) before obtaining IRB approval. A Modification Form cannot be used to extend the approval period of a study. All forms may be completed and submitted online at https://iris.research.ucf.edu .

If continuing review approval is not granted before the expiration date of 12/1/2010, approval of this research expires on that date. When you have completed your research, please submit a Study Closure request in iRIS so that IRB records will be accurate.

Use of the approved, stamped consent document(s) is required. The new form supersedes all previous versions, which are now invalid for further use. Only approved investigators (or other approved key study personnel) may solicit consent for research participation. Participants or their representatives must receive a copy of the consent form(s).

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 Joanne Muratori on 12/02/2009 04:02:37 PM EST

IRB Coordinator

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APPENDIX K: INFORMED CONSENT FORM

University of
Central
Florida

Informed Consent for an Adult in a Non-Exempt Non-medical Research Study

Principal Investigator(s):   *Justin Marcus, MS*

Faculty Supervisor: *Barbara Fritzsche, PhD*

Investigational Site(s):   *University of Central Florida, Department of Psychology*

Purpose of the research study: The purpose of this study is to examine the viability of video-resumes as a potential human resource selection tool.

What you will be asked to do in the study: You will be asked to watch and evaluate a video resume depicting a job applicant applying for the position of mechanical engineer in an organization, and will be asked to answer several questions regarding your perception of the job applicant, and the quality of the video resume. Please answer questions honestly. Your evaluations regarding resume and job applicant quality will be used to inform the organization regarding the potential viability of using this selection tool. After viewing the video-resume, you will also meet the job applicant in person, to personally give him your evaluation of his video-resume. Participation in this study is completely voluntary. You may choose not to participate or not to answer any specific questions. You may skip any question you are not comfortable answering. **Do not participate in this study if you are under the age of 18.**

Location: The entire study will be conducted here, at UCF's Department of Psychology.

Time required: This study will take approximately 30 minutes to complete.

Risks: There are no anticipated risks.

Benefits: As a benefit of participating in this study, you will have the opportunity to learn more about the experimental process in psychological research, and to garner a first-hand view of such research.

Compensation or payment: You will receive 0.5 experimental credits for participation which may be applied toward any psychology course that allows credit for participation in research studies via Sona Systems.

Anonymous research: This study is anonymous. That means that no one, not even members of the research team, will know that the information you gave came from you. You will be asked to provide some demographic information at the end of this study, for exploratory research purposes. However, no identifying information will be collected.

Study contact for questions about the study or to report a problem: If you have any questions about this study, please contact the principal investigator, Mr Justin Marcus, at 402-202-3341 or justinmarcus@knights.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.

Thank you for taking the time and thought to complete this study. We sincerely appreciate your participation. Your time and effort in helping us gather information is greatly appreciated and will ultimately help professionals in higher education meet programming and funding needs.

Sincerely,

Justin Marcus

Doctoral Candidate,
PhD Program in Industrial and Organizational Psychology,
Department of Psychology
University of Central Florida

_____   _____
Participant Signature   Participant Name (PRINT)

_____
Researcher Signature

APPENDIX L: DEBRIEFING FORM

DEBRIEFING FORM

Thank you for your participation in this experimental study. We are interested in the ways in which people evaluate job applicants of differing ages, and whether or not the type of job the applicant previously held interacts with age to predict these evaluations. Additionally, we are also interested in whether or not recategorizing an older adult into a different category (i.e., UCF alumnus) helps alleviate prejudice against older adults.

You were assigned one of eight possible videos that were randomly assigned to the participants in this study. The videos were identical except for the age of the job applicant, the type of job that the applicant previously held, and whether or not the job applicant was recategorized into a category other than young/old adult.

The job applicant in the video was actually an actor (with makeup on to make him look older), and was never intended to show up for a face-to-face meeting. You were led to believe otherwise in order to help create a more realistic experimental design. You were also led to believe that you will be interacting with the job applicant in person, to further simulate experimental realism.

We will be analyzing how responses to the videos may vary with regard to these factors. The results have implications for how older adults are evaluated in relation to younger adults in employment selection contexts, particularly when an individual makes a transition from a similar type of job as opposed to a dissimilar type of job.

If you do not wish for your results to be part of this study, if you have any questions, comments, or concerns, or if you would like a copy of the final results, please contact me, Mr. Justin Marcus, at (402) 202-3341 or at justinmarcus@knights.ucf.edu.

Please do not discuss the specifics of this experiment with your peers as some of them may not have participated yet.

Thank you for your participation in this research.

APPENDIX M: STEREOTYPE MEASURES

Competence

This job applicant would be a productive member of my organization.

1	2	3	4	5	6
Disagree Very Much					Agree Very Much

This job applicant is competent.

1	2	3	4	5	6
Disagree Very Much					Agree Very Much

Suitability for Training

This job applicant would be easy to train.

