ABSTRACT

REACTIONS TO AGE METASTEREOTYPES IN THE WORKPLACE: CHALLENGE, THREAT, AND BOOST

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As workplaces become more age diverse, it becomes increasingly important to better understand how metastereotypes influence cross-generational interactions. In the context of ageism, metastereotypes occur when a person of one age group perceives what he or she believes other age groups think about members of one’s age group. These perceptions have been found to influence interpersonal interactions, career planning, as well as retirement. Between the activation and the ultimate outcomes of age metastereotypes, there are likely affective reactions that occur before the measured outcomes. Based on a model of age metastereotypes, some of the reactions to age metastereotypes that may occur are challenge, threat, and boost. Challenge reactions refer to motivation to disprove a negative metastereotype. Threat refers to feelings of resignation and sadness at the possibility of confirming a negative metastereotype or being unable to live up to a positive metastereotype. Boost refers to an increase in confidence and positive feelings associated with positive metastereotype about one’s group. The goal of this series of studies was to determine the relationship between metastereotype valence, perceived resources, and subsequent reactions and behavioral intentions in older workers and younger
workers. This research presented workplace scenarios to examine factors such as valence of metastereotypes and perceived resources in determining the reactions to age metastereotypes and subsequent behavioral intentions. The results of these research studies found that compared to younger workers, older workers had reactions that showed distinctive patterns corresponding to the valence of metastereotypes and availability of resources. Both younger and older workers who experienced high threat reactions indicated greater intentions to engage with workers of different ages. Workers’ reactions to age metastereotypes and subsequent behavioral intentions can influence interactions among coworkers of different ages.
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REACTIONS TO AGE METASTEREOTYPES IN THE WORKPLACE:
CHALLENGE, THREAT, AND BOOST

BY

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Thank you to my dissertation readers, Dr. Alecia Santuzzi and Dr. Brad Sagarin. Your feedback and expertise were incredibly helpful in shaping my writing and presentation of statistical results.

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DEDICATION

For my cats, Ganon and Zelda,
who spent countless hours by my side while I worked on this dissertation
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CHAPTER 1
REATIONS TO AGE METASTEREOTYPES IN THE WORKPLACE: CHALLENGE, THREAT, AND BOOST

Statement of the Problem

Old people hate change; they are set in their ways. This generalization, when applied to older people by another age group, is considered an age stereotype and can affect how older people are treated in the workplace. But what happens to an older person when they become aware that people from another age group in their work context may hold this stereotype? This belief about what we think another group believes about members of our own group is called an age metastereotype. Age metastereotypes in the workplace have been found to influence social dynamics (Roscigno, Mong, Byron, & Tester, 2007; Snape & Redman, 2003) as well as career decision making (Boumans, De Jong, & Vanderlinden, 2008; Snape & Redman, 2003) and performance outcomes (Hedge, Borman, & Lammlein, 2006). Though there has been little research focusing specifically on the interpersonal effects of age metastereotypes, there is some evidence for interpersonal outcomes such as increased prejudice against workers from other generations (Abrams, Eller, & Bryant, 2006,) increased loneliness, and increased help-seeking behaviors (Coudin, & Alexopoulos, 2010); however, we still do not have much knowledge about the intervening affective reactions that precede the outcomes.
Despite the potential detrimental effects of metastereotypes, researchers have not yet designed a systematic tool for measuring the emotional reactions that accompany exposure to age metastereotypes. Investigating affective reactions will enable researchers to better understand the mechanisms underlying outcomes resulting from age metastereotypes. Gaining a better understanding of age metastereotypes will give insight to cross-generational interactions at work and lend knowledge that can be used to develop interventions to enhance the positive effects and reduce the negative effects of age metastereotypes. To provide a better understanding of age metastereotypes at work, I had three goals for the present study: 1) Test a combination of measures to capture affective responses to age metastereotypes; 2) Expand the existing model of metastereotypes to consider a moderator of relevant resources; 3) Test the model from the point of activation through affective reactions to final criterion outcomes.

The first goal of this research was to use previously developed measures to capture different affective responses to age metastereotypes. Within the proposed framework (Finkelstein, King, & Voyles, 2015), three potential reactions may occur in response to metastereotype activation. The affective reactions are threat, challenge, and boost. These reactions were measured through a combination of measures that will theoretically capture each of the affective reactions. The purpose of testing measures of metastereotype reactions is to provide the tools and framework for continuing to examine metastereotypes, subsequent reactions, and the outcomes. Reactions to age metastereotypes were examined through experimental data that was collected from older and younger workers’ responses to workplace metastereotype scenarios.
The second goal of this research was to expand the proposed model to examine specific scenarios using different metastereotype content. Study 1 used the measures to examine which reactions are elicited for older workers in particular workplace scenarios. Study 2 examined reactions to workplace scenarios for younger workers. Scenarios were presented to examine the types of metastereotypes and situations that elicit each reaction to age metastereotypes. Specifically, the scenarios examined positive and negative metastereotypes for older and younger workers. These characteristics were based on the previous metastereotype content found in research by Finkelstein, Ryan and King (2013). Previous researchers also suggested that interventions could influence the effects of positive and negative metastereotypes on affective reactions (Finkelstein et al., 2015). The current study tested the effects of resources as an intervention by manipulating the level of personal resources in the scenarios to examine if resources moderate the relationship between metastereotype content and reactions.

The third goal of this research was to test the theorized relationships within the age metastereotype model. Specifically, I examined the relationships between metastereotype activation, affective reactions, and the different specific behavioral intention outcomes. This examination of the full process following metastereotype activation involved priming participants with positive or negative metastereotypes. Examining metastereotype scenarios, reactions to age metastereotypes, and workplace interpersonal outcomes offers the most complete picture of the process of metastereotype activation through the subsequent behavioral intentions to date.

In the following sections, I review previous research on metastereotypes and stereotypes of older and younger workers and outline the theoretical framework for the affective reactions. I
follow this with a justification for examining reactions to age metastereotypes. Specific hypotheses for both the measurement development study and the model testing study follow the discussion.

**Literature Review**

Rapid changes to the age distribution of the international workforce have increased the need for research on cross-generational workplace interactions (Alley & Crimmins, 2012). Most industrialized countries have population trends that are urging on these changes to the workforce, such as a longer span of healthy life and lower birth rates. Thus far, much of the research on ageism has focused on discrimination against older workers specifically. In some countries, there are laws that protect employees from age-based discrimination towards older adults (Gutman & Dunleavy, 2015). For example, the United States passed the Age Discrimination in Employment Act (ADEA) that protects worker 40 years and older from age discrimination. As a result, much of the research on ageism has focused on discrimination towards older adults; however, it should be noted that research has also found evidence of discrimination against younger adults (Keene & Handrich, 2010). Discriminatory behaviors toward younger workers and older workers can be triggered by activated age stereotypes (Posthuma & Campion, 2009). Stereotypes are defined in research as broad generalizations about the characteristics of people from a group (Tajfel, 1969). Posthuma and Campion described how stereotypes about older workers influence hiring decisions. Moreover, Posthuma and Campion pointed out that awareness of stereotypes (or in other words, metastereotypes) can influence older workers’ career decisions. It stands to reason that if older workers are impacted by stereotypes and metastereotypes that younger workers are being impacted by stereotypes and metastereotypes as well.
Age is a continuous progression, and as researchers have noted, it is difficult to define the discrete categories of “older” and “younger” workers. However, according to lifespan development theories, the adult stages of young adult, middle aged, and older adult are qualitatively different and important for identity (Ericson, 1960). As noted by Finkelstein et al. (2013), gaining membership into a new age group cannot be marked by a particular birthday. Instead, researchers have defined age groups to study the differences empirically. Specifically, researchers have conducted surveys to better understand how people classify age group membership (Hagestad & Uhlenberg, 2005). There has been some disagreement on age cutoffs among researchers as well as participants. As people age, they often view the cutoff for being “older” as a more advanced age. The present research focuses on age stereotypes and age metastereotypes; therefore, I will use age cutoffs used in previous research on these topics. Specifically, Finkelstein et al. (2013) conducted a review of the age literature and empirical assessment and defined the older adult age group as 51 and older and the category for younger workers as 30 years and younger. These are the age cutoffs that will be used in this research on age metastereotypes.

**Older Workers.** Stereotype content targeting older workers can be positive or negative. Positive stereotypes of older workers include characteristics such as experienced, knowledgeable, and hardworking (Finkelstein et al., 2013). Common negative stereotypes of older workers include beliefs that older workers have lower performance, lower trainability, difficulties with technology, resistance to change (Finkelstein et al., 2013; Posthuma & Campion, 2009) and lower willingness to learn (Laczko & Philipson, 1991; also see Liden, Stilwell, &
Stereotypes about older workers can affect how older adults are treated as well as how they perceive themselves (Chiu, Chan, Snape, & Redman, 2001).

**Younger Workers.** Although much of the previous research has focused on stereotypes of older workers, there is research evidence on stereotypes of younger workers as well (Ryan, King, & Finkelstein, 2015). Like older workers, stereotypes of younger workers can be positive or negative. Positive stereotypes of younger workers include characteristics such as ambitious, enthusiastic, and tech-savvy (Finkelstein et al., 2013). An investigation into stereotypes of younger workers found that middle aged and older workers held negative stereotypes about younger workers (Finkelstein et al., 2013). Negative stereotypes of younger workers include inexperienced, lazy, and unreliable. These negative stereotypes are persistent such that even extended contact with workers of different ages may not be enough to negate inaccurate stereotypes (Finkelstein, Burke, & Raju, 1995; McCann & Giles, 2002). These stereotypes may be especially impactful given that younger workers hold more negative metastereotypes above and beyond the reality of other age groups’ stereotypes of younger workers (Finkelstein et al., 2013).

**Metastereotypes**

As introduced above, metastereotypes are one’s perception of what other groups believe about one’s group (Vorauer, Hunter, Main, & Roy 2000). Metastereotypes are one type of metaperception, or a person’s beliefs about how they are viewed by others (Frey & Tropp, 2006). Metastereotyping occurs through a series of processes which allow for insight into an outgroup’s viewpoint on intergroup interactions (Gomez, 2002). Metastereotype activation first depends on a variety of individual difference and situational antecedents that may increase or decrease the
likelihood of activation (Finkelstein et al., 2015). It is important to note that activation does not necessarily mean that the metastereotype represents a true characteristic. For example, a younger worker could have an activated metastereotypes that younger workers are irresponsible; however, this metastereotype could be untrue for younger workers in general.

Within the literature in social psychology and industrial-organizational psychology, there have been a variety of terms used in reference to metastereotypes. These terms include self-stereotyping, stereotype threat, stereotype boost, and stereotype lift. Theories and research using these terms in the literature will be drawn from to better examine metastereotypes.

Stereotype threat is a process that occurs when a person is made aware of a negative stereotype concerning one’s group and then subsequently performs less well in tasks after priming of the threat (Steele & Aronson, 1995). This has been tested in a variety of domains, including African American students and mathematics performance, gender and problem solving (Inzlicht & Ben-Zeev, 2000), gender and leadership performance, and many more. Researchers have found that some conditions, such as high arousal (Ben-Zeev, Fein, & Inzlicht, 2005), are more likely to induce confirmation of stereotypes under stereotype threat conditions. However, in some cases, stereotype threat does not induce actions that confirm the stereotype and instead engenders reactance in which a person disconfirms the stereotype. Metastereotypes are the first step in the process of stereotype threat because a metastereotype refers to a person’s awareness of what others believe about members of one’s group (Voyles, Finkelstein, & King, 2014). In the process of stereotype threat, a target is first made aware of the negative metastereotype to elicit the stereotype threat response. For the purpose of this paper, metastereotype activation refers to an awareness or perception of others’ stereotypes regarding one’s own group. Many of the
studies reviewed examine metastereotypes as previously defined; however, many authors refer to
the phenomena as stereotype threat or similar terms.

**Age Metastereotypes.** The content of metastereotypes is different depending on the target
age (Finkelstein et al., 2013). Much of the existing research has focused on older workers’
metastereotypes (Finkelstein et al., 2013; Levy, Hausdorff, Hencke, & Wei (2000); von Hippel,
Issa, Ma, & Stokes, 2011; von Hippel, Kalokerinos, & Henry, 2013). Meanwhile, there has been
very little research on younger workers’ metastereotypes despite evidence that younger workers
report more negative metastereotypes compared to middle-aged and older workers (Finkelstein et
al. 2013).

**Older Workers.** Older workers’ metastereotypes can be either positive or negative
(Finkelstein et al., 2013). Some of the most common positive metastereotypes that older workers
reported were experienced, knowledgeable, mature and hardworking. Finkelstein and colleagues
found that the commonly reported negative metastereotypes included technophobic, narrow-
minded, slow, and out of touch. Moreover, when assessing the accuracy of older workers’
metastereotypes, Finkelstein et al. found that older workers were fairly accurate when their
metastereotypes were assessed quantitatively from a list of trait words, but they tended to express
many more negative metastereotypes in qualitative measures.

Researchers have also found physiological evidence of stress caused by negative age
metastereotypes in older adults. Levy, Hausdorff, Hencke, and Wei (2000) found that
participants exposed to negative metastereotypes exhibited higher levels of cardiovascular stress
after exposure compared to older adults exposed to a positive or neutral metastereotype.
Physiological stress responses were further elevated after performing anxiety-inducing activities.
However, participants in the positive metastereotype condition had decreased physiological stress.

**Younger Workers.** Younger workers’ metastereotypes can be either positive or negative (Finkelstein et al., 2013). Some of the most common positive metastereotypes that younger workers reported include energetic, ambitious, and extroverted. Finkelstein and colleagues found that the commonly reported negative metastereotypes included inexperienced, lazy, immature, and unreliable. Moreover, when assessing the accuracy of younger workers’ metastereotypes, Finkelstein et al. found that younger workers held many more negative metastereotypes, but these perceptions somewhat reflected reality because older and middle-aged workers held more negative stereotypes of younger workers than any other group. The younger workers, however, expected that they would be even more negative than they actually were. It seems that metastereotypes also influence the actions of younger workers.

In one of the only investigations on younger workers’ metastereotypes, Ryan et al., (2015) recruited younger workers to participate in a survey of their metastereotypes. The researchers examined potential antecedents of metastereotypes and interpersonal outcomes such as impression management with older workers and satisfaction with older workers. The results showed that two factors were associated with younger workers experiencing more metastereotypes: age prejudice towards older workers and being at the younger end of the age group. Younger workers with greater identification with their group experienced fewer age metastereotypes. Also, younger workers’ positive warmth and competence metastereotypes positively predicted impression management behaviors.
Resources and Metastereotypes. One of the common themes in stereotype threat literature and related topics is the idea of resources when encountering stressors or negative stereotypes about one’s group. For example, in a study of women in leadership roles, Hoyt and Blascovich (2007) pretested female participants on self-efficacy in leadership. The study included women from the lowest self-efficacy scores and women from the highest self-efficacy scores. The results showed that women with the resource of high efficacy in leadership were more likely to counter the negative stereotype compared to women with low leadership efficacy. Specifically women with higher self-efficacy as a resource showed increased engagement in leadership and higher perceptions of their performance.

Related literature in coping with stressors lends deeper insight into how resources can be helpful in stressful situations, which may also translate to the possibility that resources can also influence responses to age metastereotypes at work. Age stereotypes have been shown to induce stress (Levy et al., 2000), which may be further exacerbated in the workplace due to evaluative pressures and the amount of time spent at work. Lazarus and Folkman (1984) developed theories on stress and coping that focus on two main factors that influence long-term outcomes from stress: cognitive appraisal and coping. The stress and coping framework is structured with primary appraisals, in which the person exposed to a stressor evaluates the potential impacts of the stressor: after primary appraisals, secondary appraisals, in which a person exposed to a stressor determines the reaction and coping method. Secondary appraisals would involve an assessment of available resources when considering coping options. For example, Shoji et al. (2014) found that the resources of social support and self-efficacy related to more positive interpretations of past trauma in medical workers.
Given the positive effects of self-efficacy outlined in previous stereotyping and stress literature, the current study will combine self-efficacy and a description of previous experience as relevant resources when encountering metastereotypes about one’s group.

**Summary and Integration of Research**

The previously reviewed research discussed the changing demographics in the workplace as well as the stereotypes that may be dividing factors among coworkers of different generations. Based on metastereotyping research and related research, activation of metastereotypes can lead to a variety of interpersonal outcomes; however, there is a gap in the current understanding of what occurs between activation and outcomes. Specifically in the present research, I examine the affective reactions that occur between introduction of metastereotypes and subsequent behavioral intentions. In the previous research, when metastereotypes were relevant to one’s group, participants experienced physiological stress responses, which may be indicative of affective reactions that occur after activation. According to the framework proposed originally by Finkelstein et al. (2015), after an age metastereotype has been activated, an affective response and cognitive appraisal will occur in reaction to the metastereotype (see Figure 1 to view this complete age metastereotype model). Depending on the qualities of the metastereotype, personal characteristics, and situational factors, affective responses may differ. Notably, metastereotypes that are typically relevant for older workers may not influence outcomes for younger workers. Or in other cases, the metastereotype may not be activated at all if the metastereotype domain is deemed to be not relevant personally to the target. Finkelstein and colleagues proposed three possible affective reactions that may occur in response to a metastereotype: challenge, threat, and boost. These reactions may not be mutually exclusive; therefore, a person who is experiencing
challenge reactions could simultaneously be experiencing threat reactions to a metastereotype. For example, an older worker may experience challenge reactions in response to the metastereotype that they have memory difficulties and may simultaneously experience threat reactions in response to a metastereotype that they are not good with technology.

With the support of previous research and additional theoretical framework, this research uses previously developed scales to measure reactions to age metastereotypes: challenge, threat, and boost. Challenge reactions are characterized by a sense of efficacy and a motivation to disprove negative metastereotypes. Threat reactions are what would precede performance decrements reported in the stereotype threat literature. According to the model in Figure 1, threat reactions can occur in response to negative or positive metastereotypes. In the case of negative metastereotypes, the target is concerned with confirming the negative metastereotype, whereas positive metastereotypes can induce threat by introducing concerns of not living up to expectations about one’s group. These threat reactions are characterized by fear, sadness, and resignation. Boost reactions are likely to occur in response to a positive metastereotype. Boost reactions are characterized by positive emotions and confidence. Affective reactions are then proposed to lead to different interpersonal outcomes at work. In the model, affective reactions may lead to outcomes broadly categorized as conflict, avoidance, and engagement. For example, a younger worker who experiences threat in reaction to the metastereotype that younger workers are inexperienced may withdraw from coworkers and work activities that could reveal a lack of experience.
Figure 1. Age Metastereotypes Model (from Finkelstein et al., 2015)
Affective reactions and subsequent behavioral intentions will depend on the content of the metastereotypes. Previous research demonstrates that the metastereotype content differs for older and younger workers. Metastereotypes can also vary in valence such that metastereotypes about one’s age group can be positive or negative. Examples of positive metastereotypes of older workers include mature and experienced, whereas positive metastereotypes for younger workers included tech-savvy and adaptive (Finkelstein et al., 2013). Negative metastereotypes for older workers include set in their ways and technophobic and negative metastereotypes for younger workers include immature and inexperienced (Finkelstein et al., 2013). The present research examines the affective reactions and outcomes to these metastereotypes for both older and younger workers. Different outcomes can occur depending on the content of an activated metastereotype as well as the perceived relevance to one’s age group. Therefore, the perceived relevance of the primed metastereotype was assessed in this research. Last, the affective reactions’ utility in predicting behavioral intentions was tested in this research. Before turning to the details of this investigation, a deeper dive into related work on affective reactions is in order.

**Reactions to Age Metastereotypes**

In this section of the paper, the theoretical framework from metastereotyping literature and stereotype threat literature will be discussed in detail to explain the characteristics and underlying mechanisms of each of the three affective reactions: challenge, threat, and boost. Researchers studying stereotype threat noted that there were personal characteristics and conditions that could sometimes cause people to react against negative stereotypes, or in other words, behave in ways that did not confirm the negative metastereotype. Many researchers observed reactions against negative stereotypes and sought to develop models and frameworks to
explain cases in which exposure to a relevant negative stereotype does not lead to stereotype threat reactions. Block, Koch, Liberman, Merriweather and Robinson (2011) used the incentive disengagement model developed by Klinger (1977) to explain the process of reacting to stereotype threat. Specifically, Block et al. (2011) suggested that personal characteristics along with the situation would influence a person’s reaction to a negative stereotype. The incentive disengagement model proposed three potential reactions to negative stereotypes: (a) fending off the stereotype, (b) discouragement from the stereotype, or (c) resilience from the stereotype. These reactions are similar to the proposed reactions to metastereotypes: (a) challenge, (b) threat, and (c) boost.

**Challenge.** In the context of metastereotypes, challenge can occur when a person feels motivated to disprove a negative metastereotype. This process may induce a drive toward extra effort and dedication along with feelings of indignation directed towards the source or activating agent of the negative metastereotype. Take, for example, the common stereotype that younger workers are unreliable. In this case, the younger worker may feel a combination of emotions such as anger for being stereotyped by others as well as exhilaration and excitement at the idea of disproving the negative metastereotype. In response to activation of this as a metastereotype, a younger worker experiencing challenge reactions would be likely to pursue work assignments in which they can demonstrate their reliability. There are three theories that explain the underlying mechanisms that lead to challenge reactions. These theories are reactance, assimilation and contrast, and stress appraisals.

One factor that can explain challenge reactions comes from research on reactance, which occurs when a person feels that his or her personal freedoms are being threatened and he or she
takes action to reestablish their sense of freedom (Brehm, 1966). Reactance relates to challenge reactions because in typical challenge reactions the target feels motivated to disprove the expectation. In the case of metastereotypes, the negative expectations about one’s group can feel like a restriction on personal freedom. Researchers suggest that there must be an awareness of the negative stereotype in order for reactance to occur (Dillard & Shen, 2005). For example, in a study of aging and stereotype threat, older participants were divided into two conditions: an experimental condition in which participants were informed that the study was about why older people are more likely to be implicated in an accident and a neutral condition about reactions to driving (Joanisse, Gagnon, & Voloaca, 2013). The results showed that there were not any differences in the number of accidents in a simulated driving task, but older individuals in the stereotype threat condition committed more speeding infractions. This goes against the known stereotype that older people are sometimes overly cautious drivers. The authors suggested that the excessive speeding by the stereotype threat participants may have been an indication of reactance against the negative stereotype.

Reactance against negative stereotypes likely is influenced by how much a person perceived that that he or she fits the stereotype. Assimilation and contrast in self-evaluation may explain this process. According to Mussweiler (2001), people’s perceptions of themselves compared to others depend on the method of comparisons. For example, when people think of all of the ways that they are different (contrast) from an intelligent professor, then they tend to perform less well on a test, but if they are primed to see themselves as similar to a professor, then they assimilate and are likely to perform better on a test. Assimilation and contrast can also be induced by having people first do an unrelated task, like finding either similarities or differences
in pictures. This cognitive structure of thinking can then carry over into how people compare themselves to others (Schwartz & Bless, 2007). Therefore, if people see themselves as similar to a negative stereotype, they will likely assimilate and confirm a negative stereotype. If people evaluate themselves as different, then they will likely contrast and may show reactance against the stereotype. In contrast, researchers have found that implicitly primed stereotypes can improve performance of traditionally stereotyped groups (Shih, Ambady, Richeson, Fujita, & Gray, 2002; Shih, Pittinsky, & Ambady, 1999).

Assimilation and contrast may also explain how perceptions of a metastereotype’s relevance to oneself will determine whether a worker with an activated metastereotype will assimilate to the metastereotype and respond consistently with the expectations of the metastereotype. Specifically, assimilation refers to a person aligning oneself with an exception about one’s group. Alternatively, if a worker views the metastereotypes as not relevant to oneself, then that person would be more likely to experience a challenge reaction and subsequently behave in ways that contrast themselves from the parameters of the metastereotype. Contrast occurs when a person sees oneself as being different than the expectation.

According to the stress appraisal, perceptions of stressors occur in two stages: primary appraisal and secondary appraisal (Lazarus & Folkman, 1984). In primary appraisal, the person who is experiencing a stressor evaluates the situation to determine the potential benefits or harms of the stressor. In secondary appraisal, the person experiencing the stressor determines the best course of action in response to the stressor. Exposure to a negative metastereotype may be perceived as a stressor in which the target of the age metastereotype would assess the potential consequences of a negative age metastereotype as well as secondary appraisal of course of action
for coping with the negative metastereotype. Within the secondary appraisal, workers experiencing metastereotypes may take stock of the available relevant resources. In the current research, I predict that participants who perceive high relevant resources will be more likely to react with challenge to negative metastereotypes rather than threat.

**Threat.** Threat reactions can occur in response to either positive or negative metastereotypes. Positive metastereotypes may induce threat reactions when a person perceives that he or she is unable to live up to the positive metastereotype of his or her group. However, when a person perceives that a negative metastereotype is relevant to him or her, and he or she does not have the resources to challenge a negative metastereotype, he or she will also have a threat reaction (Schmader, Hall, & Croft, 2015).

A worker experiencing metastereotype threat will have affective reactions such as fear, worry, and potentially sadness at the idea of confirming the negative metastereotype (Finkelstein, et al. 2015). An additional component of the affective reaction to threat may also be embarrassment (McInerney, 2013). The term “threat” has been borrowed from a phenomenon in stereotype threat literature where a negatively stereotyped group member suffers performance decrements in the face of a negative stereotype being activated. Drawing from that literature, even if a person does not believe that the metastereotype is descriptive of himself or herself, he or she still may experience threat (Schmader et al., 2015).

Related stress research presents the “Stress as offense to self” (SOS) theory, which is relevant to threat reactions from metastereotypes. This theory suggests that stress occurs when important goals are threatened (Semmer, Jacobshagen, Meier, & Elfering, 2017). Some of the important goals that could be threatened are social in nature, including self-esteem and social
evaluation. These social goals could be threatened by perceptions of “not living up to expectations” or feelings of incompetence (Semmer et al., 2017).

**Boost.** Boost is a reaction to metastereotypes in which the target of a metastereotype identifies with a positive stereotype and subsequently feels more confident and excited to continue supporting the positive stereotype about one’s age group. The term “boost” has been borrowed from the stereotype threat literature (Shih et al., 2002). In the stereotype threat literature, boost refers to performance increases resulting from the activation of a positive stereotype. For example, in a research study on boost, female Asian students were either primed with their Asian identity (stereotyped as excelling in quantitative activities, but not verbal activities) or their female identity (stereotypes as performing well in verbal activities, but not in quantitative activities). The results of this study showed that students experienced boost in mathematics when their Asian identity was primed, but when the female identity was primed, participants showed a much lower performance, indicating threat.

Within the metastereotype framework, boost is characterized by increases in positive emotions, which may include increased confidence, excitement, and focus and reduced anxiety (Finkelstein et al., 2015; Shih et al, 2012). Moreover, boost is more likely to occur when the positive metastereotype is viewed as self-relevant. Shih, Pittinsky, and Trahan (2006) demonstrated the boost may occur in response to metastereotypes depending on the identity primed before the test.

The theoretical framework provides a more thorough understanding of reactions to age metastereotypes, including the underlying mechanism. With this knowledge from the framework, I developed working definitions of each of the affective reactions. In the present research, I used
the definitions to guide the selection of scales for the purpose of measuring challenge, threat, and boost.
CHAPTER 2
THE CURRENT RESEARCH

In the two studies, I examined the affective reactions to positive and negative age metastereotypes in older workers and younger workers. Additionally, I also manipulated the presence and absence of resources relevant to the metastereotype presented in each scenario to examine their role on reactions and subsequent behavioral intention outcomes. Within this set of studies, resources referred to relevant self-efficacy for and previous experience with the task targeted by the metastereotypes.

Need for Study

Gaining a better understanding of the affective reactions that occur after activation may offer a more complete understanding of how metastereotypes influence interpersonal interactions at work. Beginning to measure affective reactions will enable researchers to empirically test the age metastereotyping model proposed by Finkelstein et al. (2015). This will further researchers’ understanding of the underlying processes that either lead to either desired or undesired work outcomes for employees and organizations alike. Specifically, the measurement of affective reactions can be used to determine factors that may be influencing whether a cross-generational work team is successful or unsuccessful. Understanding the affective reactions that are occurring among cross-generational coworkers can build the foundation for development of interventions that can empower more effective interactions. Within the present study, the model upon which these affective reactions were identified was developed through a thorough review of
metastereotype, stereotype threat, and stereotype boost research and the framework. The final working construct definitions that were used for each affective reaction are as follows:

**Challenge:** Challenge affective reactions are characterized by exhilaration at the idea of disproving the negative metastereotype, anger and indignation about the metastereotype, and motivation and drive to disprove the negative metastereotype. Compared to the other reactions to metastereotypes, the challenge reaction incorporates more external focus on disproving a metastereotype in the eyes of others. This focus on others’ reactions may also relate to other variables such as self-monitoring. Workers react with challenge when a negative metastereotype is activated and they perceive that they have the resources available to successfully counter the negative metastereotype.

**Threat:** Threat affective reactions are characterized by fear, worry, sadness, and embarrassment. Workers may react with threat when either a negative or positive metastereotype is activated. In the case of a negative metastereotype, workers will react with threat when they perceive that they do not have the resources available to successfully counter the negative metastereotype. In the case of positive metastereotype activation, workers will react with threat when they perceive that they do not have the resources to successfully support the positive metastereotype with their actions.

**Boost:** Boost affective reactions are characterized by happiness, excitement, pride, and confidence. Workers react with boost when a positive stereotype is activated and they
perceive that they have the resources available to successful support the positive stereotype.

These construct definitions assisted in clarifying the distinctions among the affective reactions. According to the construct definitions, participants will score higher on the affective reactions that have the matching valence stem. For example, participants who experience negative metastereotypes will agree more strongly with scales measuring reactions to negative metastereotypes rather than positive metastereotypes. Positive metastereotypes should elicit boost reactions or threat reactions, whereas negative metastereotypes should elicit challenge or threat reactions (see Figure 2).

**Figure 2. Scales and Stem Valence**
Previous researchers have used a variety of methods to measure constructs similar to challenge, threat, and boost. Most researchers have measured challenge, threat, and boost by using performance as an indicator of the different reactions (Joanisse, Gagnon, & Voloaca, 2013; Schmader & Beilock, 2012; Shih et al., 2002). For example, Shih et al. (2002) found that Asian students primed with their ethnic identity performed better in a quantitative skills test. The researchers concluded that the performance increase in relation to priming the ethnic identity showed a boost reaction. However, affective reactions were not measured in this experiment.

There have been few scales designed to measure the self-reported cognitive and affective experience of challenge, threat, or boost. Within the published metastereotype threat literature, challenge, threat, and boost have not yet been measured. However, in the stress literature, Skinner and Brewer (2002) developed scales to measure the cognitive appraisal of challenge and threat.

The threat cognitive appraisal scale aims to measure the self-esteem concerns and social identity concerns that may occur in demanding and stressful situations. Skinner and Brewer created the threat scale by combining items from a self-presentation concerns scale (Skinner & Brewer, 1999) and an item from the State–Trait Anxiety Inventory. The challenge cognitive appraisal scale aims to measure anticipated success and perceived confidence in one’s ability to navigate through demanding and stressful situations. Skinner and Brewer (2002) developed the challenge scale based on the theoretical definition and added an additional item from the Optimism–Pessimism Questionnaire.

Whether a person who has activated a negative or positive age metastereotype responds with challenge, threat, or boost depends on a variety of factors. Notably, in the related stereotype
threat literature, a person can still experience stereotype threat even if he or she does not believe that the stereotype is true of their group or of himself or herself. Instead, von Hippel, Kalokerinos, and Henry (2017) suggest that stereotype threat occurs when a person becomes concerned that he/she might be evaluated by others based on the stereotype. Researchers have documented the negative effects of awareness of negative age stereotypes on older people. Awareness of negative age stereotypes has been associated with affecting a variety of outcomes, including handwriting, walking speed, will to live, and physiological functions.

**Challenge Reactions**

Past research has documented cases where a member of a stereotyped group reacts in a way incongruent with the negative stereotype or metastereotype about one’s group. This was exemplified in studies of older adults and driving (Joanisse et al., 2013) as well as of older adults and technology (Reed, Doty, & May, 2005). In the study of older adults and technology, challenge reactions occurred in adults who had high efficacy in technology and computers.

**Hypothesis 1A**: People who have higher self-efficacy resources will have higher cognitive challenge reactions compared to people with low self-efficacy resources (see Figure 3).

**Hypothesis 1B**: People who are exposed to a negative metastereotype will have higher cognitive challenge reactions compared to people who are exposed to a positive metastereotype (see Figure 3).

**Hypothesis 1C**: There will be an interaction between metastereotype valence and self-efficacy resources on cognitive challenge reactions, such that the relationship between resources and cognitive challenge reactions will be stronger when the metastereotype is negative (see Figure 3).
Hypothesis 2A: People who have higher self-efficacy resources will have higher positive affect compared to people with low self-efficacy resources (see Figure 4).

Hypothesis 2B: People who are exposed to a negative metastereotype will have lower positive affect reactions compared to people who are exposed to a positive metastereotype (see Figure 4).

Hypothesis 2C: There will be an interaction between metastereotype valence and self-efficacy resources on positive affect reactions, such that the relationship between resources and affective challenge reactions will be stronger when the metastereotype is negative (see Figure 4).
The challenge and threat theory (Blascovich & Mendes, 2013) suggests that reactions to negative stereotypes are influenced by personal characteristics, situational contexts, and appraisals of available resources. Specifically, these factors determine whether a person reacts to a negative stereotype with challenge reactions or threat reactions. The challenge and threat theory suggests that in the face of a metastereotype and upcoming task, a person compares the demands of the task against the personal and situational resources available for use in the task (Blascovich, & Mendes, 2013). For example, if an older worker is faced with the task of learning a new computer program, according to the challenge and threat theory, he or she will determine the demand of learning the new program. Some demands in learning new technology would be the time and mental effort required. Next, the older worker will consider his or her resources. Situational resources may be a helpful coworker or helpful learning programs. Personal resources may include self-efficacy in technology or interest in learning the new task. With the
combined situational resources and personal resources, a challenge response would be more likely. However, if these personal and situational resources are not available, then a threat reaction may be more likely (Sekaquaptewa & Thompson, 2003).

**Threat Reactions: Negative Metastereotypes**

Performing a cognitively demanding task requires many central processing executive resources; however, these same attentional, memory, problem-solving, and coordination areas are negatively impacted when cognitive resources are occupied with thoughts of threat and concerns with confirming negative stereotypes (Schmader & Beilock, 2012). This diversion of cognitive resources is called cognitive load. Additional emotional load may impede functioning in domains relevant to the metastereotype. Individuals experiencing threat may engage in efforts to regulate their thoughts and emotions. Specifically, they may engage in vigilance in which they scan their environment for signs of confirming the negative stereotype and may be more likely to attune to threats (Schmader & Beilock, 2012). This process withdraws cognitive resources from needed neural areas to dedicate to scanning for threats. Uncertainty may lead individuals experiencing threat to reduce their responses and withdraw from taking risks (Schmader & Beilock, 2012). In interpersonal interactions, this means that uncertainty from threat may make one less likely to reach out to or engage with coworkers from other age groups.

**Hypothesis 3A:** People who have lower self-efficacy resources will have higher cognitive threat reactions compared to people with high self-efficacy resources (see Figure 5).

**Hypothesis 3B:** People who are exposed to a negative metastereotype will have higher cognitive threat reactions compared to people who are exposed to a positive metastereotype (see Figure 5).
Hypothesis 3C: There will be an interaction between metastereotype valence and self-efficacy resources on cognitive threat reactions, such that the relationship between resources and cognitive threat reactions will be stronger when the metastereotype is negative (see Figure 5).

Figure 5. Cognitive Threat by Condition

Hypothesis 4A: People who have lower self-efficacy resources will have higher negative affect compared to people with higher self-efficacy resources (see Figure 6).

Hypothesis 4B: People who are exposed to a negative metastereotype will have higher negative affect reactions compared to people who are exposed to a positive metastereotype (see Figure 6).

Hypothesis 4C: There will be an interaction between metastereotype valence and self-efficacy resources on negative affect reactions, such that the relationship between resources and affective threat reactions will be stronger when the metastereotype is negative (see Figure 6).
Figure 6. Negative Affect by Condition

Threat Reactions: Positive Metastereotypes

Hypothesis 5: People who are exposed to a positive metastereotype with low self-efficacy resources will report higher cognitive threat reaction compared to people who are exposed to a positive metastereotype with high self-efficacy resources (see Figure 5).

Hypothesis 6: People who are exposed to a positive metastereotype with low self-efficacy resources will report higher negative affect compared to people who are exposed to a positive metastereotype with high self-efficacy resources (see Figure 6).
Boost Reactions

In some cases, metastereotypes may result in performance increases through boost reactions. Drawing from the stereotype boost literature, targets of a positive metastereotype may experience a subsequent boost in performance if they believe that the metastereotype applies to themselves (Levy & Leifheit-Limson, 2009). A potential mechanism underlying boost could be an increase in persistence as the result of positive metastereotype activation. However, there has been little research examining this mechanism and the research conducted thus far has proven inconclusive (Shih et al., 1999).

Researchers have suggested that there are a variety of mechanisms that may be underlying the boost response. These mechanisms are not mutually exclusive, and likely a combination of these mechanisms can be responsible for stereotype boost responses. Typically in threat reactions, one of the main mechanisms is anxiety; however, the knowledge that one is a member of a group stereotyped favorably for the task at hand may function to reduce anxiety (Shih, Pittensky, & Ho, 2012). Another mechanism that may encourage boost response is the increased expectations resulting from exposure to a positive stereotype of one’s group. Another mechanism underlying stereotype boost is social comparison. When a member of a group becomes aware of a positive stereotype of one’s group, one is likely to perform downward social comparisons that can subsequently increase one’s own confidence. An example of this would be a younger worker becoming aware of the metastereotype that younger workers are proficient with technology compared to older workers.

The boost reaction is most likely to occur in response to positive metastereotypes when people feel happiness, excitement, pride, and confidence in response to awareness of a positive
stereotype about their age group. This confidence relates to the ability to meet the demands of a work task, which is operationalized in this study with the Demands-Abilities Fit Scale (Cable & Judge, 1996).

**Hypothesis 7A:** People who have higher self-efficacy resources will have higher cognitive boost reaction compared to those with low resources (see Figure 7).

**Hypothesis 7B:** Participants who are exposed to a positive metastereotype will have higher cognitive boost reactions than those exposed to a negative metastereotype (see Figure 7).

**Hypothesis 7C:** There will be an interaction between metastereotype valence and self-efficacy resources on cognitive boost reactions, such that the relationship between resources and perceived fit between abilities and the demands of the task reactions will be stronger when the metastereotype is positive (see Figure 7).

![Figure 7. Abilities-Fit by Condition](image)
**Hypothesis 8A:** People who have higher self-efficacy resources will have higher positive affect compared to those with low resources (see Figure 8).

**Hypothesis 8B:** Participants who are exposed to a positive metastereotype will have higher positive affect than those exposed to a negative metastereotype (see Figure 8).

**Hypothesis 8C:** There will be an interaction between metastereotype valence and self-efficacy resources on positive affect, such that the relationship between resources and perceived fit between abilities and the demands of the task reactions will be stronger when the metastereotype is positive (see Figure 8).