1	2	3	4	5	6
Disagree Very Much					Agree Very Much

This job applicant has potential for development.

1	2	3	4	5	6
Disagree Very Much					Agree Very Much

Loyalty

This job applicant is likely to be a stable individual.

1	2	3	4	5	6
Disagree Very Much					Agree Very Much

This job applicant would be a loyal employee.

1	2	3	4	5	6
Disagree Very Much					Agree Very Much

Warmth

This job applicant is friendly.

1	2	3	4	5	6
Disagree Very Much					Agree Very Much

This job applicant is warm.

1	2	3	4	5	6
Disagree Very Much					Agree Very Much

APPENDIX N: RATINGS OF SUITABILITY FOR HIRE

This job applicant should get the job.

1	2	3	4	5	6
Disagree Very Much					Agree Very Much

I would hire this job applicant.

1	2	3	4	5	6
Disagree Very Much					Agree Very Much

This job applicant is a great fit for the job.

1	2	3	4	5	6
Disagree Very Much					Agree Very Much

This job applicant is a prime candidate for the job.

1	2	3	4	5	6
Disagree Very Much					Agree Very Much

I find this job applicant to be my best prospect.

1	2	3	4	5	6
Disagree Very Much					Agree Very Much

I will select this job applicant for the job.

1	2	3	4	5	6
Disagree Very Much					Agree Very Much

APPENDIX O: MEASURES OF PREJUDICE

Discrimination against women is no longer a problem in the United States (U. S.).

1	2	3	4	5	6
Disagree Very Much					Agree Very Much

Older workers usually cannot work as effectively as younger workers.

1	2	3	4	5	6
Disagree Very Much					Agree Very Much

There are too many foreign students of Hispanic descent being allowed to attend university in the U. S.

1	2	3	4	5	6
Disagree Very Much					Agree Very Much

Some groups of people are simply inferior to other groups.

1	2	3	4	5	6
Disagree Very Much					Agree Very Much

Women often miss out on good jobs due to sexual discrimination.

1	2	3	4	5	6
Disagree Very Much					Agree Very Much

Older people usually take longer to learn new things.

1	2	3	4	5	6
Disagree Very Much					Agree Very Much

Intermarriage between Hispanics and Whites is a good thing for the U. S.

1	2	3	4	5	6
Disagree Very Much					Agree Very Much

In getting what you want, it is sometimes necessary to use force against other groups.

1	2	3	4	5	6
Disagree Very Much					Agree Very Much

On average, people in our society treat husbands and wives equally.

1	2	3	4	5	6
Disagree Very Much					Agree Very Much

Older adults tend to react slower than younger adults.

1	2	3	4	5	6
Disagree Very Much					Agree Very Much

It is not fair that so many scholarships and awards are awarded to Hispanic students.

1	2	3	4	5	6
Disagree Very Much					Agree Very Much

If certain groups stayed in their place, we would have fewer problems.

1	2	3	4	5	6
Disagree Very Much					Agree Very Much

Society has reached the point where women and men have equal opportunities for achievement.

1	2	3	4	5	6
Disagree Very Much					Agree Very Much

Older adults are more likely to be cognitively impaired.

1	2	3	4	5	6
Disagree Very Much					Agree Very Much

It is too easy for Hispanics to illegally arrive in the U. S.

1	2	3	4	5	6
Disagree Very Much					Agree Very Much

It is probably a good thing that certain groups are at the top and other groups are at the bottom.

1	2	3	4	5	6
Disagree Very Much					Agree Very Much

It is rare to see women treated in a sexist manner on television.

1	2	3	4	5	6
Disagree Very Much					Agree Very Much

The majority of old people are unable to adapt to change.

1	2	3	4	5	6
Disagree Very Much					Agree Very Much

Many Hispanics do not bother to learn proper English.

1	2	3	4	5	6
Disagree Very Much					Agree Very Much

Inferior groups should stay in their place.

1	2	3	4	5	6
Disagree Very Much					Agree Very Much

It is more important to encourage boys than to encourage girls to participate in athletics.

1	2	3	4	5	6
Disagree Very Much					Agree Very Much

Older adults are more likely to fall sick than younger adults.

1	2	3	4	5	6
Disagree Very Much					Agree Very Much

Discrimination against Hispanics is no longer a problem in the U. S.

1	2	3	4	5	6
Disagree Very Much					Agree Very Much

We would have fewer problems if we treated people more equally.

1	2	3	4	5	6
Disagree Very Much					Agree Very Much

APPENDIX P: BEHAVIORAL EQUIVALENCY MEASURES

The job applicant made eye contact with me:

1	2	3	4	5	6
Very Infrequently					Very Frequently

The job applicant moved around a lot:

1	2	3	4	5	6
Very Infrequently					Very Frequently

The job applicant moved his head around too much:

1	2	3	4	5	6
Disagree Very Much					Agree Very Much

The job applicant smiled while speaking:

1	2	3	4	5	6
Very Infrequently					Very Frequently

The job applicant frowned while speaking:

1	2	3	4	5	6
Very Infrequently					Very Frequently

The speed at which the job applicant spoke was:

1	2	3	4	5	6
Very Slow					Very Fast

The job applicant spoke in a steady tone.