**Figure 8. PANAS Boost Affect by Condition**
**Behavioral Intentions**

Depending on the valence of the metastereotypes, targets of metastereotypes may respond with behaviors that confirm or disconfirm metastereotypes. In the case of challenge, a target of a negative metastereotype will seek to behave in a way that disconfirms the negative metastereotype. An example of this occurred a study in which older participants either were informed that the study was about why older people are more likely to be implicated in an accident and or a neutral condition about reactions to driving (Joanisse et al., 2013). The results of this study showed that older participants in the negative metastereotype condition committed more speeding infractions. The authors suggest that this may have been the result of the older participants seeking to disconfirm negative metastereotypes about older drivers. In some cases, these reactions of countering negative metastereotypes can result in more intergenerational conflict.

This is supported by previous research that has reflected the influence of negative age metastereotypes on the behaviors of older workers. People may disagree with the metastereotypes, which can lead to showing hostility towards outgroup members (Gomez, 2002). Moreover, metastereotypes can influence cross-generational interactions. Researchers have noted that even unfounded negative metastereotypes may breed animosity (Gomez, 2002). In fact, Owuamalam, Tarrant, Farrow, and Zagefka (2013) found that when negative metastereotypes were activated for highly-identified group members, they reported more anger and held less positive attitudes towards outgroup members as a result in comparison to low identifiers. By enhancing mindfulness of negative stereotyping about others’ behaviors, a stereotyped group
member may inadvertently confirm a negative metastereotype. There has been a paucity of research on the outcomes of metastereotypes for younger workers. However, one study by Duncan and Loretto (2004) conducted a survey of 460 younger workers and found some evidence of intergenerational tension as well as perceived discrimination. These research findings demonstrate the effects of negative metastereotypes on affective reactions and behavioral intentions.

Ultimately, the goal of this research is to better understand cross-age interactions in the workplace. One of the first steps in better understanding these social dynamics is better understanding behavioral intentions when it comes to anticipated interactions with coworkers of different ages. According to theory by Finkelstein et al. (2015), each affective reaction will have a primary associated outcome that will most likely occur. Specifically, Finkelstein and colleagues suggested that challenge reactions were more likely to lead to intergenerational conflict such as arguments and confrontations, whereas threat is more likely to lead to avoidance of coworkers from other age groups. Last, boost was suggested to be most associated with engagement in the workplace. The present set of studies will further investigate how affective reactions relate to behavioral intentions that occur in response to age metastereotypes. According to a meta-analysis, behavioral intentions can be key predictors of future behavior (Webb & Sheeran, 2006).

**Hypothesis 9:** Challenge reactions will be more strongly related to the outcome of increased intergenerational conflict than will threat and boost reactions.
In some cases, negative metastereotypes can lead targets to confirm the negative metastereotype when they feel threatened. Subsequently they may engage in behaviors that lead to outcomes such as avoidance, which can confirm the negative metastereotype. This is supported by the finding that negative age metastereotypes have also been found to encourage disengagement in older workers (von Hippel, Issa, Ma, & Stokes, 2011; von Hippel, Kalokerinos, & Henry, 2013). In an examination of negative age metastereotypes, handwriting samples were collected from older people before they were randomly assigned to be primed with either negative or positive age stereotypes using words subliminally presented on a computer screen (Levy, Ashman, & Dror, 2000). Then handwriting samples were assessed on the following qualities: accomplished, confident, deteriorating, senile, shaky, and wise by a panel of people blind to the age and priming condition of the participant. The panel rated the handwriting of participants in the negative metastereotype condition as significantly more “deteriorated,” “senile,” and “shaky” compared to handwriting samples from participants in the positive metastereotype condition. Research by von Hippel et al. (2013) found that negative age metastereotypes were negatively related to job satisfaction, organizational commitment, and mental health. Moreover, negative age metastereotypes were related to intentions to resign and intentions to retire.

**Hypothesis 10:** Threat reactions will be more strongly related to the outcome of increased intergenerational avoidance than will challenge and boost reactions.
Positive metastereotypes will often lead to a boost response, which can subsequently lead to increased engagement. For example, older adults perform better at crossword puzzles because older adults are stereotyped as being proficient at crossword puzzles (Swift, Abrams, & Marques, 2013). Moreover, researchers have demonstrated that a cognitive ability assessment and the speed at which older adults are able to physically rise from a chair can be increased or decreased depending on whether a domain-relevant negative or positive stereotype is elicited, respectively. These performance increases that occur with activation of a positive metastereotype may indicate that there could be favorable interpersonal effects as a result of positive metastereotype activation. In a study of younger worker metastereotypes, Ryan et al. (2015) found that younger workers were more likely to engage in positive impression management when they believed that older workers viewed them favorably.

**Hypothesis 11:** Boost will be more strongly related to the outcome of increased intergenerational engagement than will challenge and threat reactions.

**Exploratory Research Questions**

Most of the available research on the outcomes of metastereotypes examines metastereotypes that are relevant to the participants. However, it is likely that if participants do not see a metastereotype as relevant, they will not experience affective reactions. For example, reduced memory capacity is typically a metastereotype for older workers. Research by Levy (1996) and Hess and colleagues (2003) found that positive memory stereotypes and negative memory stereotypes were ineffective in changing performance for younger workers. Moreover,
Levy et al. found increased signs of physiological stress when participants were exposed to metastereotypes relevant to their group. This research may reflect the fact that participants assess stereotypes for how relevant and accurate they are in describing themselves.

Research by Wout, Danso, Jackson, and Spencer (2008) on threat investigated how female participants performed on a math test when being primed with either self-threat vs. group. Self-threat refers to the experiences of being aware that a negative metastereotype may be true of oneself; in contrast, group threat refers to the idea of representing your group and confirming a negative metastereotype. The results of the study showed that women who were highly identified with their gender performed less well in the group threat conditions. In the self-threat conditions, women’s math performances were negatively affected regardless of their level of gender group identification.

**Research Question 1:** Will targets of negative metastereotypes who see the metastereotypes as being relevant to themselves have stronger negative affective reactions?

**Research Question 2:** Will targets of positive metastereotypes who see the metastereotypes as being relevant to themselves have stronger positive affective reactions?

**Research Question 3:** Will targets of negative metastereotypes who see the metastereotypes as being accurate of themselves have stronger negative affective reactions?

**Research Question 4:** Will targets of positive metastereotypes who see the metastereotypes as being accurate of themselves have stronger positive affective reactions?
CHAPTER 3

STUDY 1 AND 2 METHODS

Participants

All participants were recruited from Amazon’s Mechanical Turk (MTurk). Mturk is a crowdsourcing service that allows requesters to post tasks and surveys for workers to complete in exchange for monetary compensation. Mturk is an appropriate tool for collecting data for the current set of studies because Mturk enables access to specific populations (i.e., older workers) that may otherwise be difficult to reach (Landers & Behrend, 2015). As with any sampling method, certain precautions should be taken to avoid threats to validity of the data (Chambers, Nimon, & Anthony-McMann, 2016).

Potential participants were invited to participate in a survey of demographics (see Appendix A for Recruitment Statement). Participants in the demographic survey first saw an informed consent page (see Appendix B), then responded to age demographic and work demographic questions to determine eligibility for the metastereotype scenario study. Then participants in the demographic survey were debriefed (see Appendix C). To ensure that workers 51 years and older are the participants in the first study, and participants 31 years and younger are in the second study, participants who fit the age requirement from the demographic screening survey were contacted and invited to participate in the full study (see Appendix D for Recruitment Statement). As previously noted, these age cutoffs have been used in previous research on age dynamics in the workplace; therefore, maintaining the consistency of the age group cutoffs allowed for easier comparisons of results from this study to results from previous
research. The first screen of the survey showed an informed consent (see Appendix E). For participants who qualified, it was expected that the survey would on average take participants 20 minutes to complete. Researchers have suggested that fair wages on Mturk are $0.10 per minute. Completion of the demographic screening survey was predicted to take about 5 minutes to complete, so at a rate of $.10 a minute, participants were paid $.50. Completion of the surveys for this study were expected to take about 20 minutes; therefore, I paid mturk workers $2.00 to complete the study.

To ensure that participants were paying attention to the study, four attention check questions were included. Attention check items asked participants to select particular response options to indicate that they were paying attention. For example, participants were prompted with an item that said, “Choose ‘strongly agree’ to show that you have been reading carefully.”

**Study 1 Participants.** There were a total of 234 participants who completed the Study 1 (older workers) survey. A total of three participants were removed because of duplicate responses. Two additional participants were removed for incomplete data for a total of 229 participants included in the data analyses.

Of the 229 older participants in this study, 135 (59.2%) were female participants and 93 (40.6%) were male participants. The sample included 3 (1.3%) Asian/Pacific Islander participants, 9 (3.9%) Black participants, 207 (90.4%) White participants, 5 (2.2%) Hispanic participants, 1 (0.4%) Latino participant, 2 (0.9%) multiracial participants, and 1 (.5%) participant did not respond to this item. Participant ages ranged from 51 to 80 years with a mean of 61.27 and a standard deviation of 5.82.
Study 2 Participants. There were 233 participants who completed the Study 2 (younger workers) survey; however, four participants were removed for non-completion of the survey. Then, any survey data completed more than once with the same Mturk ID had all entries deleted after the first survey completion. A total of 16 participants were removed because of duplicate responses. One participant’s ID could not be matched to demographic data and one participant provided the same response across all items; both were removed from analysis.

A total of 211 participants were included in the analyses. The sample included 81 (38.4%) female participants, 126 male participants (59.7%), and 4 (1.9%) transgender participants. The sample included 17 (8.1%) Asian/Pacific Islander participants, 16 (7.6%) Black participants, 146 (69.2%) White participants, 9 (4.3%) Hispanic participants, 3 (1.4%) Latino participants, 18 (8.5%) multiracial participants, 1 (.5%) participant indicated “other” and 1 (.5%) participant did not respond to this item. Participant ages ranged from 19 to 29 years with a mean of 25.71 and a standard deviation of 2.48.

Procedure

This research was conducted as a 2 (Metastereotype valence) X 2 (Level of relevant resources) between-subjects design. The initial call for participants advertised this research survey as an opportunity to respond to demographic questions to see if participants qualify for another study. When potential participants selected the study they first viewed an informed consent page. Then participants completed a screening page to make sure that an age-appropriate sample for each study was attained. The screening page asked about age, work status, and the number of people whom participants interact with as coworkers. Following completion of the
screening, participants viewed a page thanking them for their participation and then they received their completion code.

After viewing the demographic data from the screening survey, I selected all participants who a) were 51 years of age or older, b) worked at least part time; and c) have at least four coworkers to participate in Study 1. In Study 1, the screening survey did not include many participants who met the study criteria; therefore, I supplemented this with an additional Mturk-mediated age requirement data collection. This data collection included the same survey given to participants through the former data collection method as well as the demographic screening questions all in one survey. For Study 2 data collection, I selected all participants from the demographic screening who a) were 29 years of age or younger, b) worked at least part time; and c) have at least four coworkers to participate in the study.

Participants who were invited to complete the study received a follow-up email inviting them to participate in a survey of their work attitudes. Participants who clicked the link to the survey first viewed an informed consent page outlining the topic of the survey and rights as a participant. Participants who agreed to continue with the study next viewed one of four scenarios that differed on the valence of the primed metastereotypes and the level of available resources to the participants. Study 1 presented scenarios to older workers. The scenarios contained metastereotype information that older workers are afraid of technology (negative metastereotype) (see Appendix F) or that older workers are experienced (positive metastereotype) (see Appendix G). Within each scenario, participants either had high resources relevant to the task or low resources. Study 2 presented metastereotype information to younger participants. The scenarios presented metastereotypes that younger workers are inexperienced (negative metastereotype)
(see Appendix H) or good with technology (positive metastereotype) (see Appendix I). These metastereotypes were selected based on research of older workers and younger workers self-reported metastereotypes (Finkelstein et al., 2013).

Next, participants saw the following instructions: “In the following pages of questions we are asking you to respond as if you are actually working in the environment we described in the scenario and have experienced the event we described. Do not answer the questions based on your own actual workplace. For example, if we ask a question about how you would respond to a coworker in the future, answer it in regard to the coworkers in the scenario, and not your actual coworkers in your real job.” Then they were reminded with an example and then tested on how they should respond to the remaining questions in the survey. Then participants were asked open-ended and closed-ended questions about the scenario to determine their reactions and the effectiveness of the experimental manipulations.

To lend support for evidence of participants’ affective reactions, a question asked participants to classify their reaction to the metastereotype scenario (see Appendix J). Next, participants responded to measures selected to capture their affective reactions. Then participants were asked questions about their future behavior with coworkers from a different age group as well as perceived accuracy and relevance of the presented metastereotype. Then participants responded to three scales selected to capture their affective reactions to age metastereotypes: PANAS (see Appendix K), Challenge and Threat Scales (see Appendix L), and Demands-Abilities Fit Scale (see Appendix M) and preliminary measures of challenge, threat, and boost (see Appendix N) from currently unpublished research. Participants also completed some exploratory measures on metastereotype outcomes (see Appendix O). Next, participants were
asked some open-ended questions (see Appendix P) and additional demographic questions (see Appendix Q). Last, participants were thanked, debriefed, and given their completion code (see Appendix R).

**Manipulations**

Study 1 and Study 2 used similar scenarios and manipulations; however, the difference was the age of participants and the content of the metastereotypes. Each of the studies randomly assigned participants to one of four conditions. Within each of the studies, there are two scenarios: a) a scenario involving coworkers having difficulties with a video chat program; b) a scenario involving decisions about meeting with a new client. The conditions differed by the valence of the metastereotype presented in the scenarios: negative or positive. In addition, the conditions also differed on the level of resources relevant to the metastereotype. Specifically, the conditions also differed on the level of resources available to the workers such that participants with high resources should feel more confident in the scenarios compared to participants with low resources.

In half of the Study 1 conditions, older workers were randomly presented with the positive metastereotype that older workers are experienced in the scenario. In the other conditions, older workers were presented with the negative metastereotype that older workers are not good with technology.

In half of the Study 2 conditions, younger workers were randomly presented with the positive metastereotype that younger workers are good with technology in the scenario. In the other conditions, younger workers were presented with the negative metastereotype that younger workers are inexperienced.
Measures

**Challenge and Threat Scales.** Skinner and Brewer developed cognitive appraisal scales to measure challenge and threat reactions in stressful and evaluative situations. The threat scale contains ten items and the challenge scale contains eight items. An example of a threat scale item is “This situation makes me worried that I will say or do the wrong things.” An example of a challenge item is, “I’m looking forward to this opportunity to fully test the limits of my skills and abilities.” Participants responded to items with a 6-point intensity response scale ranging from 1 (*strongly disagree*) to 6 (*strongly agree*). In previous studies, reliability for the threat and challenge scales ranged from .92 – .94 and .84 – .89, respectively.

**Demands-Abilities Fit Scale.** The Demands-Abilities Fit Scale (Cable & Judge, 1996) measures a person’s perceived abilities and fit with the demands of an internship. Because the original measure includes the context of internships, the statements were changed for the purpose of this study to include the context of the job in the scenario. The response options for the work self-efficacy scale range from 1 (*Not well at all*) to 5 (*Completely*). An example of a demands-abilities fit item would be, “Based on the scenario, I believe my skills and abilities match those required by the job.”

**PANAS Scale.** This scale contains 20 different words that describe a variety of affective states (Watson, Clark, & Tellegen, 1988). The response options range from 1 (*Very slightly or not at all*) to 5 (*Extremely*). The PANAS is comprised of two subscales: 10 items measuring positive affect and 10 items measuring negative affect. Examples of positive affect items include “Interested” and “Proud”. Examples of negative affect items include “Irritable” and “Afraid.”
Watson et al. reported reliabilities for the scales at 0.86 to 0.90 for the positive affect scale and 0.84 to 0.87 for the negative affect scale.

**Metastereotype Behavioral Intention Measures.** Following the affective and cognitive measures, participants were asked about their future interactions with their coworkers from the scenario. Specifically participants were presented with behavioral intention measures that will illustrate conflict, avoidance, and engagement at work. One of the measures includes general items about future interactions with coworkers. The other measure includes specific questions relating to the scenarios from this study. Specifically, the conflict measure asks about likelihood of confronting a coworker. The avoidance measure asks about likelihood of turning down a coworker’s offer to help. And the engagement measure asks about volunteering to assist coworkers. The first measure was created as an exploratory measure for a diary study (Zacher, Finkelstein, Voyles & Thomas, in progress). The behavioral intention measures that are related to the scenario were created specifically for use in this study. Validity for these measures is supported through the correlation of responses between the two measures. The response options range from 1 (*Extremely unlikely*) to 5 (*Extremely likely*).

**Demographics.** The demographic questionnaire asked for participants’ own age, ethnicity, gender, education, composition of ages in the workplace, and field of work.
CHAPTER 4

STUDY 1 RESULTS

Study 1 examined older workers’ reactions to age metastereotypes as well as their anticipated interactions with older workers. The age metastereotypes presented in this study were either positive or negative and participants were explicitly told that they either had high resources or low resources relevant to the metastereotype presented.

Variable Calculations and Descriptive Statistics

Before testing the hypotheses, the descriptive statistics for all continuous variables of interest were examined for outliers and skew. The continuous variables included positive affect; negative affect; perceptions of demands-abilities fit; challenge and threat items by Skinner and Brewer (2002), behavioral intention scales for conflict, avoidance, and engagement; and exploratory measures for challenge, threat, and boost. The variables of interest had very little missing data. To avoid eliminating a participant’s data due to a skipped item, the means of the items for each scale were calculated. Therefore, if an item was skipped, the mean of the remaining responses was used to represent the score in the scale. This was fairly uncommon, with only a total of 17 participants missing one item from the set of responses throughout the survey. One other participant missed the items for the three outcome variables: conflict, avoidance, and engagement; however, that person completed all other scales and demographics and so the data were kept for the analyses.
**Distribution of Positive Affect, Negative Affect, Challenge, Threat, and Demands-Abilities Fit.** Variable unstandardized scores are reported in this section; however, variables are mean-centered when they were used as independent variables in the hypothesis testing section. The final variable means, standard deviations, and correlations are in Table 1.

**Scenario Pretesting.** Before the complete study was administered to the participant samples, the scenarios and manipulation checks were pretested to ensure that the manipulations and conditions were effective in emphasizing positive and negative metastereotypes and the presence of low and high resources. The pilot study included a minimum of four participants in each condition. The pretesting data was examined through descriptive statistics supplemented by an analysis of qualitative responses. The results of pretesting showed that the manipulation check question responses supported the effectiveness of the manipulations with the variables being in the correct direction for each condition (see Table 2 and Table 3). This finding was further bolstered by open-ended responses that supported the effects of the manipulations of the metastereotype valence and available situational resources. For example, for the positive metastereotype with low resources condition, a common open-ended response was, “They automatically assume young people can solve any tech problem”. For the negative metastereotype condition with high resources, a common open-ended response was, “Because they consider them inexperienced and therefore underneath them.”
Table 1

Correlations of Continuous Variables of Interest

<table>
<thead>
<tr>
<th>Variables</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
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</thead>
<tbody>
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<td>1. Positive PANAS</td>
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<td>.88</td>
<td>.92</td>
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<td>-.24***</td>
<td>.91</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>3. Cognitive Challenge</td>
<td>2.98</td>
<td>1.25</td>
<td>-.39***</td>
<td>.51***</td>
<td>.96</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>4. Cognitive Threat</td>
<td>4.65</td>
<td>1.09</td>
<td>.60***</td>
<td>-.37***</td>
<td>-.64***</td>
<td>.91</td>
<td></td>
<td></td>
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<tr>
<td>5. Demands-Abilities</td>
<td>3.93</td>
<td>1.06</td>
<td>.30***</td>
<td>-.26***</td>
<td>-.54***</td>
<td>.52***</td>
<td>.92</td>
<td></td>
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<td>6. Exploratory Challenge</td>
<td>3.72</td>
<td>1.18</td>
<td>.43***</td>
<td>-.29**</td>
<td>-.42***</td>
<td>.60***</td>
<td>.47***</td>
<td>.93</td>
<td></td>
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<tr>
<td>7. Exploratory Threat</td>
<td>2.83</td>
<td>1.03</td>
<td>-.14*</td>
<td>.22**</td>
<td>.34***</td>
<td>-.28***</td>
<td>-.09</td>
<td>.17*</td>
<td>.88</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Exploratory Boost</td>
<td>2.98</td>
<td>1.28</td>
<td>.18**</td>
<td>-.11</td>
<td>-.03</td>
<td>.23***</td>
<td>-.03</td>
<td>-.03</td>
<td>-.59***</td>
<td>.96</td>
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<td>9. Exploratory Conflict</td>
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<td>-.12</td>
<td>.13*</td>
<td>.16*</td>
<td>-.15*</td>
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<td>.11</td>
<td>.55***</td>
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<td>.84</td>
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<td>10. Exploratory Avoidance</td>
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<td>.42***</td>
<td>-.42***</td>
<td>-.30***</td>
<td>-.19**</td>
<td>.51***</td>
<td>-.30***</td>
<td>.54***</td>
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<tr>
<td>11. Exploratory Engagement</td>
<td>3.90</td>
<td>0.96</td>
<td>.37***</td>
<td>-.26***</td>
<td>-.37***</td>
<td>-.54***</td>
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<td>.31***</td>
<td>-.40***</td>
<td>.36***</td>
<td>-.40***</td>
</tr>
</tbody>
</table>

Note: * p < .05,  ** p < .01 *** p < .001; response on all scales ranged from 1-5 with the exception of Cognitive Challenge and Cognitive Threat scales that ranged from 1-6.
Table 2
Pretest Valence Manipulation Check

<table>
<thead>
<tr>
<th>Conditions</th>
<th>M</th>
<th>SD</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Negative High</td>
<td>2.53</td>
<td>1.19</td>
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<tr>
<td>2. Negative Low</td>
<td>3.00</td>
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</tr>
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<td>3. Positive High</td>
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<td>4. Positive Low</td>
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Table 3
Pretest Resources Manipulation Check

<table>
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<th>Conditions</th>
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<td>3. Positive High</td>
<td>3.33</td>
<td>0.82</td>
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</tr>
<tr>
<td>4. Positive Low</td>
<td>3.20</td>
<td>0.45</td>
<td>5</td>
</tr>
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</table>

**Manipulation Checks for Study 1 and Study 2.** Prior to data analysis, the manipulation checks were examined to check if the conditions were effective in emphasizing positive and negative metastereotypes and the presence of low and high resources. The manipulation-check data were examined through descriptive statistics supplemented by an analysis of qualitative responses. The means for the valence manipulation check and the resources manipulation check were in the correct direction in all cases. In addition to descriptive statistics, manipulation check
questions were also analyzed using two t tests for comparisons of valence conditions (negative metastereotypes vs. positive metastereotypes) and comparisons of resources conditions (high resources vs. low resources).

For the first manipulation check, participants were asked, “How do you think younger workers feel about older workers' skills and abilities? (see Table 4)” The participants responded on a scale ranging from 1 (very negative) to 7 (very positive). A t test was used to compare the conditions with negative metastereotypes and positive metastereotypes. According to the t test, there was a significant between the negative metastereotype \((M = 2.48, SD = .84)\) and positive metastereotype \((M = 5.30, SD = 1.30)\) conditions; \(t(192.09) = 19.66, p = .0001\).

The resources manipulation was checked using the following question: “Based on the scenario, would you have the ability to successfully address the situation? (see Table 5)” Participants rated their responses on a scale ranging from 1 (not at all) to 4 (to a great extent). A t test was used to compare the conditions with low resources and high resources. According to the t test, there was a significant difference between the low resources \((M = 2.78, SD = .90)\) and high resources \((M = 3.26, SD = .83)\) conditions; \(t(231) = 4.27, p = .0001\).
Table 4
Study 1 Valence Manipulation Check

<table>
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<th>Conditions</th>
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<td>2. Negative Low</td>
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<td>3. Positive High</td>
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<td>4. Positive Low</td>
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Table 5
Study 1 Resources Manipulation Check

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<td>2. Negative Low</td>
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<td>3. Positive High</td>
<td>2.81</td>
<td>.833</td>
<td>57</td>
</tr>
<tr>
<td>4. Positive Low</td>
<td>2.88</td>
<td>.825</td>
<td>57</td>
</tr>
</tbody>
</table>

*Calculating Participants’ Negative Affect.* Participants’ scores on the negative PANAS items were generated by calculating the mean on items 2, 5, 6, 9, 10, 11, 14, 15, 17, and 18. Higher scores on the scale indicate greater negative affect. The overall scale reliability was calculated using Cronbach’s alpha statistic. The response options for the negative affect subscale of the PANAS ranged from 1 (*Very slightly or Not at all*) to 5 (*Extremely*). Negative affect PANAS scores ranged from 1.00 to 5.00 (*M* = 1.31, *SD* = 0.52). The negative affect measure had high reliability (*α* = .91). Negative affect was not normally distributed, with skewness of 2.85 (*SE* = 0.16). This indicates a positive skew on negative affect. Therefore a logarithm was used to
transform the negative affect variable to reduce the magnitude of the skew. Following the transformation, the negative affect scores ranged from 0 to .62 ($M = 0.095$, $SD = 0.13$) and the skew was reduced to 1.81 ($SE = 0.16$).

**Calculating Participants’ Positive Affect.** Participants’ scores on the positive PANAS were generated by calculating the mean for responses on items 1, 3, 4, 7, 8, 12, 13, and 16. Higher scores on the scale indicate greater positive affect. The overall scale reliability was calculated using Cronbach’s alpha statistic. Finally, a z-score was created for performing inferential statistics. Positive affect PANAS scores ranged from 1.30 to 5.00 ($M = 3.28$, $SD = 0.88$). The positive affect measure had high reliability ($\alpha = .92$). Positive affect was normally distributed, with skewness of -0.16 ($SE = 0.16$).

**Calculating Participants’ Challenge Reactions.** Participants’ scores on the challenge scale were generated by calculating the mean for responses on items 2, 5, 6, 9, 10, 11, 14, 15, 17, and 18. Higher scores on the scale indicate greater challenge reactions. The overall scale reliability was calculated using Cronbach’s alpha statistic. Finally, a z-score was created for performing inferential statistics. Cognitive challenge scores ranged from 1.00 to 7.00 ($M = 2.99$, $SD = 1.25$). The challenge reactions had high reliability ($\alpha = .96$). Challenge was normally distributed, with skewness of .34 ($SE = 0.16$).

**Calculating Participants’ Threat Reactions.** Participants’ scores on the threat scale were generated by calculating the mean for responses on items 1, 3, 4, 7, 8, 12, 13, and 16. Higher scores on the scale indicate greater threat reactions. The overall scale reliability was calculated using Cronbach’s alpha statistic. Finally, a z-score was created for performing inferential statistics. Cognitive threat scores ranged from 1.25 to 7.00 ($M = 4.64$, $SD = 1.09$). The threat
reactions had high reliability ($\alpha = .91$). Threat was normally distributed, with skewness of -0.25 ($SE = 0.16$).

**Calculating Participants’ Perceptions of Demands-Abilities Fit.** Participants’ scores on the Demands-Abilities Fit Scale were calculated by reverse coding item 2 and then taking the mean of responses of all four items. Then scores were calculated with higher scores on the scale indicating greater perceptions of demands-abilities fit. The overall scale reliability was calculated using Cronbach’s alpha statistic. Finally, a z-score was created for performing inferential statistics. Demands-abilities fit scores ranged from 1.00 to 5.00 ($M = 3.93, SD = 1.06$). The demands-abilities fit measure had high reliability ($\alpha = .92$). Demands-abilities fit was normally distributed, with skewness of -.81 ($SE = 0.16$).

**Hypothesis Testing: Metastereotype Reactions**

Hypothesis 1 examined the main effects and interactions on the levels of challenge reported on the Skinner and Brewer (2002) scale with a factorial ANOVA. Metastereotype valance and resource conditions were entered as the independent variables with the challenge scale responses as the dependent variable (see Table 6 for condition means and standard deviations). According to the factorial ANOVA, there was a significant main effect of metastereotype valence ($F(1, 230) = 8.82, p = .003$) and a main effect of resources ($F(1, 230) = 6.38, p = .01$). These significant main effects indicate that participants who were exposed to positive metastereotypes experienced a higher challenge reaction compared to participants exposed to a negative metastereotype (see Table 7 for ANOVA results). For the main effect of resources, participants with low resources experienced higher challenge reactions compared to participants with higher resources. There was also a significant interaction between
metastereotype valence and resources cognitive challenge reactions \((F(3,2310) = 10.38, p = .001)\) such that participants exposed to negative metastereotypes were especially influenced by resources. Opposite of the predictions set forth by the hypotheses, participants exposed to a negative metastereotypes with high resources experienced especially low challenge reactions compared to participates who were exposed to a negative metastereotypes with low resources (see Figure 9). Therefore this set of hypotheses was not supported.

Table 6
Means and SDS of Dependent Variables for Each Condition

<table>
<thead>
<tr>
<th>Condition</th>
<th>Positive PANAS</th>
<th>Negative PANAS</th>
<th>Cognitive Challenge</th>
<th>Cognitive Threat</th>
<th>Demands-Ailities Fit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Negative Meta with High Resources</td>
<td>3.54 (0.79)</td>
<td>1.17 (0.23)</td>
<td>2.28 (0.97)</td>
<td>5.09 (0.87)</td>
<td>4.75 (0.46)</td>
</tr>
<tr>
<td>Negative Meta with Low Resources</td>
<td>3.09 (0.84)</td>
<td>1.42 (0.67)</td>
<td>3.19 (1.32)</td>
<td>4.32 (0.95)</td>
<td>3.55 (1.08)</td>
</tr>
<tr>
<td>Positive Meta with High Resources</td>
<td>3.23 (0.91)</td>
<td>1.36 (0.62)</td>
<td>3.26 (1.29)</td>
<td>4.65 (1.12)</td>
<td>3.63 (1.08)</td>
</tr>
<tr>
<td>Positive Meta with Low Resources</td>
<td>3.27 (0.91)</td>
<td>1.27 (0.32)</td>
<td>3.15 (1.14)</td>
<td>4.60 (1.23)</td>
<td>3.85 (1.02)</td>
</tr>
</tbody>
</table>

Table 7
Influence Valence and Resources on Challenge Reactions

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>SS</th>
<th>MS</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valence</td>
<td>1</td>
<td>12.61</td>
<td>12.61</td>
<td>8.82</td>
<td>.003</td>
</tr>
<tr>
<td>Resources</td>
<td>1</td>
<td>9.13</td>
<td>9.13</td>
<td>6.38</td>
<td>.012</td>
</tr>
<tr>
<td>ResourceXValence</td>
<td>1</td>
<td>14.83</td>
<td>14.83</td>
<td>10.38</td>
<td>.001</td>
</tr>
</tbody>
</table>
Hypothesis 2 and Hypothesis 8 examined the main effects and interactions for resources and valence of metastereotypes on the PANAS positive affect with a factorial ANOVA with metastereotype valence and resource conditions entered as the independent variables and with positive PANAS as the dependent variable. According to the factorial ANOVA, there was no significant main effect of metastereotype valence ($F(1, 230) = 0.41, p = .53$) or resources ($F(1, 230) = 3.33, p = .07$) on positive affect. However, there was a significant interaction between metastereotype valence and resources on positive affect ($F(1, 230) = 4.62, p = .03$) (see Table 8 for ANOVA results). Participants exposed to a negative metastereotype with high resources experienced especially high positive affect compared to participants who were exposed to a negative metastereotype with low resources, who experienced especially low positive affect (see Table 6 for the means and standard deviations of positive affect by condition; Figure 10).
Therefore, this set of hypotheses was partially supported, with a significant impact of resources for participants in the negative metastereotype condition.

Table 8

Influence Valence and Resources on Positive Affect

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>SS</th>
<th>MS</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valence</td>
<td>1</td>
<td>0.30</td>
<td>0.30</td>
<td>.41</td>
<td>.53</td>
</tr>
<tr>
<td>Resources</td>
<td>1</td>
<td>2.49</td>
<td>2.49</td>
<td>3.33</td>
<td>.07</td>
</tr>
<tr>
<td>ResourceXValence</td>
<td>1</td>
<td>3.45</td>
<td>3.45</td>
<td>4.62</td>
<td>.03</td>
</tr>
</tbody>
</table>

Figure 10. Challenge: Positive Affect by Condition

Hypothesis 3 and Hypothesis 5 examined the main effects and interactions on the levels of threat reported on the Skinner and Brewer (2002) scale with a factorial ANOVA with
metastereotype valance and resource conditions entered as the independent variables and with the threat scale responses as the dependent variable. According to the factorial ANOVA, there was no significant main effect of metastereotype valence \( (F(1, 230) = 0.87, p = .35) \). However, there was a main effect of resources \( (F(1, 230) = 7.12, p = .01) \). There was also a significant interaction between metastereotype valence and resources on cognitive threat reactions \( (F(1, 230) = 4.46, p = .04) \) (see Table 9 for ANOVA results). Participants exposed to a negative metastereotype with high resources experienced especially high threat reactions compared to participants who were exposed to a negative metastereotype with low resources, who experienced especially low threat reactions (see table 6 for the means and standard deviations of threat reactions by condition; Figure 11). These findings were opposite of predictions; therefore, this set of hypotheses was not supported.

Table 9

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>SS</th>
<th>MS</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valence</td>
<td>1</td>
<td>50.83</td>
<td>50.83</td>
<td>.87</td>
<td>.353</td>
</tr>
<tr>
<td>Resources</td>
<td>1</td>
<td>418.42</td>
<td>418.42</td>
<td>7.12</td>
<td>.008</td>
</tr>
<tr>
<td>ResourceXValence</td>
<td>1</td>
<td>262.01</td>
<td>262.01</td>
<td>4.46</td>
<td>.036</td>
</tr>
</tbody>
</table>
Hypothesis 4 and Hypothesis 6 examined the main effects and interactions for resources and valence of metastereotypes on the negative affect items of the PANAS with a factorial ANOVA that included metastereotype valance and resource conditions entered as the independent variables and with negative PANAS as the dependent variable. According to the factorial ANOVA, there was no significant main effect of metastereotype valence ($F(1, 230) = 0.12, p = .73$) or resources ($F(1, 230) = 2.03, p = .16$). However, there was a significant interaction between metastereotype valence and resources on negative affective reactions ($F(1, 230) = 4.32, p = .04$) (see Table 10 for ANOVA results). Participants exposed to a negative metastereotype with low resources experienced especially high negative affect compared to participants who were exposed to a negative metastereotype with high resources, who experienced especially low negative affect (see table 6 for the means and standard deviations of...
negative affect by condition; Figure 12). Therefore, this set of hypotheses was partially supported.

Table 10

Influence Valence and Resources on Negative Affect

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>SS</th>
<th>MS</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valence</td>
<td>1</td>
<td>0.002</td>
<td>0.002</td>
<td>0.12</td>
<td>.73</td>
</tr>
<tr>
<td>Resources</td>
<td>1</td>
<td>0.032</td>
<td>0.032</td>
<td>2.03</td>
<td>.16</td>
</tr>
<tr>
<td>ResourceXValence</td>
<td>1</td>
<td>0.068</td>
<td>0.068</td>
<td>4.32</td>
<td>.04</td>
</tr>
</tbody>
</table>

*Figure 12. Negative affect by Condition*

Hypothesis 7 examined the main effects and interactions for resources and valence of metastereotypes on the demands-abilities fit measure with an ANOVA with the experimental conditions entered as the independent variable and with the boost-related items of the PANAS as the dependent variable. According to the factorial ANOVA, there was a significant main effect
of metastereotype valence \((F(1, 230) = 10.94, p = .001)\) and a significant main effect of resources \((F(1, 230) = 15.15, p = .001)\). There was also no significant interaction between metastereotype valence and resources on positive affect \((F(1, 230) = 32.20, p = .001)\) (see Table 11 for ANOVA results). Participants exposed to a negative metastereotype with high resources experienced high perceptions of demands-abilities fit compared to participants who were exposed to a negative metastereotype with low resources, who experienced low demands-abilities fit (see Table 6 for the means and standard deviations of demands-abilities fit by condition; Figure 13). This finding was partially expected, with participants in the negative metastereotype low resource condition having low perceptions of demands-abilities fit; however, it was surprising that participants in the negative metastereotype condition with high resources condition had the highest perceptions of demands-abilities fit. Participants in the positive metastereotype condition with high resources were expected to have the highest perception of their demands-abilities fit. Therefore, this hypothesis was partially supported.

### Table 11

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>SS</th>
<th>MS</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valence</td>
<td>1</td>
<td>10.04</td>
<td>10.04</td>
<td>10.94</td>
<td>.001</td>
</tr>
<tr>
<td>Resources</td>
<td>1</td>
<td>13.90</td>
<td>13.90</td>
<td>15.15</td>
<td>.001</td>
</tr>
<tr>
<td>ResourceXValence</td>
<td>1</td>
<td>29.55</td>
<td>29.55</td>
<td>32.20</td>
<td>.001</td>
</tr>
</tbody>
</table>
Hypothesis Testing: Behavioral Intentions

Hypotheses 9 through 11 examined reactions to the scenarios: challenge, threat, and boost (measured through the Demands-Abilities Fit Scale) to determine if these reactions were related to behavioral intention outcomes. The first analysis in each of these hypotheses examined the outcome of general future interactions with coworkers of different ages. These outcomes included conflict, avoidance, and engagement with coworkers of different ages. The next analysis within each hypothesis examined a single item of how participants would respond to their younger coworkers from the scenario.

Hypothesis 9 proposed that challenge reactions would be more strongly related to the outcome of increased intergenerational conflict compared to threat and boost reactions. This hypothesis was tested using multiple regression. Challenge items and threat items from Skinner and Brewer and demands-abilities fit items were included as independent variables and the behavioral intention of intergenerational conflict as the dependent variable. The outcome of
conflict intentions was an exploratory measure with three items designed to measure general anticipated intergenerational conflict. Challenge items, $\beta = .13$, $t(230) = 1.41$, $p = .16$, and threat reactions, $\beta = -.12$, $t(230) = -1.33$, $p = .18$, were not significantly related to anticipated intergenerational conflict (see Table 12). Also, demands-abilities fit (boost) was not related to anticipated intergenerational conflict, $\beta = .10$, $t(230) = 1.21$, $p = .23$. Therefore, this hypothesis was not supported.