1	2	3	4	5	6
Disagree Very Much					Agree Very Much

The job applicant stumbled while speaking.

1	2	3	4	5	6
Disagree Very Much					Agree Very Much

APPENDIX Q: VIDEO-RESUME EQUIVALENCY MEASURES

The job applicant would have been better off using a paper-based resume as opposed to a video-based resume.

1	2	3	4	5	6
Disagree Very Much					Agree Very Much

The video resume was professionally presented.

1	2	3	4	5	6
Disagree Very Much					Agree Very Much

The video resume is of high quality.

1	2	3	4	5	6
Disagree Very Much					Agree Very Much

The video resume is sophisticated.

1	2	3	4	5	6
Disagree Very Much					Agree Very Much

The organization would benefit by the use of video resumes such as these.

1	2	3	4	5	6
Disagree Very Much					Agree Very Much

The video resume is clear.

1	2	3	4	5	6
Disagree Very Much					Agree Very Much

APPENDIX R: MANIPULATION CHECKS

Please answer the following questions to the best of your ability:
What was the job applicant's race?
White
Black
Asian
Hispanic

What was the job applicant's sex?
Male
Female

The job applicant was a:
Young adult
Old adult

The job applicant was:

1	2	3	4	5	6
Very					Very
Young					Old

The job applicant looked to be in his:
     Mid twenties
Late twenties
Mid thirties
Late thirties
Mid forties
Late forties
Mid fifties
Late fifties

The job applicant identified which school he graduate college from
Yes
No

What was the job applicant's previous work experience?
Chiropractor
Naval Architect
Mechanical Engineer

 What position was the job applicant applying for?
Chiropractor
Naval Architect
Mechanical Engineer

This job applicant held a job that was similar to the job he is applying for.

| 1 | 2 | 3 | 4 | 5 | 6 |

Disagree
Very Much

Agree
Very Much

This job applicant's previous job is a good match for the job he is applying for.

| 1 | 2 | 3 | 4 | 5 | 6 |

Disagree
Very Much

Agree
Very Much

The job that this job applicant previously held is a job that would prepare him well for the job he is applying for.

| 1 | 2 | 3 | 4 | 5 | 6 |

Disagree
Very Much

Agree
Very Much

This job applicant's previous job duties fit well with the job duties of the job he is currently applying for.

| 1 | 2 | 3 | 4 | 5 | 6 |

Disagree
Very Much

Agree
Very Much

APPENDIX S: DEMOGRAPHICS CHARACTERISTICS QUESTIONNAIRE

We would like to collect some information about you for exploratory research purposes. You may decline to answer any of the following questions.

What is your race?
> White
> Black
> Hispanic/Latino
> Asian/Pacific Islander
> East Indian
> Other

What is your age?
> _____years of age

What is your sex?
> Male
> Female

What is your political affiliation?
> Democrat
> Republican
> Independent
> Other

What is your year in school?
> Freshman
> Sophomore
> Junior
> Senior

Have you ever been involved in selecting an applicant for a job?
> Yes
> No

Have you ever been involved in selecting an applicant for a social or sport organization, either at college or at high school?
> Yes
> No

Have you ever been employed?
> Yes
> No

Are you currently employed?

        Yes

        No

If you answered "Yes" to the previous question, approximately how many hours a week do you work?

        1-10 hours a week

        11-20 hours a week

        21+ hours a week

APPENDIX T: SAS CODE

```
options nocenter nodate pageno=1 pagesize=100 linesize=132 nonumber;
libname ageism 'c:\users\justin\documents\research materials\ageism';

/* Import Excel spreadsheet into SAS */
Proc Import OUT= ageism.diss
       DATAFILE= 'c:\users\justin\documents\research materials\doctoral
dissertation\Diss.xls'
       DBMS=EXCEL REPLACE;
       GETNAMES=YES;
run;

/* Create Formats */
Proc Format;
value condfmt              1=    'Young within-career control'
                           2=    'Young within-career treatment'
                           3=    'Young between-career control'
                           4=    'Young between-career treatment'
                           5=    'Old within-career control'
                           6=    'Old within-career treatment'
                           7=    'Old between-career control'
                           8=    'Old between-career treatment';

value checkfmt             0='Fail manipulation check'
                           1='Pass manipulation check';

value agefmt               1='Young adult'
                           2='Old adult';

value trtfmt               1='Control'
                           2='Treatment';

value careerfmt            1='Within-career transition'
                           2='Between-career transition';

value racefmt              1='White'
                           2='Black'
                           3='Hispanic/Latino'
                           4='Asian/Pacific Islander'
                           5='East Indian'
                           6='Other';

value sexfmt               1='Male'
                           2='Female';

value polfmt               1='Democrat'
                           2='Republican'
                           3='Independent'
                           4='Other';

value yearfmt              1='Freshman'
                           2='Sophomore'
                           3='Junior'
                           4='Senior';

value invjobfmt            2='Not involved in selecting an applicant for a job'
```