Table 12
Conflict Intentions Scale

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>SE B</th>
<th>$\beta$</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Challenge</td>
<td>.107</td>
<td>.075</td>
<td>.127</td>
<td>1.413</td>
<td>.159</td>
</tr>
<tr>
<td>Threat</td>
<td>-.114</td>
<td>.085</td>
<td>-.117</td>
<td>-1.332</td>
<td>.184</td>
</tr>
<tr>
<td>Demands-Abil</td>
<td>.095</td>
<td>.078</td>
<td>.096</td>
<td>1.209</td>
<td>.228</td>
</tr>
</tbody>
</table>

Note. $R^2 = .034$

Hypothesis 9 also examined conflict specifically related to the scenario. Participants were asked, “If one of your frustrated coworkers made a rude remark toward you, how likely would you be to confront your coworker?” Participants who responded to the scenario with threat reactions responded that they were less likely to confront a coworker who made a rude remark, $\beta = -.17$, $t(230) = -1.98$, $p = .05$. Based on the scenario, participants’ reported challenge and demands-abilities fit (boost) were not significantly related to intentions to confront a coworker who made a rude remark, $\beta = -.09$, $t(230) = -1.03$, $p = .31$, and $\beta = -.03$, $t(230) = -.32$, $p = .75$, respectively (see Table 13). Therefore, this hypothesis was not supported.
Table 13

Confronting a Coworker in the Scenario

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>SE B</th>
<th>β</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Challenge</td>
<td>-.098</td>
<td>.095</td>
<td>-.092</td>
<td>-1.027</td>
<td>.306</td>
</tr>
<tr>
<td>Threat</td>
<td>-.213</td>
<td>.108</td>
<td>-.172</td>
<td>-1.976</td>
<td>.049</td>
</tr>
<tr>
<td>Demands-Abil</td>
<td>-.032</td>
<td>.100</td>
<td>-.025</td>
<td>-.315</td>
<td>.753</td>
</tr>
</tbody>
</table>

Note. R^2 = .02

Hypothesis 10 suggests threat reactions will be more strongly related to the outcome of increased intergenerational avoidance compared to challenge and boost reactions. This hypothesis was tested using multiple regression. Intergenerational avoidance was measured using an exploratory measure containing three items. Challenge items and threat items from Skinner and Brewer and demands-abilities fit items were included as independent variables and the behavioral intention of intergenerational conflict as the dependent variable. After the regression, the coefficients were used in relative weights analysis to better understand the predictive value of each of the outcomes (Tonidandel & LeBreton, 2011). There was a significant relationship between threat reactions and anticipated intergenerational avoidance, \( \beta = -.26, t(230) = -3.26, p = .001 \) (see Table 14), such that older participants who experienced threat anticipated engaging in fewer intergenerational avoidance behaviors. In contrast, challenge reactions \( \beta = .23, t(230) = 2.82, p = .005 \), were associated with increased intergenerational avoidance. Demands-Abilities Fit (boost), \( \beta = -.02, t(230) = -.24, p = .81 \), was not significantly related to more anticipated intergenerational avoidance. This finding means that older participants who felt challenged to disprove negative metastereotypes were more likely to avoid coworkers from other generations,
whereas older workers who felt threatened by negative metastereotypes were less likely to avoid coworkers from different age groups.

Table 14
Avoidance Intentions

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>SE B</th>
<th>β</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Challenge</td>
<td>.117</td>
<td>.063</td>
<td>.230</td>
<td>2.823</td>
<td>.005</td>
</tr>
<tr>
<td>Threat</td>
<td>-.231</td>
<td>.071</td>
<td>-.260</td>
<td>-3.260</td>
<td>.001</td>
</tr>
<tr>
<td>Demands-Abil</td>
<td>-.015</td>
<td>.065</td>
<td>-.017</td>
<td>-.236</td>
<td>.814</td>
</tr>
</tbody>
</table>

Note. R² = .207

In the regression analysis investigating intergenerational avoidance, two of the predictors (challenge and threat) were significantly related to intergenerational avoidance (Tonidandel & LeBreton, 2011). Therefore, a follow-up relative weight analysis was conducted to determine the amount of influence of each variable in predicting intergenerational avoidance outcomes. One of the main benefits of using relative weights analysis is that these analyses highlight each variable’s unique variance (Tonidandel & LeBreton, 2011). The relative weights of challenge, threat, and demands-abilities fit in relation to intergenerational avoidance were examined using a 95% confidence interval (see Table 15). The results of the relative weights analysis showed that the relative weight of challenge (RW = .09) was not significantly different from the relative weight of threat (RW = .10). However, demands-abilities fit (RW = .03) was a significantly less strongly related to anticipated intergenerational avoidance. Therefore, the majority of the variance explained in anticipated intergenerational avoidance was predicted by challenge (41%
of model $R^2$) and threat (46% of model $R^2$). This finding means that Hypothesis 10 was partially supported.

Table 15
Relative Weights Analysis of Predictors for Avoidance Intentions

<table>
<thead>
<tr>
<th>Predictor</th>
<th>b</th>
<th>$\beta$</th>
<th>RW</th>
<th>CI-L</th>
<th>CI-U</th>
<th>RS-RW (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>1.817</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Challenge</td>
<td>.117</td>
<td>.230</td>
<td>0.086</td>
<td>0.034</td>
<td>0.161</td>
<td>41.385</td>
</tr>
<tr>
<td>Threat</td>
<td>-.231</td>
<td>-.260</td>
<td>0.095</td>
<td>0.036</td>
<td>0.171</td>
<td>45.918</td>
</tr>
<tr>
<td>Demands-Abil</td>
<td>-.015</td>
<td>-.017</td>
<td>0.027</td>
<td>0.007</td>
<td>0.072</td>
<td>12.697</td>
</tr>
</tbody>
</table>

Hypothesis 10 also examined avoidance specifically related to the scenario. Participants were asked, “If you were directly asked by one of your coworkers to help with the video chat program, how likely would you be to turn down the request to help? “ Participants who felt confident in their abilities as measured by demands-abilities fit were less likely to avoid doing the metastereotyped task requested by their younger workers, $\beta = -.24$, $t(230) = -3.04$, $p = .003$ (see Table 16). Both challenge and threat were not significantly related to avoidance of a metastereotyped task, $\beta = .10$, $t(230) = .1.15$, $p = .25$, $\beta = .13$ $t(230) = 1.50$, $p = .14$, respectively. This findings contradicts the predictions of Hypothesis 10.
Table 16

Avoiding a Metastereotyped Task in the Scenario

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>SE B</th>
<th>β</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Challenge</td>
<td>.116</td>
<td>.102</td>
<td>.100</td>
<td>1.146</td>
<td>.253</td>
</tr>
<tr>
<td>Threat</td>
<td>.170</td>
<td>.114</td>
<td>.127</td>
<td>1.488</td>
<td>.138</td>
</tr>
<tr>
<td>Demands-Abil</td>
<td>-.325</td>
<td></td>
<td>-.238</td>
<td>-3.044</td>
<td>.003</td>
</tr>
</tbody>
</table>

Note. R² = .062

Hypothesis 11 suggested that boost would be more strongly related to the outcome of increased intergenerational engagement compared to challenge and threat reactions. This hypothesis was tested using multiple regression. The outcome of engagement intentions was an exploratory measure with three items designed to measure general anticipated intergenerational engagement (see Table 17). Challenge items and threat items from Skinner and Brewer and demands-abilities fit items were included as independent variables and the behavioral intention of intergenerational engagement as the dependent variable. Participants who reported greater threat, β = .55, t(230) = 7.28, p = .001, anticipated significantly more intergenerational engagement compared to participants who experienced less threat. Challenge reactions and increased demands-abilities fit were not significantly associated with intergenerational engagement, β = -.01, t(230) = -.17, p = .868, and β = -.04, t(230) = -.55, p = .581, respectively. Therefore, this hypothesis was not supported.
Table 17

Engagement Intentions

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>SE B</th>
<th>β</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Challenge</td>
<td>-.010</td>
<td>.060</td>
<td>-.013</td>
<td>-.167</td>
<td>.868</td>
</tr>
<tr>
<td>Threat</td>
<td>.490</td>
<td>.067</td>
<td>.548</td>
<td>7.275</td>
<td>.000</td>
</tr>
<tr>
<td>Demands-Abil</td>
<td>-.034</td>
<td>.062</td>
<td>-.038</td>
<td>-.553</td>
<td>.581</td>
</tr>
</tbody>
</table>

Note. R²= .29

Hypothesis 11 also examined engagement specifically related to the scenario. Participants were asked, “How likely are you to volunteer to help with the video chat program?” Participants who responded to the scenario with high perceptions of demands-abilities fit, $\beta = .38$, $t(230) = 6.04$, $p = .001$, and participants with high threat reactions, $\beta = .22$, $t(230) = 3.16$, $p = .002$, indicated that they were more likely to volunteer for a metastereotype task requested by their older workers (see Table 18). However challenge reactions were not significantly related to volunteering for the task, $\beta = -.13$, $t(230) = -1.86$, $p = .06$.

Table 18

Engaging with Coworkers from the Scenario

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>SE B</th>
<th>β</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Challenge</td>
<td>-.010</td>
<td>.060</td>
<td>-.013</td>
<td>-.167</td>
<td>.868</td>
</tr>
<tr>
<td>Threat</td>
<td>.490</td>
<td>.067</td>
<td>.548</td>
<td>7.275</td>
<td>.000</td>
</tr>
<tr>
<td>Demands-Abil</td>
<td>-.034</td>
<td>.062</td>
<td>-.038</td>
<td>-.553</td>
<td>.581</td>
</tr>
</tbody>
</table>

Note. R²= .385
In the regression analysis investigating engagement in the scenario, two of the predictors: (threat and demands-abilities fit) were significantly related to engaging with coworkers (Tonidandel & LeBreton, 2011). Therefore, a follow-up relative weight analysis was conducted to determine the amount of influence of each variable in predicting intergenerational avoidance outcomes. The relative weights of challenge, threat, and Demands-Abilities Fit in relation to intergenerational avoidance were examined using a 95% confidence interval. The results of the relative weights analysis showed that the relative weight of threat (RW = .11) was not significantly different from the relative weight of demands-abilities fit (RW = .18). However, challenge (RW = .09) was significantly less strongly related to anticipated intergenerational avoidance. Therefore, the majority of the variance explained in anticipated intergenerational avoidance was predicted by threat (29% of model $R^2$) and demands-abilities fit (47% of model $R^2$). Therefore, this hypothesis was supported.

Table 19
Relative Weights Analysis of Predictors for Engaging with Coworkers from the Scenario

<table>
<thead>
<tr>
<th>Predictor</th>
<th>b</th>
<th>β</th>
<th>RW</th>
<th>CI-L</th>
<th>CI-U</th>
<th>RS-RW (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>3.444</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Challenge</td>
<td>-.137</td>
<td>-.132</td>
<td>0.092</td>
<td>0.047</td>
<td>0.143</td>
<td>23.760</td>
</tr>
<tr>
<td>Threat</td>
<td>.262</td>
<td>.218</td>
<td>0.110</td>
<td>0.060</td>
<td>0.166</td>
<td>28.540</td>
</tr>
<tr>
<td>Demands-Abil</td>
<td>.466</td>
<td>.382</td>
<td>0.184</td>
<td>0.109</td>
<td>0.268</td>
<td>47.701</td>
</tr>
</tbody>
</table>

Criterion = Avoidance Intentions ($R^2 = 0.39$)
Exploratory Research Questions

Exploratory Research Question 1 examined the effects of perceived relevance of metastereotypes on affective reactions. This question was examined using two hierarchical regressions, with experimental condition and perceived accuracy of the metastereotype and the interaction term entered as independent variables and positive affect as the dependent variable in one analysis and negative affect as the dependent variable in the other analysis. The regression with positive affect as the dependent variable showed that there was no main effect of condition on positive affect, $\beta = -.024, t(230) = -.29, p = .79$, and no main effect of perceived accuracy of metastereotypes on positive affect, $\beta = -.02, t(230) = -.26, p = .80$. However, there was a significant interaction between experimental condition and perceived accuracy of the metastereotype on positive affect, $\beta = .33, t(230) = 5.33, p = .001$. This means that the relationship between experimental condition and positive affect depended on perceived accuracy of the metastereotype (see Table 20).

Table 20
Accuracy of Metastereotype and Positive Affect

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>SE B</th>
<th>$\beta$</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Condition</td>
<td>-.020</td>
<td>.073</td>
<td>-.023</td>
<td>-.289</td>
<td>.785</td>
</tr>
<tr>
<td>Accuracy</td>
<td>-.017</td>
<td>.066</td>
<td>-.021</td>
<td>-.255</td>
<td>.799</td>
</tr>
<tr>
<td>Interaction</td>
<td>.354</td>
<td>.066</td>
<td>.334</td>
<td>5.326</td>
<td>.000</td>
</tr>
</tbody>
</table>

Simple slopes for the association between condition and positive affect were tested for low (-1 SD below the mean) and high (+1 SD above the mean) levels of perceived
metastereotype accuracy (see Figure 14). The simple slope analysis of high perceived accuracy showed a significant negative association between condition and positive affect for participants with low levels of perceived metastereotype accuracy, $\beta = -0.41$, $t(230) = -3.77$, $p = .0001$. This means that participants with lower levels of perceived metastereotype accuracy experienced significantly more positive affect when exposed to negative metastereotypes. In contrast, there was a significant positive association between condition and positive affect for participants with high perceptions of metastereotype accuracy, $\beta = .42$, $t(230) = 3.79$, $p = .001$. For these participants, positive affect was higher when exposed to positive metastereotypes.

![Figure 14. Simple Slopes of Valence, Accuracy, and Positive Affect](image-url)
The regression with negative affect as the dependent variable showed that there was no main effect of condition on negative affect, $\beta = .03$, $t(230) = .36$, $p = 0.73$, and no main effect of perceived accuracy of metastereotypes on negative affect, $\beta = -.03$, $t(230) = -.34$, $p = .73$. However, there was a significant interaction between experimental condition and perceived accuracy of the metastereotype on negative affect, $\beta = -.17$, $t(230) = -3.81$, $p = .0001$. This means that the relationship between experimental condition and negative affect depended on perceived accuracy of the metastereotype (see table 21).

### Table 21

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>SE B</th>
<th>$\beta$</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Condition</td>
<td>.015</td>
<td>.044</td>
<td>.030</td>
<td>.351</td>
<td>.726</td>
</tr>
<tr>
<td>Accuracy</td>
<td>-.014</td>
<td>.040</td>
<td>-.030</td>
<td>-.343</td>
<td>.732</td>
</tr>
<tr>
<td>Interaction</td>
<td>-.152</td>
<td>.040</td>
<td>-.246</td>
<td>-3.805</td>
<td>.000</td>
</tr>
</tbody>
</table>

Simple slopes for the association between condition and negative affect were tested for low (-1 SD below the mean) and high (+1 SD above the mean) levels of perceived metastereotype accuracy (see figure 15). The simple slope analysis showed a significant positive association between condition and negative affect for participants with low levels of perceived metastereotype accuracy, $\beta = .36$, $t(230) = 2.80$, $p = .006$. This means that participants with low levels of perceived accuracy experienced more negative affect with more positively valenced metastereotypes. In contrast, there was a significant negative association between condition and negative affect for participants with high perceptions of metastereotype accuracy, $\beta = -.15$, $t(230)$
= --2.59, \( p = .01 \). This means that participants with high perceptions of accuracy experienced more negative affect with more negatively valenced metastereotypes.

**Figure 15. Simple Slopes of Valence, Accuracy, and Negative Affect**

Exploratory Research Question 2 examined the effects of perceived relevance of metastereotypes on affective reactions. This question was examined using two hierarchical regressions, with experimental condition and perceived relevance of the metastereotype and the interaction term entered as independent variables and positive affect as the dependent variable in one analysis and negative affect as the dependent variable in the other analysis. The regression with positive affect as the dependent variable showed that there was no main effect of condition
on positive affect, $\beta = -0.04, t(230) = -0.06, p = 0.95$; and no main effect of perceived relevance of metastereotypes on positive affect, $\beta = -0.09, t(230) = -1.29, p = 0.20$; and no significant interaction between experimental condition and perceived relevance of the metastereotype on positive affect, $\beta = 0.09, t(230) = 1.34, p = 0.18$.

Table 22
Relevance of Metastereotype and Positive Affect

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>SE B</th>
<th>$\beta$</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Condition</td>
<td>-.004</td>
<td>.060</td>
<td>-.005</td>
<td>-.069</td>
<td>.945</td>
</tr>
<tr>
<td>Relevance</td>
<td>-.082</td>
<td>.064</td>
<td>-.089</td>
<td>-1.290</td>
<td>.198</td>
</tr>
<tr>
<td>Interaction</td>
<td>.085</td>
<td>.064</td>
<td>.088</td>
<td>1.342</td>
<td>.181</td>
</tr>
</tbody>
</table>

The regression with negative affect as the dependent variable showed that there was no main effect of condition on negative affect, $\beta = -.07, t(230) = -1.02, p = 0.31$ (Table 23). However, there was a main effect of perceived relevance of metastereotypes on negative affect, $\beta = .25, t(230) = 3.66, p = .001$. This main effect of relevance means that participants who viewed the metastereotype as important or relevant experienced more negative affect. There was no significant interaction between experimental condition and perceived relevance of the metastereotype on negative affect, $\beta = -.75, t(230) = -1.16, p = .26$. This means that the relationship between experimental condition and positive affect did not depend on perceived accuracy of the metastereotype.
Table 23

Relevance of Metastereotype and Negative Affect

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>SE B</th>
<th>β</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Condition</td>
<td>-.035</td>
<td>.034</td>
<td>-.068</td>
<td>-1.011</td>
<td>.313</td>
</tr>
<tr>
<td>Relevance</td>
<td>.133</td>
<td>.036</td>
<td>.247</td>
<td>3.660</td>
<td>.001</td>
</tr>
<tr>
<td>Interaction</td>
<td>-.042</td>
<td>.036</td>
<td>-.075</td>
<td>-1.164</td>
<td>.246</td>
</tr>
</tbody>
</table>
CHAPTER 5
STUDY 1 DISCUSSION

The purpose of Study 1 was to examine the influence of metastereotypes on older workers’ reactions and future behavioral intentions. Older workers were presented with negative metastereotypes or positive metastereotypes as well as either high relevant resources or low relevant resources. Gaining a better understanding of the impact of metastereotypes on older workers’ reactions and future behavioral intentions can assist researchers and practitioners in better understanding how to foster collaboration among employees of multiple age groups. This study sought to quantify reaction to age metastereotypes using previously developed scales.

**Reactions to Age Metastereotypes**

In experiencing challenge reactions in response to the scenarios, older workers were influenced by the valence of the age metastereotypes as well as the level of available resources that they possessed. Taken together, challenge reactions to the valence of metastereotypes depended on the level of self-efficacy resources that participants possessed. For example, participants exposed to a positive metastereotype with high resources experienced higher challenge reactions compared to all other participants. It was expected that exposing participants to negative metastereotypes with high resources would be most likely to elicit challenge reactions; however, older participants with higher resources who were exposed to negative metastereotypes had the lowest challenge reactions. This finding contradicts previous research that self-efficacy resources in the face of a negative metastereotype can increase desire to
perform and, related to this study, challenge reactions (Blascovich & Mendes, 2013; Hoyt & Blascovich, 2007). This opposite effect may have occurred because older workers with resources relevant to the task may have felt increased pressure because there would not be a good excuse if they failed when countering a negative metastereotype. In contrast, if the older worker feels that he or she can claim a lack of experience and resources with the task, then he or she would not be to blame if he or she failed to disprove the negative metastereotype.

This study also found that older workers’ positive affect was influenced by the level of available resources. On average, older workers who had higher resources reported higher positive affect compared to those with low resources. The influence of resources also depended on the valence of the metastereotype in the scenario. Specifically, older workers who were equipped with relevant resources experienced higher positive affect compared to older workers who experienced negative metastereotypes while possessing low resources. This finding supported the hypothesis and aligns with research by Lazarus and Folkman (1984), who suggest that people exposed to stress go through two processes: cognitive appraisal and coping. The cognitive appraisal stage involves assessing the stressor. The secondary stage involves an evaluation of resources. The process of evaluating the self-efficacy resource information specifically included in this study would be the secondary appraisal, which influences coping and subsequently positive affective reactions.

Turning to threat reactions, older participants who had higher resources reported higher levels of threat compared participants who had lower resources. The effects of resources were intensified when people were prompted with a negative metastereotype. Older workers with high resources who experienced a negative metastereotype reported the highest levels of threat. In contrast, those with low resources who experienced a negative metastereotype reported the
lowest levels of threat. A likely explanation for this finding may be that having the resources, in the case of this study, means having previous experience with a computer program. If older workers had experience with a computer program, but then failed to get it to work for their coworkers, that would be especially threatening compared to a situation where an older worker has no experience with the computer program and can throw his or her hands up in the air and say, “I’ve never used this program before.” Therefore, threat to perform may be a side effect of having experience and resources when facing a negative metastereotype.