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```
                                  1='Involved in selecting an applicant for a job';

value invelsefmt          2='Not involved in selecting an applicant for
                             anything else'
                          1='Involved in selecting an applicant for anything
                             else';

value everempfmt          2='Never been employed'
                          1='Been employed';

value currempfmt          2='Not currently employed'
                          1='Currently employed';

value hrsfmt              1='Works 1-10 hours per week'
                          2='Works 11-20 hours per week'
                          3='Works 21+ hours a week';

value check1fmt           1='White'
                          2='Black'
                          3='Asian'
                          4='Hispanic';

value check2fmt           1='Male'
                          2='Female';

value check3fmt           1='Participant identified applicant as "young adult"'
                          2='Participant identified applicant as "old adult"';

value check6fmt           1='Yes, identified school'
                          2='No, did not identify school';

value jobfmt              1='Chiropractor'
                          2='Naval Architect'
                          3='Mechanical Engineer';

run;

/* Get variable names */
proc contents data=ageism.diss;run;
proc freq data=ageism.diss; run;
/* Rename variables */
data ageism.dissNew
(rename=(For_Researcher_=Condition  What_was_the_job_applicant___s_r=Check1
What_was_the_job_applicant___s_s=Check2
The_job_applicant_was_a_=Check3 The_job_applicant_was___=Check4
The_job_applicant_looked_to_be_i=Check5
The_job_applicant_identified_whi=Check6
What_was_the_job_applicant___s_p=Check7
What_position_was_the_job_applic=Check8
What_is_your_age_=Participant_Age RespondentID=ID
This_job_applicant_should_get_th=DV1 I_would_hire_this_job_applicant_=DV2
This_job_applicant_is_a_great_fi=DV3
This_job_applicant_is_a_prime_ca=DV4 I_find_this_job_applicant_to_be_=DV5
I_will_select_this_job_applicant=DV6
```

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```
The_video_resume_was_professiona=Resume1
The_video_resume_is_of_high_qual=Resume2
The_video_resume_is_sophisticate=Resume3
The_organization_would_benefit_b=Resume4 The_video_resume_is_clear_=Resume5
The_video_resume_helped_convey_i=Resume6
The_job_applicant_would_have_bee=Resume7
Evaluate_the_overall_quality_of_=ResumeOverall
This_job_applicant_is_warm_=Warmth1 This_job_applicant_is_friendly_=Warmth2
This_job_applicant_is_likely_to_=Loyalty1
This_job_applicant_would_be_a_lo=Loyalty2
This_job_applicant_would_be_a_pr=Competence1
This_job_applicant_is_competent_=Competence2
This_job_applicant_would_be_easy=Trainable1
This_job_applicant_has_potential=Trainable2
The_job_applicant_made_eye_conta=EyeContact
The_job_applicant_moved_around_a=Movement1
The_job_applicant_moved_his_head=Movement2
The_job_applicant_frowned_while_=Frowned
The_job_applicant_smiled_while_s=Smiled
The_job_applicant_stumbled_a_lot=Stumbled
The_job_applicant_appeared_nervo=Nervous
The_job_applicant_spoke_in_a_cal=Poise1
The_job_applicant_appeared_confi=Poise2 The_job_applicant_spoke_in_a_ste=Tone
The_speed_at_which_the_job_appli=Speed
The_job_applicant_spoke_in_a_mon=Monotone
Select_response_labeled_2_for_th=ChristmasCheck
Discrimination_against_women_is_=Sexism1
Older_workers_usually_cannot_wor=Ageism1
Discrimination_against_Hispanics=Racism1
Some_groups_of_people_are_simply=SDO1
Women_often_miss_out_on_good_job=Sexism2R
Older_people_usually_take_longer=Ageism2
Intermarriage_between_Hispanics_=Racism2R
In_getting_what_you_want__it_is_=SDO2
On_average__people_in_our_societ=Sexism3
Older_adults_tend_to_react_slowe=Ageism3
It_is_not_fair_that_so_many_scho=Racism3
If_certain_groups_stayed_in_thei=SDO3
Society_has_reached_the_point_wh=Sexism4
Older_adults_are_more_likely_to_=Ageism4
It_is_too_easy_for_Hispanics_to_=Racism4
It_is_probably_a_good_thing_that=SDO4
It_is_rare_to_see_women_treated_=Sexism5
The_majority_of_old_people_are_u=Ageism5
Many_Hispanics_do_not_bother_to_=Racism5
Inferior_groups_should_stay_in_t=SDO5
It_is_more_important_to_encourag=Sexism6
Older_adults_are_more_likely_to0=Ageism6
There_are_too_many_foreign_stude=Racism6
We_would_have_fewer_problems_if_=SDO6R
This_job_applicant_held_a_job_th=CareerCheck1
This_job_applicant___s_previous_=CareerCheck2
The_job_that_this_job_applicant_=CareerCheck3
This_job_applicant___s_previous0=CareerCheck4));
set ageism.diss;
```

```
/* Create Applicant Age IV */
if For_Researcher_      = 1 then Applicant_Age = 1;
else if For_Researcher_ = 2 then Applicant_Age = 1;
else if For_Researcher_ = 3 then Applicant_Age = 1;
else if For_Researcher_ = 4 then Applicant_Age = 1;
else if For_Researcher_ = 5 then Applicant_Age = 2;
else if For_Researcher_ = 6 then Applicant_Age = 2;
else if For_Researcher_ = 7 then Applicant_Age = 2;
else if For_Researcher_ = 8 then Applicant_Age = 2;

/* Create Career IV */
if For_Researcher_      = 1 then Career = 1;
else if For_Researcher_ = 2 then Career = 1;
else if For_Researcher_ = 3 then Career = 2;
else if For_Researcher_ = 4 then Career = 2;
else if For_Researcher_ = 5 then Career = 1;
else if For_Researcher_ = 6 then Career = 1;
else if For_Researcher_ = 7 then Career = 2;
else if For_Researcher_ = 8 then Career = 2;


/* Create Intervention IV */
if For_Researcher_      = 1 then Treatment = 1;
else if For_Researcher_ = 2 then Treatment = 2;
else if For_Researcher_ = 3 then Treatment = 1;
else if For_Researcher_ = 4 then Treatment = 2;
else if For_Researcher_ = 5 then Treatment = 1;
else if For_Researcher_ = 6 then Treatment = 2;
else if For_Researcher_ = 7 then Treatment = 1;
else if For_Researcher_ = 8 then Treatment = 2;

/* Create Participant Race variable */
if What_is_your_race_          =1 then Participant_Race=1;
if F125=2 then Participant_Race=2;
if F126=3 then Participant_Race=3;
if F127='4' then Participant_Race=4;
if F128='5' then Participant_Race=5;
if F129='6' then Participant_Race=6;

/* Create Participant Sex variable */
if What_is_your_sex_=1 then Participant_Sex=1;
if F132=2            then Participant_Sex=2;

/* Create Participant Political Affiliation variable */
if What_is_your_political_affiliati=1 then Participant_PolAff=1;
if F134='2' then Participant_PolAff=2;
if F135=3 then   Participant_PolAff=3;
if F136='4' then Participant_PolAff=4;

/* Create Participant Education variable */
if What_is_your_year_in_school_      =1 then Participant_Education=1;
if F138=2 then Participant_Education=2;
if F139='3' then Participant_Education=3;
if F140=4 then Participant_Education=4;
```

```
/* Create variables pertaining to participant work history and selection
experience */
if Have_you_ever_been_involved_in_s=1 then InvJob=1;
if F142=2 then InvJob=2;
if Have_you_ever_been_involved_in_0=1 then InvElse=1;
if F144=2 then InvElse=2;
if Have_you_ever_been_employed_=1 then EverEmp=1;
if F146='2' then EverEmp=2;
if Are_you_currently_employed_=1 then CurrEmp=1;
if F148=2 then CurrEmp=2;
if If_you_answered____Yes____to_the='1' then HrsEmp=1;
if F150=2 then HrsEmp=2;
if F152=3 then HrsEmp=3;

/* Drop redundant variables */
drop   This_job_applicant_would_turn_ou What_is_your_race_
What_is_your_year_in_school_ What_is_your_sex_
What_is_your_political_affiliati
        Have_you_ever_been_involved_in_s Have_you_ever_been_involved_in_0
Have_you_ever_been_employed_ Are_you_currently_employed_
        If_you_answered____Yes____to_the F125 F126 F127 F128 F129 F132 F134
F135 F136 F138 F139 F140 F142 F144 F146 F148 F150 F151
        StartDate EndDate The_job_applicant_was_a_1 CollectorID Custom_Data
Email_Address First_Name LastName IP_Address;

/* Format categorical variables */
format For_Researcher_ condfmt. Participant_Race racefmt. Participant_Sex
sexfmt. Participant_Education yearfmt. Participant_PolAff polfmt.
        CurrEmp currempfmt. EverEmp everempfmt. InvJob InvJobfmt. InvElse
InvElsefmt. HrsEmp hrsfmt.
            What_was_the_job_applicant___s_r check1fmt.
What_was_the_job_applicant___s_s check2fmt. The_job_applicant_was_a_
check3fmt.
            The_job_applicant_identified_whi check6fmt.
What_was_the_job_applicant___s_p jobfmt. What_position_was_the_job_applic
jobfmt. Applicant_Age agefmt. Career careerfmt. Treatment trtfmt.
run;

/* Delete blank rows */
data ageism.diss2; set ageism.dissnew;
if DV1 = ' ' then delete;
run;
/* Delete randomly responding cases */
data ageism.diss3; set ageism.diss2;
if christmascheck=1 then delete;
else if christmascheck=3 then delete;