For older participants exposed to a negative metastereotype, high resources especially made a difference in reducing negative affective reactions. Levy et al. (2000) found that age metastereotypes lead to increased stress reactions, which can result in negative affect. However, in coping with stressors such as negative metastereotypes, resources such as self-efficacy can influence interpretations of events (Shoji et al., 2014). Overall, though, participants as a whole reported very low negative affect. This may have occurred for two reasons: 1) the PANAS negative affect measure tends to have positive skew (Crawford & Henry, 2004) in non-clinical samples; 2) perhaps participants were not immersed in the scenarios enough to elicit strong negative affective responses.

Demands-abilities fit was selected for use in this study to capture boost reactions, but it could be that demands-abilities fit may be a better measure of challenge reactions. Boost reactions occur when a person is exposed to a positive metastereotype and subsequently feels more confident (Shih et al., 2002). In comparison, challenge has been theorized to occur when a person is exposed to a negative metastereotype, and then subsequently behaves in ways that disprove the negative metastereotype (Finkelstein, et al., 2015). Typically, people seek to
challenge negative metastereotypes when they believe in their own abilities. The demands-abilities fit measure contained items that captured older workers’ beliefs in their own abilities with items such as, “Based on the scenario, I believe my skills and abilities match those required by the job,” and “based on the scenario, I possess the skills and abilities to perform this job.” Older workers’ perceptions of their demands-abilities fit with the job in the scenario were influenced by the valence of the metastereotype and the availability of resources. Resources were positively related to workers’ perceptions of their own abilities. Interestingly, older workers felt significantly higher perceptions of their own abilities after being exposed to a negative metastereotype. Putting these findings together, participants who were exposed to a negative age metastereotype but possessed high resources reported the highest levels of demands-abilities fit out of all conditions.

Overall, older workers’ resources held the strongest influence when older workers were confronted with negative metastereotypes compared to when older workers were confronted with positive metastereotypes. Overall, older workers with high resources who were exposed to negative metastereotypes reported higher threat, positive affect, and perceived demands-abilities fit. In contrast, older workers who were exposed to negative metastereotypes and with low resources had the lowest levels of threat, positive affect, and demands-abilities fit. These participants also had the highest negative affect. Next, older workers’ reactions were examined in connection with their behavioral intentions for future interactions with younger workers.

Reactions and Behavioral Intentions

I predicted that challenge reactions would be more strongly related to general anticipated intergenerational conflict at work and specific conflict with the coworkers in the scenario. Older
participants’ challenge reactions, threat reactions, and demands-abilities fit were not related to anticipated conflict. This lack of significant influence from participants’ challenge reactions on anticipated conflict is surprising given that previous research has found that when people disagree with metastereotypes, it can lead to expressing hostility towards members of other groups (Gomez, 2002). For example, in a study by Owuamalam et al. (2013), people who are highly-identified with their group are more likely to report anger towards other groups. Perhaps many older participants in this study did not identify strongly with the group of being an “older worker” so conflict about negative metastereotypes may have been less likely. Older workers may have also felt less strongly about anticipated conflict because the scenario was not a real situation to them, so it was harder to anticipate having conflict with imagined coworkers.

It was predicted that threat reactions would be more strongly related to anticipated general intergenerational avoidance at work and avoidance of coworkers in the scenario. Instead, challenge reactions were significantly related to greater anticipated intergenerational avoidance. Interestingly, threat was significantly associated with less intergenerational avoidance. This means that older participants who experienced higher levels of threat anticipated being less likely to avoid their younger coworkers in the future. The negative effects of threat have been well documented, with previous research finding relationships between threat and decreased performance, withdrawal from work, and decreased work satisfaction (von Hippel et al., 2011; von Hippel et al., 2013). When comparing this study’s findings to this previous research, the reduced intergenerational avoidance is surprising. Most threat research has focused on avoidance of tasks rather than the outgroups of the metastereotypes, so it may be that participants with high levels of threat avoid metastereotyped tasks, but not their coworkers who may hold negative
beliefs about their groups ability to perform the tasks. This hypothesis was also examined with an item specific to the scenario that asked, “If you were directly asked by one of your coworkers to help with the video chat program, how likely would you be to turn down the request to help?” High perceptions of demands-abilities fit were related to participants being more likely to help when asked. It makes sense that participants who are feeling more confident in their abilities would be more willing to help their coworkers.

It was predicted that boost (demands-abilities fit) reactions would be more strongly related to general anticipated intergenerational engagement at work and engagement with coworkers from the scenario. In the complete opposite direction of predictions, threat reactions were positively related to greater anticipated intergenerational engagement. In the scenario, both threat and high perceptions of demands-abilities fit were related to participants being more likely to help when asked. The high influence of demands-abilities fit on intergenerational engagement intentions and willingness to volunteer for a work project were not surprising given that previous research has found that those with higher perceptions of their abilities are more likely to show increased engagement (Hoyt & Blascovich, 2007). However, the increased engagement intentions related to threat may have occurred because participants who were feeling threatened were looking for a chance to prove themselves. This theory is further bolstered by the results from Hypotheses 4, 6, and 7 in which participants exposed to negative metastereotypes with high resources felt increased threat but also increased perceptions of demands-abilities fit.

Furthermore, the items used to measure demand-abilities fit seem to capture workers’ increased confidence in their own abilities, which may be more challenge related rather than boost-related. This increase in perceived ability can also increase the level of threat that would accompany
failure. In other words, these participants may have been “feeling the pressure” to prove themselves.

**Research Questions on Metastereotype Accuracy and Relevance**

Two research questions were included to determine how accuracy and relevance influence the intensity of affective reactions to metastereotypes. Participants with high perceptions of accuracy experienced less positive affect when exposed to negative metastereotypes. In contrast, participants with low perceptions of accuracy experienced higher positive affect when exposed to negative metastereotypes. This pattern was also reflected when examining negative affect; participants who had high accuracy perceptions experienced more negative affect in response to negative metastereotypes and less negative affect in response to positive metastereotypes. Overall, these findings on accuracy make sense because participants who don’t think that a positive metastereotype is accurate of themselves will feel less positively compared to participants who think that a positive metastereotype is descriptive of themselves. This supports research findings by Wout et al. (2008), with female participants performing less well on a math test when being primed with self-threat, or the belief that they personally may confirm the negative metastereotypes.

On the other hand, perceived relevance, or “Does it matter if others believe the metastereotype,” was less influential on affective reactions compared to accuracy. One explanation for this reduced impact of relevance could be that the metastereotypes used in this study related to qualities that are typically viewed as important for workers: competence with technology and experience. Perhaps if a less important metastereotype were included such as
metastereotypes relating to older workers’ preferences in music, there may have been some differential influence of relevance.

In sum, it seems that metastereotypes and resources influenced older workers’ reactions to workplace scenarios. The effects of resources were more pronounced when older workers were exposed to negative metastereotypes. It seems that prompting a negative metastereotype that doubts older workers’ abilities with technology to older workers with technology experience increases their threat reactions, but also their positive affect and demands-abilities fit. However, older workers with high technology resources who experienced a negative metastereotype had the lowest challenge reactions out of any other group. In comparison, older workers with less technology experience in the scenario had lower threat reactions, lower positive affect, and lower perceptions of their demands-abilities fit. Following measurement of reactions to age metastereotypes, subsequent behavioral intentions were measured. In addition to older workers with high threat expectations showing increased engagement with younger workers, high threat was also related to reduced avoidance of workers from different age groups. This study also found that the participants felt more strongly about positive and negative metastereotypes when they felt that those metastereotypes were true of themselves. The results of this study are an interesting first look into older workers’ perceptions and reactions to age metastereotypes. The next study examined these same perceptions and reactions to age metastereotypes in younger workers so that older workers’ and younger workers’ reactions can be compared.
CHAPTER 6

STUDY 2 RESULTS

Study 2 addressed the same hypotheses and research questions as Study 1, but with a sample of younger workers.

Variable Calculations and Descriptive Statistics

Before testing the hypotheses, the descriptive statistics of all continuous variables of interest were examined for outliers and skew. The continuous variables included positive affect; negative affect; perceptions of demands-abilities fit; challenge and threat items by Skinner and Brewer (2002); behavioral intention scales for conflict, avoidance, and engagement; and exploratory measures for challenge, threat, and boost. The variables of interest had very little missing data. To avoid eliminating a participants’ data due to a skipped item, the means of the items for each scale were calculated. Therefore, if an item was skipped, the mean of the remaining responses was used to represent the score in the scale. This was fairly uncommon, with only a total of 16 participants missing one item from the set of responses throughout the survey. One additional participant did not respond to the PANAS items; therefore, that participant was not included in any analyses involving the PANAS.

*Distribution of Positive Affect, Negative Affect, Challenge, Threat, and Demands-Abilities Fit.* Variable unstandardized scores are reported in this section; however, variables were mean-centered when they were used as independent variables in the hypothesis testing section. The final variable means, standard deviations, and correlations are in Table 24.
Table 24

Correlations of Continuous Variables of Interest

<table>
<thead>
<tr>
<th>Variables</th>
<th>M</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Positive PANAS</td>
<td>2.83</td>
<td>.97</td>
<td>.92</td>
<td>.28</td>
<td>.93</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Negative PANAS</td>
<td>1.61</td>
<td>.76</td>
<td>-.28**</td>
<td>.93</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>3. Cognitive Challenge</td>
<td>3.19</td>
<td>1.19</td>
<td>-.39**</td>
<td>.47***</td>
<td>.95</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>4. Cognitive Threat</td>
<td>4.15</td>
<td>1.09</td>
<td>.66**</td>
<td>-.43**</td>
<td>-.55***</td>
<td>.90</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Demands-Abilities</td>
<td>3.68</td>
<td>1.01</td>
<td>.36***</td>
<td>-.40***</td>
<td>-.55***</td>
<td>.60***</td>
<td>.89</td>
<td></td>
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<tr>
<td>6. Exploratory Challenge</td>
<td>3.47</td>
<td>1.11</td>
<td>.35**</td>
<td>-.17**</td>
<td>-.10</td>
<td>.46***</td>
<td>.35***</td>
<td>.85</td>
<td></td>
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<tr>
<td>7. Exploratory Threat</td>
<td>3.00</td>
<td>1.06</td>
<td>-.24**</td>
<td>-.46***</td>
<td>.65***</td>
<td>-.34***</td>
<td>-.38***</td>
<td>.13</td>
<td>.90</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Exploratory Boost</td>
<td>2.88</td>
<td>1.22</td>
<td>.32**</td>
<td>-.32***</td>
<td>-.42***</td>
<td>.36***</td>
<td>-.06</td>
<td>-.60***</td>
<td>-.62***</td>
<td>.95</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Exploratory Conflict</td>
<td>2.87</td>
<td>1.12</td>
<td>.25***</td>
<td>.42***</td>
<td>.53**</td>
<td>-.035***</td>
<td>-.36***</td>
<td>.61</td>
<td>.65***</td>
<td>-.56***</td>
<td>.87</td>
<td></td>
</tr>
<tr>
<td>10. Exploratory Avoidance</td>
<td>2.52</td>
<td>1.23</td>
<td>-.25**</td>
<td>.46***</td>
<td>.54***</td>
<td>-.45***</td>
<td>-.46***</td>
<td>-.17*</td>
<td>-.64***</td>
<td>-.41***</td>
<td>.62***</td>
<td>.95</td>
</tr>
<tr>
<td>11. Exploratory Engagement</td>
<td>3.68</td>
<td>1.04</td>
<td>.44**</td>
<td>-.41***</td>
<td>-.48***</td>
<td>-.56***</td>
<td>.48***</td>
<td>.23***</td>
<td>-.48***</td>
<td>.54***</td>
<td>.49***</td>
<td>-.64***</td>
</tr>
</tbody>
</table>

Note: n = 210 for correlations involving PANAS items (one participant did not respond to these items; n = 211 for all correlations not including PANAS items; * p < .05, ** p < .01, *** p < .001; response on all scales ranged from 1-5 with the exception of Cognitive Challenge and Cognitive Threat that ranged from 1-6
**Scenario Pretesting.** Before the complete study was administered to the participant samples, the scenarios and manipulation checks were pretested to ensure that the manipulations and conditions were effective in emphasizing positive and negative metastereotypes and the presence of low and high resources. The pilot study included a minimum of four participants in each condition. The pretesting data were examined through descriptive statistics supplemented by an analysis of qualitative responses. The results of pretesting showed that the manipulation check question responses supported the effectiveness of the manipulations with the variables being in the correct direction for each condition (see Table 25 and Table 26). This finding was further bolstered by open-ended responses that supported the effects of the manipulations of the metastereotype valence and available situational resources. For example, for the positive metastereotype with low resources condition, a common open-ended response was, “They automatically assume young people can solve any tech problem.” For the negative metastereotype condition with high resources, a common open-ended response was, “Because they consider them inexperienced and therefore underneath them.”

### Table 25

<table>
<thead>
<tr>
<th>Conditions</th>
<th>M</th>
<th>SD</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Negative High</td>
<td>3.60</td>
<td>1.82</td>
<td>5</td>
</tr>
<tr>
<td>2. Negative Low</td>
<td>2.50</td>
<td>0.55</td>
<td>6</td>
</tr>
<tr>
<td>3. Positive High</td>
<td>5.00</td>
<td>2.35</td>
<td>5</td>
</tr>
<tr>
<td>4. Positive Low</td>
<td>5.75</td>
<td>0.58</td>
<td>4</td>
</tr>
</tbody>
</table>
Table 26

Pretest Resources Manipulation Check

<table>
<thead>
<tr>
<th>Conditions</th>
<th>M</th>
<th>SD</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Negative High</td>
<td>3.80</td>
<td>0.45</td>
<td>5</td>
</tr>
<tr>
<td>2. Negative Low</td>
<td>2.00</td>
<td>0.89</td>
<td>6</td>
</tr>
<tr>
<td>3. Positive High</td>
<td>4.00</td>
<td>0.00</td>
<td>5</td>
</tr>
<tr>
<td>4. Positive Low</td>
<td>3.25</td>
<td>0.96</td>
<td>4</td>
</tr>
</tbody>
</table>

**Manipulation Checks for Study 1 and Study 2.** Prior to data analysis, the manipulation checks were examined to check if the conditions were effective in emphasizing positive and negative metastereotypes and the presence of low and high resources. The pretesting data were examined through descriptive statistics supplemented by an analysis of qualitative responses. The means for the valence manipulation check and the resources manipulation check were in the correct direction in all cases. In addition to descriptive statistics, manipulation check questions were also analyzed using two t tests for comparisons of valence conditions (negative metastereotypes vs. positive metastereotypes) and comparisons of resources conditions (high resources vs. low resources).

For the first manipulation check, participants were asked, “How do you think older workers feel about younger workers' skills and abilities?” The participants responded on a scale ranging from 1 (very negative) to 7 (very positive). A t-test was used to compare the conditions with negative metastereotypes and positive metastereotypes (see Table 27). According to the t test, there was not a significant difference between the negative metastereotype ($M = 3.74$, $SD =$
1.78) and positive metastereotype ($M = 4.12, SD = 1.98$) conditions, $t(209) = -1.47, p = .14$, although the means were in the correct direction.

The resources manipulation was checked using the following question, “Based on the scenario, would you have the ability to successfully address the situation?” Participants rated their responses on a scale ranging from 1 (not at all) to 4 (to a great extent). A t test was used to compare the conditions with low resources and high resources (see Table 28). According to the t test, there was not a significant difference between the low resources ($M = 2.81, SD = .94$) and high resources ($M = 2.98, SD = .93$) conditions, $t(209) = -1.38, p = .19$, though again the means were in the correct direction.

Table 27

Study 2 Valence Manipulation Check

<table>
<thead>
<tr>
<th>Conditions</th>
<th>$M$</th>
<th>$SD$</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Negative High</td>
<td>3.69</td>
<td>1.71</td>
<td>49</td>
</tr>
<tr>
<td>2. Negative Low</td>
<td>3.78</td>
<td>1.87</td>
<td>54</td>
</tr>
<tr>
<td>3. Positive High</td>
<td>3.86</td>
<td>1.89</td>
<td>56</td>
</tr>
<tr>
<td>4. Positive Low</td>
<td>4.40</td>
<td>2.05</td>
<td>52</td>
</tr>
</tbody>
</table>
### Table 28

**Study 2 Resources Manipulation Check**

<table>
<thead>
<tr>
<th>Conditions</th>
<th>M</th>
<th>SD</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Negative High</td>
<td>3.08</td>
<td>.84</td>
<td>49</td>
</tr>
<tr>
<td>2. Negative Low</td>
<td>2.80</td>
<td>.94</td>
<td>54</td>
</tr>
<tr>
<td>3. Positive High</td>
<td>2.89</td>
<td>1.00</td>
<td>56</td>
</tr>
<tr>
<td>4. Positive Low</td>
<td>2.83</td>
<td>.94</td>
<td>52</td>
</tr>
</tbody>
</table>

**Calculating Participants’ Negative Affect.** Participants’ scores on the negative PANAS items were generated by calculating the mean on items 2, 5, 6, 9, 10, 11, 14, 15, 17, and 18. Higher scores on the scale indicate greater negative affect. The overall scale reliability was calculated using Cronbach’s alpha statistic. The response options for the negative affect subscale of the PANAS ranged from 1 (Very slightly or Not at all) to 5 (Extremely). Negative affect PANAS scores ranged from 1.00 to 5.00 ($M = 1.61$, $SD = 0.76$). The negative affect measure had high reliability ($\alpha = .93$). Negative affect was not normally distributed, with skewness of 1.40 ($SE = 0.17$). This indicates a positive skew on negative affect. Therefore a logarithm was used to transform the negative affect variable to reduce the magnitude of the skew. Following the transformation, the negative affect scores ranged from 0 to .65 ($M = 0.17$, $SD = 0.18$) and the skew was reduced to .81 ($SE = 0.17$).

**Calculating Participants’ Positive Affect.** Participants’ scores on the positive PANAS were generated by calculating the mean for responses on items 1, 3, 4, 7, 8, 12, 13, and 16. Higher scores on the scale indicate greater positive affect. The overall scale reliability was calculated using Cronbach’s alpha statistic. Finally, a z-score was created for performing
inferential statistics. Positive affect PANAS scores ranged from 1.00 to 5.00 ($M = 2.83$, $SD = 0.98$). The positive affect measure had high reliability ($\alpha = .92$). Positive affect was normally distributed, with skewness of 0.23 ($SE = 0.17$).

**Calculating Participants’ Challenge Reactions.** Participants’ scores on the challenge scale were generated by calculating the mean for responses on items 2, 5, 6, 9, 10, 11, 14, 15, 17, and 18. Higher scores on the scale indicate greater challenge reactions. The overall scale reliability was calculated using Cronbach’s alpha statistic. Finally, a $z$-score was created for performing inferential statistics. Cognitive challenge scores ranged from 1.00 to 6.70 ($M = 3.20$, $SD = 1.18$). The challenge reactions had high reliability ($\alpha = .95$). Challenge was normally distributed, with skewness of -.08 ($SE = 0.17$).

**Calculating Participants’ Threat Reactions.** Participants’ scores on the threat scale were generated by calculating the mean for responses on items 1, 3, 4, 7, 8, 12, 13, and 16. Higher scores on the scale indicate greater threat reactions. The overall scale reliability was calculated using Cronbach’s alpha statistic. Finally, a $z$-score was created for performing inferential statistics. Cognitive threat scores ranged from 1.25 to 7.00 ($M = 4.15$, $SD = 1.08$). The threat reactions had high reliability ($\alpha = .90$). Threat was normally distributed, with skewness of 0.51 ($SE = 0.17$).