else if christmascheck=4 then delete;
else if christmascheck=5 then delete;
else if christmascheck=6 then delete;
run;

/* Delete cases failing manipulation check on race */
data ageism.diss4; set ageism.diss3;
if check1=2 then delete;
else if check1=3 then delete;
```

```
          else if check1=4 then delete;
run;
/* Delete cases failing manipulation check on sex */
data ageism.diss5; set ageism.diss4;
if check2=2 then delete;
run;

data ageism.diss6; set ageism.diss5;
/* Refract relevant variables */
Sexism2 = 7 - Sexism2R;
Racism2 = 7 - Racism2R;
SDO6   = 7 - SDO6R;

/* Drop redundant variables after refraction */
drop Sexism2R Racism2R SDO6R;

/* Create labels for all variables */
label     Condition         = 'Experimental conditions'
          Competence1       = 'This job applicant will be competent.'
          Competence2       = 'The productivity of this organization will
                               be enhanced if I hire this job applicant.'
          Trainable1        = 'This job applicant would be easy to train.'
          Trainable2        = 'This job applicant has potential for
                               development.'
          Loyalty1          = 'This job applicant is likely to be a stable
                               individual.'
          Loyalty2          = 'This job applicant would be a
                               loyal employee.'
          Warmth1           = 'This job applicant is warm.'
          Warmth2           = 'This job applicant is friendly.'
          DV1               = 'This job applicant should get the job.'
          DV2               = 'I would hire this job applicant.'
          DV3               = 'This job applicant is a great fit for the
                               job.'
          DV4               = 'This job applicant is a prime candidate for
                               the job.'
          DV5               = 'I find this job applicant to be my best
                               prospect.'
          DV6               = 'I will select this job applicant for the
                               job.'

          Sexism1           = 'Discrimination against women is no longer a
                               problem in the United States (U. S.).'
          Sexism2           = 'Women often miss out on good jobs due to
                               sexual discrimination.'
          Sexism3           = 'On average, people in our society treat
                               husbands and wives equally.'
          Sexism4           = 'Society has reached the point where women
                               and men have equal opportunities for
                               achievement.'
          Sexism5           = 'It is rare to see women treated in a sexist
                               manner on television.'
          Sexism6           = 'It is more important to encourage boys than
                               to encourage girls to participate in
                               athletics.'
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Ageism1          = 'Older workers usually cannot work as
                    effectively as younger workers.'
Ageism2          = 'Older people usually take longer to learn
                    new things.'
Ageism3          = 'Older adults tend to react slower than
                    younger adults.'
Ageism4          = 'Older adults are more likely to be
                    cognitively impaired.'
Ageism5          = 'The majority of old people are unable to
                    adapt to change.'
Ageism6          = 'Older adults are more likely to fall sick
                    than younger adults.'
Racism1          = 'There are too many foreign students of
                    Hispanic descent being allowed to attend
                    university in the U. S.'
Racism2          = 'Intermarriage between Hispanics and Whites
                    is a good thing for the U. S.'
Racism3          = 'It is not fair that so many scholarships and
                    awards are awarded to Hispanic students.'
Racism4          = 'It is too easy for Hispanics to illegally
                    arrive in the U. S.'
Racism5          = 'Many Hispanics do not bother to learn proper
                    English.'
Racism6          = 'Discrimination against Hispanics is no
                    longer a problem in the U. S.'
SDO1             = 'Some groups of people are simply inferior to
                    other groups.'
SDO2             = 'In getting what you want, it is sometimes
                    necessary to use force against other
                    groups.'
SDO3             = 'If certain groups stayed in their place, we
                    would have fewer problems.'
SDO4             = 'It is probably a good thing that certain
                    groups are at the top and other groups are
                    at the bottom.'
SDO5             = 'Inferior groups should stay in their place.'
SDO6             = 'We would have fewer problems if we treated
                    people more equally.'
Check1           = 'What was the job applicants race?'
Check2           = 'What was the job applicants sex?'
Check3           = 'The job applicant was: a) Young adult b) Old
                    adult'
Check4           = 'The job applicant was: (1=very young; 6=
                    very old)'
Check5           = 'The job applicant looked to be in his:
                    (1=Mid twenties; 8=Late Fifties)'
Check6           = 'The job applicant identified which school he
                    graduated from'
Check7           = 'What was the job applicants previous work
                    experience? a) Chiropractor b)   Naval
                    Architect c)Mechanical Engineer'
Check8           = 'What position was the job applicant applying
                    for? a)  Chiropractor b)   Naval Architect
                    c)Mechanical Engineer'
CareerCheck1     = 'This job applicant held a job that was
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                                        similar to the job he is applying for.'
            CareerCheck2        = 'This job applicants previous job is a good
                                    match for the job he is applying for'
            CareerCheck3        = 'The job that this job applicant previously
                                    held is a job that would prepare him well
                                    for the job he is applying for.'
            CareerCheck4        = 'This job applicants previous job duties fit
                                    well with the job duties of the job he is
                                    currently applying for.'
            Participant_Race   = 'Race of participant'
            Participant_Age    = 'Age of participant'
            Participant_Sex    = 'Sex of participant'
            Participant_Education   = 'Year in school of participant'
            Participant_PolAff= 'Political affiliation of participant'
            InvJob             = 'Have you ever been involved in selecting an
                                    applicant for a job?'
            InvElse            = 'Have you ever been involved in selecting an
                                    applicant for a social or sport rganization,
                                    either at college or at high school?'
            EverEmp            = 'Have you ever been employed?'
            CurrEmp            = 'Are you currently employed?'
            HrsEmp             = 'If you answered "Yes" to the previous
                                    question, approximately how many hours a
                                    week do you work?';
    run;

    /* Create scales */
    data ageism.diss7; set ageism.diss6;
    Loyalty    = (Loyalty1 + Loyalty2) / 2;
    Warmth     = (Warmth1+ Warmth2) / 2;
    Trainability = (Trainable1+ Trainable2) / 2;
    Competence = (Competence1 + Competence2) / 2;
    Sexism = (Sexism1+ Sexism2 + Sexism3 + Sexism4 + Sexism5 + Sexism6) / 6;
    Racism = (Racism1+ Racism2 + Racism3 + Racism4 + Racism5 + Racism6) / 6;
    Ageism = (Ageism1+ Ageism2 + Ageism3 + Ageism4 + Ageism5 + Ageism6) / 6;
    SDO = (SDO1+ SDO2 + SDO3 + SDO4 + SDO5 + SDO6) / 6;
    DV=(DV1 + DV2 + DV3 + DV4 + DV5 + DV6) / 6;
    ResumeQuality = (Resume1+ Resume2 + Resume3 + Resume4 + Resume5 + Resume6 +
    Resume7) / 7;
    CareerCheck = (CareerCheck1 + CareerCheck2 + CareerCheck3 + CareerCheck4) /
    4;

    /* Label scales */
    label
            DV                 = 'Perceived suitability for hire of job