**Calculating Participants’ Perceptions of Demands Abilities Fit.** Participants’ scores on the Demands-Abilities Fit Scale were calculated by reverse coding item 2 and then taking the mean of responses of all four items. Then scores were calculated, with higher scores on the scale indicating greater perceptions of demands-abilities fit. The overall scale reliability was calculated using Cronbach’s alpha statistic. Finally, a $z$-score was created for performing inferential statistics. Demands-abilities fit scores ranged from 1.00 to 5.00 ($M = 3.69$, $SD = 1.00$). The
demands-abilities fit measure had high reliability ($\alpha = .89$). Demand-abilities fit was normally distributed, with skewness of -.40 ($SE = 0.17$).

**Hypothesis Testing: Metastereotype Reactions**

Hypothesis 1 examined the main effects and interactions on the levels of challenge reported on the Skinner and Brewer (2002) scale with a factorial ANOVA. Metastereotype valance and resource conditions were entered as the independent variables with the challenge scale responses as the dependent variable (see Table 29). According to the factorial ANOVA, there was no significant main effect of metastereotype valence ($F(1, 207) = 1.73, p = .19$) or resources ($F(1, 207) = 0.96, p = .33$). There was also no significant interaction between metastereotype valence and resources cognitive challenge reactions ($F(3, 207) = 1.99, p = .160$)(see Table 30 and Figure 16). Therefore, hypothesis 1 was not supported.

Table 29

**Means and SDS of Dependent Variables for Each Condition**

<table>
<thead>
<tr>
<th>Condition</th>
<th>Positive PANAS</th>
<th>Negative PANAS</th>
<th>Cognitive Challenge</th>
<th>Cognitive Threat</th>
<th>Demands-Abilities Fit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Negative Meta with High Resources</td>
<td>2.97 (1.00)</td>
<td>1.64 (0.80)</td>
<td>3.10 (1.06)</td>
<td>4.27 (0.97)</td>
<td>3.95 (0.93)</td>
</tr>
<tr>
<td>Negative Meta with Low Resources</td>
<td>2.72 (0.91)</td>
<td>1.63 (0.73)</td>
<td>3.49 (1.15)</td>
<td>4.06 (0.95)</td>
<td>3.51 (0.99)</td>
</tr>
<tr>
<td>Positive Meta with High Resources</td>
<td>2.85 (1.03)</td>
<td>1.58 (0.79)</td>
<td>3.12 (1.26)</td>
<td>4.15 (1.08)</td>
<td>3.70 (0.98)</td>
</tr>
<tr>
<td>Positive Meta with Low Resources</td>
<td>2.80 (0.96)</td>
<td>1.61 (0.74)</td>
<td>3.05 (1.22)</td>
<td>4.13 (1.29)</td>
<td>3.61 (1.10)</td>
</tr>
</tbody>
</table>
Table 30

Influence Valence and Resources on Challenge Reactions

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valence</td>
<td>1</td>
<td>2.40</td>
<td>1.39</td>
<td>.189</td>
</tr>
<tr>
<td>Resources</td>
<td>1</td>
<td>1.33</td>
<td>2.19</td>
<td>.328</td>
</tr>
<tr>
<td>ResourceXValence</td>
<td>1</td>
<td>2.76</td>
<td>1.99</td>
<td>.160</td>
</tr>
</tbody>
</table>

Figure 16. Cognitive Challenge by Condition

Hypothesis 2 and Hypothesis 8 examined the main effects and interactions for resources and valence of metastereotypes on the PANAS positive affect with a factorial ANOVA with metastereotype valance and resource conditions entered as the independent variables and with positive PANAS as the dependent variable (see Table 29 for means and standard deviations). According to the factorial ANOVA, there was no significant main effect of metastereotype valence \( (F(1, 206) = 0.03, p = .87) \) or resources \( (F(1, 206) = 1.20, p = .26) \) on positive affect.
There was also no significant interaction between metastereotype valence and resources on positive affect ($F(1, 206) = 0.61, p = .43$) (see Table 31 and Figure 17). Therefore, Hypothesis 2 was not supported.

Table 31

Influence Valence and Resources on Positive Affect

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valence</td>
<td>1</td>
<td>0.03</td>
<td>0.03</td>
<td>.872</td>
</tr>
<tr>
<td>Resources</td>
<td>1</td>
<td>1.15</td>
<td>1.20</td>
<td>.275</td>
</tr>
<tr>
<td>ResourceXValence</td>
<td>1</td>
<td>0.59</td>
<td>0.61</td>
<td>.434</td>
</tr>
</tbody>
</table>

Figure 17. Challenge: Positive Affect by Condition
Hypothesis 3 and Hypothesis 5 examined the main effects and interactions on the levels of threat reported on the Skinner and Brewer (2002) scale with a factorial ANOVA with metastereotype valance and resource conditions entered as the independent variables and with the threat scale responses as the dependent variable (see Table 29 for means and standard deviations). According to the factorial ANOVA, there was no significant main effect of metastereotype valence \( (F(1, 207) = 0.03, p = .87) \) or resources \( (F(1, 207) = 0.62, p = .43) \). There was also no significant interaction between metastereotype valence and resources on cognitive threat reactions \( (F(1, 207) = 0.52, p = .51) \) (see Table 32 and Figure 18). Therefore, Hypotheses 3 and 5 were not supported.

### Table 32

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>SS</th>
<th>MS</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valence</td>
<td>1</td>
<td>0.03</td>
<td>0.03</td>
<td>0.03</td>
<td>.869</td>
</tr>
<tr>
<td>Resources</td>
<td>1</td>
<td>0.72</td>
<td>0.72</td>
<td>0.62</td>
<td>.434</td>
</tr>
<tr>
<td>ResourceXValence</td>
<td>1</td>
<td>0.52</td>
<td>0.52</td>
<td>0.45</td>
<td>.505</td>
</tr>
</tbody>
</table>
Hypothesis 4 and Hypothesis 6 examined the main effects and interactions for resources and valence of metastereotypes on the negative affect items of the PANAS negative affect with a factorial ANOVA that included metastereotype valance and resource conditions entered as the independent variables and with negative PANAS as the dependent variable (see Table 29 for means and standard deviations). According to the factorial ANOVA, there was no significant main effect of metastereotype valence ($F(1, 206) = 0.37, p = .55$) or resources ($F(1, 207) = 0.10, p = .76$). There was also no significant interaction between metastereotype valence and resources on negative affective reactions ($F(1, 206) = 0.32, p = .86$) (see Table 33 and Figure 19). Therefore, Hypothesis 4 and Hypothesis 6 were not supported.
Table 33

Influence Valence and Resources on Negative Affect

<table>
<thead>
<tr>
<th>Source</th>
<th>$df$</th>
<th>$SS$</th>
<th>$MS$</th>
<th>$F$</th>
<th>$P$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valence</td>
<td>1</td>
<td>0.12</td>
<td>0.12</td>
<td>0.37</td>
<td>.545</td>
</tr>
<tr>
<td>Resources</td>
<td>1</td>
<td>0.03</td>
<td>0.03</td>
<td>0.10</td>
<td>.758</td>
</tr>
<tr>
<td>ResourceXValence</td>
<td>1</td>
<td>0.001</td>
<td>0.001</td>
<td>0.03</td>
<td>.858</td>
</tr>
</tbody>
</table>

Figure 19. Negative Affect by Condition

Hypothesis 7 examined the main effects and interactions for resources and valence of metastereotypes on the demands-abilities fit measure with an ANOVA with the experimental conditions entered as the independent variable with the boost-related items of the PANAS as the dependent variable (see Table 29 for means and standard deviations). According to the factorial ANOVA, there was no significant main effect of metastereotype valence ($F(1, 207) = 0.30, p = .58$) or resources ($F(1, 207) = 3.88, p = .05$). There was also no significant interaction between
metastereotype valence and resources on positive affect \((F(1, 207) = 1.64, p = .20)\) (see Table 34 and Figure 20). Therefore, Hypothesis 7 was not supported.

Table 34

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>SS</th>
<th>MS</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valence</td>
<td>1</td>
<td>0.30</td>
<td>0.30</td>
<td>0.30</td>
<td>.583</td>
</tr>
<tr>
<td>Resources</td>
<td>1</td>
<td>3.90</td>
<td>3.90</td>
<td>3.88</td>
<td>.050</td>
</tr>
<tr>
<td>ResourceXValence</td>
<td>1</td>
<td>1.65</td>
<td>1.65</td>
<td>1.64</td>
<td>.202</td>
</tr>
</tbody>
</table>

*Figure 20. Abilities Fit by Condition*
Hypothesis Testing: Behavioral Intentions

Hypotheses 9 through 11 examined reactions to the scenarios: challenge, threat, and boost (measured through the Demands-Abilities Fit Scale) to determine if these reactions were related to behavioral intention outcomes. The first analysis in each of these hypotheses examined the outcome of general future interactions with coworkers of different ages. These outcomes included conflict, avoidance, and engagement with coworkers of different ages. The next analysis within each hypothesis examined a single item of how participants would respond to their older coworkers form the scenario.

Hypothesis 9 proposed that challenge reactions would be more strongly related to the outcome of increased intergenerational conflict compared to threat and boost reactions. This hypothesis was tested using multiple regression. Challenge items and threat items from Skinner and Brewer and demands-abilities fit items were included as independent variables. The outcome of conflict intentions was an exploratory measure with three items designed to measure general anticipated intergenerational conflict. Participants who reported greater agreement with challenge items, $\beta = .46$, $t(207) = 6.18$, $p = .001$, anticipated significantly more intergenerational conflict compared to participants who agreed less with the challenge items. Threat reactions were significantly not related to anticipated intergenerational conflict, $\beta = -.04$, $t(207) = -.58$, $p = .57$. Also, demands-abilities fit (boost) was not related to anticipated intergenerational conflict, $\beta = -.09$, $t(207) = -1.12$, $p = .27$. The finding that challenge reactions were related to anticipated generational conflict means that younger workers who are seeking to challenge older coworkers’ expectations anticipate more conflict with older coworkers (see Table 35). Therefore, this hypothesis was supported.
Hypothesis 9 also examined conflict specifically related to the scenario. Participants were asked, “If one of your frustrated coworkers made a rude remark toward you, how likely would you be to confront your coworker?” Participants who responded to the scenario with challenge reactions responded that they were more likely to confront a coworker who made a rude remark, $\beta = .26$, $t(207) = 3.05$, $p = .003$. Based on the scenario, participants’ reported threat and demands-abilities fit (boost) were not significantly related to intentions to confront a coworker who made a rude remark, $\beta = .12$, $t(207) = 1.34$, $p = .18$, and $\beta = -.10$, $t(207) = -1.14$, $p = .26$, respectively (see Table 36). The finding that challenge reactions were predictive of intentions to confront a coworker further supports the finding that challenge reactions are related to behavioral intentions related to intergenerational conflict. Therefore, this hypothesis was supported.

Table 36
Confronting a Coworker in the Scenario

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>SE B</th>
<th>$\beta$</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Challenge</td>
<td>.298</td>
<td>.098</td>
<td>.258</td>
<td>3.052</td>
<td>.003</td>
</tr>
<tr>
<td>Threat</td>
<td>.149</td>
<td>.112</td>
<td>.118</td>
<td>1.335</td>
<td>.183</td>
</tr>
<tr>
<td>Demands-Abil</td>
<td>-.136</td>
<td>.119</td>
<td>-.100</td>
<td>-1.138</td>
<td>.256</td>
</tr>
</tbody>
</table>

Note. $R^2 = .207$
Hypothesis 10 suggests threat reactions will be more strongly related to the outcome of increased intergenerational avoidance compared to challenge and boost reactions. This hypothesis was tested using multiple regression. Challenge items and threat items from Skinner and Brewer and demands-abilities fit items were included as independent variables. The outcome of avoidance intentions was an exploratory measure with three items designed to measure general anticipated intergenerational avoidance. There was not a significant relationship between threat reactions and anticipated intergenerational avoidance, $\beta = -.15, t(207) = -1.96, p = .05$.

However, challenge reactions $\beta = .37, t(207) = 5.26, p = .001$, and demands-abilities fit (boost), $\beta = -.17, t(207) = -2.24, p = .03$, were significantly related to more anticipated intergenerational avoidance (see Table 37). This finding means that younger participants who challenged to disprove negative metastereotypes had lower confidence in their abilities were more likely to avoid coworkers from different age groups.

Table 37

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>SE B</th>
<th>$\beta$</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Challenge</td>
<td>.389</td>
<td>.074</td>
<td>.374</td>
<td>5.259</td>
<td>.001</td>
</tr>
<tr>
<td>Threat</td>
<td>-.166</td>
<td>.084</td>
<td>-.145</td>
<td>-1.961</td>
<td>.051</td>
</tr>
<tr>
<td>Demands-Abil</td>
<td>-.202</td>
<td>.090</td>
<td>-.166</td>
<td>-2.242</td>
<td>.026</td>
</tr>
</tbody>
</table>

Note. $R^2 = .344$
In the regression analysis investigating engagement in the scenario, two of the predictors (challenge and demands-abilities fit) were significantly related to engaging with coworkers (Tonidandel & LeBreton, 2011). Therefore, a follow-up relative weight analysis was conducted to determine the amount of influence of each of the variable in predicting intergenerational avoidance outcomes. The relative weights of challenge, threat, and demands-abilities fit in relation to intergenerational avoidance were examined using a 95% confidence interval. The results of the relative weights analysis showed that the relative weight of challenge (RW = .17) was not significantly different from the relative weight of demands-abilities fit (RW = .09) (see Table 38). Compared to demands-abilities fit, threat (RW = .08) was not significantly more strongly related to anticipated intergenerational avoidance. Therefore, the majority of the variance explained in anticipated intergenerational avoidance was predicted by challenge (49% of model $R^2$), and demands-abilities fit (26% of model $R^2$) and threat (24% of model $R^2$) were less influential predictors. Therefore, this finding did not support the hypothesis.

Table 38

Relative Weights Analysis of Predictors for Intergenerational Avoidance Intentions

<table>
<thead>
<tr>
<th>Predictor</th>
<th>b</th>
<th>$\beta$</th>
<th>RW</th>
<th>CI-L</th>
<th>CI-U</th>
<th>RS-RW (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>2.517</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Challenge</td>
<td>.389</td>
<td>.374</td>
<td>0.170</td>
<td>0.087</td>
<td>0.259</td>
<td>49.361</td>
</tr>
<tr>
<td>Threat</td>
<td>-.166</td>
<td>-.145</td>
<td>0.084</td>
<td>0.035</td>
<td>0.141</td>
<td>24.441</td>
</tr>
<tr>
<td>Demands-Abil</td>
<td>-.202</td>
<td>-.166</td>
<td>0.090</td>
<td>0.039</td>
<td>0.157</td>
<td>26.199</td>
</tr>
</tbody>
</table>

Criterion = Avoidance Intentions ($R^2 = 0.344$)

Hypothesis 10 also examined avoidance specifically related to the scenario. Participants were asked, “If you were directly asked by one of your coworkers to help with the video chat...
program, how likely would you be to turn down the request to help?" Participants who responded to the scenario with threat reactions responded that they were more likely to avoid doing a metastereotyped task requested by their older workers, $\beta = -0.21$, $t(207) = -2.32$, $p = 0.02$ (see Table 39); however, participants who responded with reduced threat reactions were more likely to do the task. Both challenge and demands-abilities fit were not significantly related to avoidance of a metastereotyped task, $\beta = -0.11$, $t(207) = -1.33$, $p = 0.19$, $\beta = -0.15$, $t(207) = -0.12$, $p = 0.18$, respectively. Therefore, this findings supported the hypothesis.

Table 39

<table>
<thead>
<tr>
<th>Avoiding a Metastereotyped Task in the Scenario</th>
<th>B</th>
<th>SE B</th>
<th>$\beta$</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Challenge</td>
<td>-0.118</td>
<td>0.105</td>
<td>-0.113</td>
<td>-1.330</td>
<td>0.185</td>
</tr>
<tr>
<td>Threat</td>
<td>-0.235</td>
<td>0.109</td>
<td>-0.206</td>
<td>-2.321</td>
<td>0.021</td>
</tr>
<tr>
<td>Demands-Abil</td>
<td>-0.147</td>
<td>0.109</td>
<td>-0.121</td>
<td>-1.357</td>
<td>0.176</td>
</tr>
</tbody>
</table>

Note. $R^2 = 0.059$

Hypothesis 11 suggested that boost would be more strongly related to the outcome of increased intergenerational engagement compared to challenge and threat reactions. This hypothesis will be tested using multiple regression. Challenge items and threat items from Skinner and Brewer and demands-abilities fit items were included as independent variables. The outcome of engagement intentions was an exploratory measure with three items designed to measure general anticipated intergenerational engagement. After the regression, the coefficients were used in relative weights analysis to better understand the predictive value of each of the outcomes (Tonidandel & LeBreton, 2011). Participants who reported greater agreement with
demands-abilities fit items, $\beta = .16$, $t(207) = 2.25$, $p = .03$, anticipated significantly more intergenerational engagement compared to participants who agreed less with the demands-abilities fit items (see Table 40). In contrast, participants who reported more challenge reactions were less likely to agree with items suggestion intentions to engage with older workers, $\beta = -.20$, $t(207) = -2.91$, $p = .004$. Interestingly, participants with higher threat reactions anticipated that they would make more efforts to engage with older workers, $\beta = .35$, $t(207) = 4.89$, $p = .001$.

Table 40

<table>
<thead>
<tr>
<th>Engagement Intentions</th>
<th>B</th>
<th>SE B</th>
<th>$\beta$</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Challenge</td>
<td>-.176</td>
<td>.061</td>
<td>-.202</td>
<td>-2.909</td>
<td>.004</td>
</tr>
<tr>
<td>Threat</td>
<td>.338</td>
<td>.069</td>
<td>.354</td>
<td>4.891</td>
<td>.001</td>
</tr>
<tr>
<td>Demands-Abil</td>
<td>.166</td>
<td>.074</td>
<td>.163</td>
<td>2.246</td>
<td>.026</td>
</tr>
</tbody>
</table>

Note. $R^2 = .375$

In the regression analysis investigating engagement, all of the predictors: (challenge, threat, and demands-abilities fit) were significantly related to intentions to engage with coworkers (Tonidandel & LeBreton, 2011). Therefore, a follow-up relative weight analysis was conducted to determine the amount of influence of each of the variable in predicting to intentions to engage. The relative weights of challenge, threat, and demands-abilities fit in relation to intergenerational avoidance were examined using a 95% confidence interval (see Table 41). The results of the relative weights analysis showed that the relative weight of challenge (RW = .11)
was not significantly different from the relative weight of demands-abilities fit (RW = .10). The relative weight of challenge was also not significantly different from the relative weight of threat (RW = .17). Compared to demands-abilities fit (RW = .10), threat (RW = .17) was not significantly more strongly related to engaging with coworkers. Therefore, each variable in the analysis of model variance was important in predicting anticipated intergenerational engagement. In detail, there were no significant differences in the importance of threat (45% of model $R^2$), and challenge (28% of model $R^2$), or demands-abilities fit (27% of model $R^2$). Therefore, this finding did not support the hypothesis.