                                    applicant, based on general evaluation'
            ResumeQuality      = 'Perceived quality of video resume'
            Sexism             = 'Measure of modern sexism'
            Ageism             = 'Facts on Aging quiz'
            Racism             = 'Measure of modern racism (toward Hispanics)'
            SDO                = 'Social Dominance Orientation measure'
            CareerCheck        = 'Measure to check degree of fit between
                                    applicants job and perceived suitability for
                                    hire'
            Loyalty            = 'Perceived loyalty of job applicant'
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```sas
                    Warmth              = 'Perceived warmth of job applicant'
                    Competence          = 'Perceived competence of job applicant'
                    Trainability        = 'Perceived suitability for training of job
                                           applicant'

run;

/* Detect multivariate outliers, assess normality, and detect
multicollinearity */
proc reg data=ageism.diss7;
model DV  = applicant_age career treatment / r partial collinoint vif;
id ID;
plot cookd.* obs.;
output out=influence cookd=cook;
run;
 data ageism.diss8;
merge ageism.diss7 work.influence;
run;
data ageism.diss9;
set ageism.diss8;
if cook=>0.03 then delete;
drop cook;
run;

/* Export data to Excel */
proc export data=ageism.diss9
outfile='c:\users\justin\documents\research materials\doctoral
dissertation\DissertationPrepared.xls' replace;
run;

/* Run post-hoc tests */
title 'Tukey-Kramer post-hoc tests for Competence Ratings';
data TukeyKramer;
M1=4.74; M2=4.36; M3=3.94; M4=3.92; M5=4.69; M6=4.93; M7=4.22; M8=3.92;
Msw=.712; k=8;
n1=21; n2=21; n3=17; n4=19; n5=21; n6=21; n7=18; n8=19;
Nh=k/((1/n1)+ (1/n2)+(1/n3)+(1/n4)+(1/n5)+(1/n6)+(1/n7)+(1/n8));
Q12=(M1-M2)/(sqrt((MSw/Nh)));
Q13=(M1-M3)/(sqrt((MSw/Nh)));
Q14=(M1-M4)/(sqrt((MSw/Nh)));
Q15=(M1-M5)/(sqrt((MSw/Nh)));
Q16=(M1-M6)/(sqrt((MSw/Nh)));
Q17=(M1-M7)/(sqrt((MSw/Nh)));
Q18=(M1-M8)/(sqrt((MSw/Nh)));
Q23=(M2-M3)/(sqrt((MSw/Nh)));
Q24=(M2-M4)/(sqrt((MSw/Nh)));
Q25=(M2-M5)/(sqrt((MSw/Nh)));
Q26=(M2-M6)/(sqrt((MSw/Nh)));
Q27=(M2-M7)/(sqrt((MSw/Nh)));
Q28=(M2-M8)/(sqrt((MSw/Nh)));
Q34=(M3-M4)/(sqrt((MSw/Nh)));
Q35=(M3-M5)/(sqrt((MSw/Nh)));
Q36=(M3-M6)/(sqrt((MSw/Nh)));
Q37=(M3-M7)/(sqrt((MSw/Nh)));
Q38=(M3-M8)/(sqrt((MSw/Nh)));
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Q45=(M4-M5)/(sqrt((MSw/Nh)));
Q46=(M4-M6)/(sqrt((MSw/Nh)));
Q47=(M4-M7)/(sqrt((MSw/Nh)));
Q48=(M4-M8)/(sqrt((MSw/Nh)));
Q56=(M5-M6)/(sqrt((MSw/Nh)));
Q57=(M5-M7)/(sqrt((MSw/Nh)));
Q58=(M5-M8)/(sqrt((MSw/Nh)));
Q67=(M6-M7)/(sqrt((MSw/Nh)));
Q68=(M6-M8)/(sqrt((MSw/Nh)));
Q78=(M7-M8)/(sqrt((MSw/Nh)));
run;
title 'Tukey-Kramer post-hoc tests for Competence Ratings';
proc print data=tukeykramer; var Nh Q12-Q18 Q23-Q28 Q34-Q38 Q45-Q48 Q56-Q58
Q67-Q68 Q78; run;


title 'Tukey-Kramer post-hoc tests for Suitability for Hire Ratings';
data TukeyKramer;
M1=4.19; M2=3.83; M3=2.47; M4=2.81; M5=4.02; M6=4.09; M7=3.33; M8=2.61;
Msw=.872; k=8;
n1=21; n2=21; n3=17; n4=19; n5=21; n6=21; n7=18; n8=19;
Nh=k/((1/n1)+ (1/n2)+(1/n3)+(1/n4)+(1/n5)+(1/n6)+(1/n7)+(1/n8));
Q12=(M1-M2)/(sqrt((MSw/Nh)));
Q13=(M1-M3)/(sqrt((MSw/Nh)));
Q14=(M1-M4)/(sqrt((MSw/Nh)));
Q15=(M1-M5)/(sqrt((MSw/Nh)));
Q16=(M1-M6)/(sqrt((MSw/Nh)));
Q17=(M1-M7)/(sqrt((MSw/Nh)));
Q18=(M1-M8)/(sqrt((MSw/Nh)));
Q23=(M2-M3)/(sqrt((MSw/Nh)));
Q24=(M2-M4)/(sqrt((MSw/Nh)));
Q25=(M2-M5)/(sqrt((MSw/Nh)));
Q26=(M2-M6)/(sqrt((MSw/Nh)));
Q27=(M2-M7)/(sqrt((MSw/Nh)));
Q28=(M2-M8)/(sqrt((MSw/Nh)));
Q34=(M3-M4)/(sqrt((MSw/Nh)));
Q35=(M3-M5)/(sqrt((MSw/Nh)));
Q36=(M3-M6)/(sqrt((MSw/Nh)));
Q37=(M3-M7)/(sqrt((MSw/Nh)));
Q38=(M3-M8)/(sqrt((MSw/Nh)));
Q45=(M4-M5)/(sqrt((MSw/Nh)));
Q46=(M4-M6)/(sqrt((MSw/Nh)));
Q47=(M4-M7)/(sqrt((MSw/Nh)));
Q48=(M4-M8)/(sqrt((MSw/Nh)));
Q56=(M5-M6)/(sqrt((MSw/Nh)));
Q57=(M5-M7)/(sqrt((MSw/Nh)));
Q58=(M5-M8)/(sqrt((MSw/Nh)));
Q67=(M6-M7)/(sqrt((MSw/Nh)));
Q68=(M6-M8)/(sqrt((MSw/Nh)));
Q78=(M7-M8)/(sqrt((MSw/Nh)));
run;
title 'Tukey-Kramer post-hoc tests for Suitability for Hire Ratings';
proc print data=tukeykramer; var Nh Q12-Q18 Q23-Q28 Q34-Q38 Q45-Q48 Q56-Q58
Q67-Q68 Q78; run;
```

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