Table 41
Relative Weights Analysis of Predictors for Engagement Intentions

<table>
<thead>
<tr>
<th>Predictor</th>
<th>$b$</th>
<th>$\beta$</th>
<th>RW</th>
<th>CI-L</th>
<th>CI-U</th>
<th>RS-RW (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>3.415</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Challenge</td>
<td>-.176</td>
<td>-.202</td>
<td>0.107</td>
<td>0.048</td>
<td>0.178</td>
<td>28.479</td>
</tr>
<tr>
<td>Threat</td>
<td>.338</td>
<td>.354</td>
<td>0.168</td>
<td>0.104</td>
<td>0.240</td>
<td>44.865</td>
</tr>
<tr>
<td>Demands-Abil</td>
<td>.166</td>
<td>.163</td>
<td>0.100</td>
<td>0.0446</td>
<td>0.169</td>
<td>26.656</td>
</tr>
</tbody>
</table>

Hypothesis 11 also examined engagement specifically related to the scenario. Participants were asked, “How likely are you to volunteer to help with the video chat program?” Participants who responded to the scenario with high perceptions of demands-abilities fit $\beta = .31$, $t(207) = 4.50$, $p = .001$, and threat reactions, $\beta = .25$, $t(207) = 3.70$, $p = .001$, indicated that they were more likely to volunteer for a metastereotype task requested by their older workers, whereas workers with higher challenge reactions were less likely to volunteer, $\beta = -.23$, $t(207) = -3.53$, $p = .001$ (see Table 42).
Table 42

Engaging with Coworkers from the Scenario

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>SE B</th>
<th>β</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Challenge</td>
<td>-.243</td>
<td>.069</td>
<td>-.231</td>
<td>-3.526</td>
<td>.001</td>
</tr>
<tr>
<td>Threat</td>
<td>.291</td>
<td>.079</td>
<td>.252</td>
<td>3.698</td>
<td>.001</td>
</tr>
<tr>
<td>Demands-Abil</td>
<td>.378</td>
<td>.084</td>
<td>.307</td>
<td>4.501</td>
<td>.001</td>
</tr>
</tbody>
</table>

Note. R² = .444

In the regression analysis investigating engagement in the scenario, all of the predictors (challenge, threat, and demands-abilities fit) were significantly related to intentions to engage with coworkers (Tonidandel & LeBreton, 2011). Therefore, a follow-up relative weight analysis was conducted to determine the amount of influence of each of the variable in predicting to intentions to engage. The relative weights of challenge, threat, and demands-abilities fit in relation to engagement in the scenario were examined using a 95% confidence interval (see Table 43). The results of the relative weights analysis showed that the relative weight of challenge (RW = .13) was not significantly different from the relative weight of demands-abilities fit (RW = .17). The relative weight of challenge was also not significantly different from the relative weight of threat (RW = .15). Compared to demands-abilities fit, threat (RW = .15) was not significantly more strongly related to anticipated engagement in the scenario. Therefore, each variable in the analysis of model variance was important in predicting anticipated intergenerational engagement. In detail, there were no significant differences in the importance of threat (33% of model R²), challenge (30% of model R²) or Demands-Abilities Fit (38% of model R²). Therefore, this hypothesis was partially supported.
Table 43

Relative Weights Analysis of Predictors for Engaging with Coworkers from the Scenario

<table>
<thead>
<tr>
<th>Predictor</th>
<th>b</th>
<th>β</th>
<th>RW</th>
<th>CI-L</th>
<th>CI-U</th>
<th>RS-RW (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>3.536</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Challenge</td>
<td>-.243</td>
<td>-.231</td>
<td>0.132</td>
<td>0.076</td>
<td>0.212</td>
<td>29.700</td>
</tr>
<tr>
<td>Threat</td>
<td>.291</td>
<td>.252</td>
<td>0.145</td>
<td>0.081</td>
<td>0.203</td>
<td>32.722</td>
</tr>
<tr>
<td>Demands-Abil</td>
<td>.378</td>
<td>.307</td>
<td>0.167</td>
<td>0.093</td>
<td>0.241</td>
<td>37.578</td>
</tr>
</tbody>
</table>

Criterion = Avoidance Intentions ($R^2$ = 0.444)

Exploratory Research Questions

Exploratory Research Question 1 examined the effects of perceived relevance of metastereotypes on affective reactions. This question was examined using two hierarchical regressions, with experimental condition and perceived accuracy of the metastereotype and the interaction term entered as independent variables and positive affect as the dependent variable in one analysis and negative affect as the dependent variable in the other analysis. The regression with positive affect as the dependent variable showed that there was not main effect of condition on positive affect, $\beta = -.018$, $t(206) = -.26$, $p = 0.80$; no main effect of perceived accuracy of metastereotypes on positive affect, $\beta = .13$, $t(206) = 1.83$, $p = .07$; and no significant interaction between experimental condition and perceived accuracy of the metastereotype on positive affect, $\beta = -.03$, $t(204) = -.45$, $p = .70$. This means that the relationship between experimental condition and positive affect did not depend on perceived accuracy of the metastereotype (see Table 44).
The regression with negative affect as the dependent variable showed that there was no main effect of condition on negative affect, $\beta = -.016$, $t(206) = -.24$, $p = .81$; no main effect of perceived accuracy of metastereotypes on negative affect, $\beta = -.14$, $t(206) = -1.99$, $p = .05$; and no significant interaction between experimental condition and perceived accuracy of the metastereotype on negative affect. $\beta = .038$, $t(204) = .55$, $p = .59$. This means that the relationship between experimental condition and negative affect did not depend on perceived accuracy of the metastereotype (see Table 45).

Table 45
Accuracy of Metastereotype and Negative Affect

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>SE B</th>
<th>$\beta$</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Condition</td>
<td>-.012</td>
<td>.052</td>
<td>-.016</td>
<td>-.236</td>
<td>.813</td>
</tr>
<tr>
<td>Accuracy</td>
<td>-.110</td>
<td>.055</td>
<td>-.138</td>
<td>-1.987</td>
<td>.048</td>
</tr>
<tr>
<td>Interaction</td>
<td>.030</td>
<td>.055</td>
<td>.038</td>
<td>.546</td>
<td>.586</td>
</tr>
</tbody>
</table>

Exploratory Research Question 2 examined the effects of perceived relevance of metastereotypes on affective reactions. This question was examined using two hierarchical regressions, with experimental condition and perceived relevance of the metastereotype and the
interaction term entered as independent variables and positive affect as the dependent variable in one analysis and negative affect as the dependent variable in the other analysis. The regression with positive affect as the dependent variable showed that there was no main effect of condition on positive affect, $\beta = -.01, t(206) = -.15, p = 0.88$; and no main effect of perceived relevance of metastereotypes on positive affect, $\beta = -.08, t(206) = -1.19, p = .24$; and no significant interaction between experimental condition and perceived relevance of the metastereotype on positive affect, $\beta = -.13, t(204) = -.193, p = .06$ (see Table 46).

Table 46

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>SE B</th>
<th>$\beta$</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Condition</td>
<td>-.009</td>
<td>.067</td>
<td>-.010</td>
<td>-.150</td>
<td>.881</td>
</tr>
<tr>
<td>Relevance</td>
<td>-.090</td>
<td>.075</td>
<td>-.083</td>
<td>-1.190</td>
<td>.236</td>
</tr>
<tr>
<td>Interaction</td>
<td>-.145</td>
<td>.075</td>
<td>-.134</td>
<td>-1.927</td>
<td>.055</td>
</tr>
</tbody>
</table>

The regression with negative affect as the dependent variable showed that there was no main effect of condition on negative affect, $\beta = -.017, t(206) = -.25, p = 0.80$. However, there was a main effect of perceived relevance of metastereotypes on negative affect, $\beta = .20, t(206) = 2.88, p = .01$. There was no significant interaction between experimental condition and perceived relevance of the metastereotype on negative affect, $\beta = -.021, t(204) = -.31, p = .76$. This means that the relationship between experimental condition and positive affect did not depend on perceived accuracy of the metastereotype (see Table 47).
Table 47

Relevance of Metastereotype and Negative Affect

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>SE B</th>
<th>β</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Condition</td>
<td>-.013</td>
<td>.052</td>
<td>-.017</td>
<td>-.248</td>
<td>.804</td>
</tr>
<tr>
<td>Relevance</td>
<td>.168</td>
<td>.058</td>
<td>.199</td>
<td>2.876</td>
<td>.004</td>
</tr>
<tr>
<td>Interaction</td>
<td>-.018</td>
<td>.058</td>
<td>-.021</td>
<td>-.311</td>
<td>.756</td>
</tr>
</tbody>
</table>
Reactions to Age Metastereotypes

As with the prior study, in this study I sought to measure reactions to age metastereotypes using previously developed scales. Unfortunately, the results for Hypotheses 1-8 showed that this study did not accomplish the goal of capturing the age metastereotypes reactions (challenge, threat, and boost) in younger workers. The study results show that there were no meaningful differences in challenge, positive affect, threat, negative affect, or demands-abilities fit reactions in response to age metastereotypes and resources.

There are a few potential explanations for the lack of relationship between metastereotypes and reactions: 1) the manipulations of metastereotype valence and resources were not effective, 2) issues with the sample, 3) metastereotypes may not cognitively and affectively influence younger workers as much as workers of other age groups.

The manipulation check questions for younger workers were in the correct direction, but participants’ reactions did not differ based on the valence of metastereotypes and levels of resources. This means that younger workers did not see the negative metastereotypes as especially negative, nor did they see the positive metastereotypes as especially positive. This lack of distinction between interpretations of negative metastereotypes and positive metastereotypes and low and high resources made it less likely for younger workers to have strong cognitive and affective reactions in response to the scenarios.
Workers in this study were recruited from Mturk. One of the main concerns social science researchers have about collecting Mturk data that is the large amount of research studies Mturk workers participate in can influence their responses to experimental conditions as well as other research questions (Chandler et al., 2014; Krupnikov & Levine, 2014; Paolacci & Chandler, 2014). It may be the case that younger workers from this study had participated in many research studies over a short period of time or were more distracted while responding to the study. In looking at the survey duration times from the present research, younger workers had a much shorter survey duration in comparison to older workers. To my knowledge, these suspicions regarding age differences in this type of platform have not yet been systematically explored.

Another possible explanation for the lack of different reactions to metastereotypes from younger workers could be that younger workers are less impacted by age metastereotypes. This theory would be supported by research that found younger workers were not impacted by negative metastereotypes that are not relevant to their group (Hess et al., 2003; Levy, 1996). However, research by Finkelstein et al. (2013) found that younger workers held more negative metastereotypes compared to other groups. It may be possible that while younger workers hold more of these negative metastereotypes, they may be less likely to report reactivity to them. Younger workers may have been reacting to the deluge of stereotypes targeting today’s younger workers or millennial generation. In a recent study of younger workers’ open-ended reactions, Purvanova, Raymer, Spiegel, and Reed (2014) found that many younger workers expressed frustration with pervasiveness of stereotypes targeting their age group. This same frustration may have caused younger participants to view the experimental manipulations as less extreme, or at least report reduced reactions to the age metastereotypes.
Reactions and Behavioral Intentions

Despite the lack of relationship between metastereotypes and resources with affective reactions, younger workers’ reported threat, challenge, and boost reactions were related to behavioral intentions. As predicted, younger workers’ challenge reactions were more strongly related to increased anticipated intergenerational conflict compared to threat and boost reactions. This was further supported by the finding that younger workers experiencing challenge were more likely to confront a rude coworker of another age group. This finding provides support for the model created by Finkelstein et al. (2015), which suggests that challenge reactions would be most likely to lead to intergenerational confrontations and conflicts. In fact, past research has found that younger workers perceive discrimination against their group, increasing intergenerational tension (Duncan & Loretto, 2004).

I expected that threat reactions would be more strongly related to anticipated intergenerational avoidance at work. However, challenge reactions and demands-abilities fit were most strongly related to younger workers anticipating intergenerational avoidance. Challenge reactions were positively related to intergenerational avoidance; younger workers experiencing challenge reactions were more likely to want to avoid older coworkers. In contrast, younger workers with high perceptions of their demands-abilities fit were less likely to avoid their older coworkers. This hypothesis was also examined with an item specific to the scenario that asked, “If you were directly asked by one of your coworkers to help with the video chat program, how likely would you be to turn down the request to help?” Younger workers who experienced threat were more likely to accept their older coworkers’ requests for help. The
relationship of younger workers’ challenge and threat reactions’ with intentions to avoid older coworkers contradicts previous research that suggests challenge occurs when people are working towards a positive outcome and threat occurs when people are trying to avoid a negative outcome (Keller, 2007). This tendency for younger workers who were feeling threat to intend to engage more with older works may be related to younger workers seeking to prove themselves. Threat reactions were highest when workers were exposed to negative metastereotypes with high resources. Perhaps younger workers equipped with resources and concerns of the negative metastereotypes would feel threat but also a perceived ability and desire to disprove the negative metastereotype.

I predicted that boost (demands-abilities fit) reactions would make younger workers more likely to anticipate intergenerational engagement at work. Both threat and demands-abilities fit were related to younger workers being more likely to anticipate engaging with older coworkers. In contrast, stronger challenge reactions were related to younger workers being less likely to engage with older coworkers. An analysis of the importance of these predictors found that threat was most influential in relating to younger workers’ intentions to engage with older workers. This is surprising given that typically threat is associated with disengagement (Aronson, Fried, & Good, 2002; von Hippel et al., 2011; von Hippel et al., 2013). Younger workers’ intentions to volunteer to help their older coworkers followed the same pattern as general intergenerational engagement except that the analysis of the importance of predictors found that demands-abilities fit was the most important predictor. Overall, this means that younger workers who were feeling threat but also increased perceptions of their demands-abilities fit were most likely to want to engage with older workers and volunteer to help. In contrast, previous research has found that younger workers are less likely to engage in impression management behaviors if they feel that
they were being negatively stereotyped by older workers (Ryan et al., 2015). In support of the findings from this study, Chattopadhyay (1999) found that younger workers were more willing to perform “Organizational Citizenship Behaviors” (OCBs) in workplaces with more older workers.

**Research Questions on Metastereotype Accuracy and Relevance**

Two research questions were included to determine how accuracy and relevance influence the intensity of younger workers’ affective reactions to metastereotypes. Perceived accuracy of metastereotypes did not meaningfully intensify younger workers’ affective reactions. However, higher perceived relevance to the metastereotypes influenced younger workers to have higher negative affective reactions. This importance of the perception of metastereotype relevance fits with previous research that found that metastereotypes were only influential on performance if they were perceived as relevant (Hess et al., 2003; Levy, 1996). Naturally, it follows that if metastereotypes were seen as unimportant and unrelated to one’s group, strong affective reactions would be unlikely.
CHAPTER 8

GENERAL DISCUSSION

The purpose of this set of studies was to gain a better understanding of how older and younger workers react when they are exposed to negative and positive metastereotypes. A secondary purpose of this study was to examine how the presence of high resources or low resources can impact how workers respond to age metastereotypes. The last goal of this study was to determine how cognitive and affective reactions to age metastereotypes translate to behavioral intentions for intergenerational interactions.

There were distinct differences in reactions to age metastereotypes between the samples of older and younger workers. Younger workers did not show any significant differences in patterns of reactions in response to the valence of metastereotypes or the availability of resources. The reduced reaction for younger workers may have been tied to the specific metastereotypes and scenarios used in this study. Specifically, younger workers were primed with the metastereotype that they are inexperienced in a scenario involving conducting a focus group. This scenario may have seemed less impactful because younger workers may see experience as a qualification that they will inevitably gain with time, and conducting focus groups may seem like something that can be easily learned. However, in comparing the rank order of means by condition between the older worker sample and the younger worker sample, it should be noted that the positive affective reactions, cognitive threat, and demands-abilities fit followed similar patterns. In both samples, each of these variables were most strongly endorsed by workers with negative metastereotypes and high resources and least strongly endorsed by
participants with negative metastereotypes and low resources. Therefore, these studies have shown a consistent initial pattern with workers of all ages feeling increased positive affect, threat, and demands-abilities fit after being exposed to negative metastereotypes while possessing high relevant resources. However, Sekaquaptewa and Thompson (2003) suggested that when exposed to a negative metastereotype, if resources are unavailable, threat reactions are most likely. With the combined situational resources and personal resources, a challenge response would be more likely (Schmader, Hall, & Croft, 2015; Sekaquaptewa & Thompson, 2003). The present set of studies’ findings may reflect workers’ genuine attitudes towards desiring to counter a negative metastereotype; however, the ability to successfully counter a performance-based measure of metastereotypes may reveal the traditional stereotype threat reactions that are well documented throughout the literature (Ben-zeev, Fein, & Inzlicht, 2005; Ilzlicht & Ben-zeev, 2000; Steele & Aronson, 1995). In other words, the pattern of results may look different when comparing cognitive and affective reactions to performance outcomes and interpersonal outcomes in the workplace.

Both older and younger workers’ affective reactions were predictive of important behavioral intentions concerning intergenerational interactions. None of the affective reactions were predictive of older workers’ intentions for conflict with younger workers. However, younger workers’ challenge reactions were predictive of conflict and confrontation with older workers. This difference in challenge reactions leading to anticipated intergenerational conflict may be due to the idea that younger workers perceived that they had been discriminated against and stereotyped by older workers and frustration that only older workers are legally protected from discrimination (Duncan and Loretto, 2004; Ryan et al., 2015).
Some of the predictors of avoidance intentions were similar when comparing older workers and younger workers. For older workers, threat was associated with reduced intentions to avoid younger workers and challenge was associated with greater intentions to avoid younger workers. This is surprising given that threat is typically associated with disengagement (von Hippel et al., 2013). Older workers’ behavioral intentions to engage in less avoidance in response to threat may be related to the sociometer theory. According to Leary (2005), the sociometer theory of self-esteem suggests that in reaction to rejection, people experience increased feelings of threat and increased negative affect while also feeling an increased desire to affiliate with others. The explanation provided by this theory is further supported by the correlation between cognitive threat and positive affect, suggesting that workers were feeling increased concerns of how they were viewed as well as increased positive feelings, which may indicate optimism about the possibility of changing the way that their group is viewed by other age groups.

Younger workers were more likely to intend to avoid older workers if they had higher challenge and less likely to have intentions of avoiding older workers if they perceived that they had high demands-abilities fit. Challenge reactions being associated with increased intentions to avoid coworkers of different ages may relate to workers trying to protect their work self-efficacy. Many of the challenge items refer to optimism for positive outcomes and focusing on the positive aspects of the situation. If they have been exposed to a negative age metastereotype from workers of a different age group, it may threaten their ability to think positively about the situation and potentially good outcomes. According to Hepper, Gramzow, and Sedikides (2010), people with go to great lengths in order to avoid encountering information that will threaten their self-efficacy and self-concept.
Older and younger workers who reported high threat had more intentions to engage with workers of different age groups. Threat also increased workers’ intentions to volunteer to help their different-aged coworkers. Workers’ increased intentions to volunteer after experiencing threat may be explained by the theoretical framework of growth vs. fixed mindset. According to growth mindset theory, people who view intelligence and abilities as changeable have a growth mindset, whereas those who perceive their intelligence and abilities as set have a fixed mindset (Dweck, 2006; Dweck & Sorich, 1999). Perhaps workers who perceived the negative stereotypes about their experience and abilities with technology may have seen the opportunity to volunteer as an opportunity to grow their abilities. Future studies that examine participants’ reactions to negative metastereotypes should include a measure of growth mindset to determine if mindset is a relevant individual difference characteristic.

Older and younger workers may have also been experiencing a need to represent their group based on theories in tokenism. Members of token groups have three perceptual tendencies, as outlined by Kanter (1977): assimilation, visibility, and contrast. Assimilation refers to a member of a stereotypes group behaving in ways consistent with the stereotype. Visibility refers to the experience of being more noticeable and “standing out” and having to work hard to prove oneself. Lastly contrast refers to a member of a token group acting in ways that are contrary to the prescribed stereotypes for the group. Workers who were experiencing increased threat and greater desire to engage with coworkers of different generations may have been experiencing increased visibility and contrast as part of perceiving themselves as members of a token group.

Another explanation may be that workers were volunteering to feel better and improve their self-esteem. Volunteering to help coworkers would be considered to be an organizational citizenship behavior (OCB). In a study examining age dissimilarity at work, organizational self-
esteem, and performance of organizational citizenship behaviors, the researchers found that organizational self-esteem was positively related to OCB (Chattopadhyay, 1999). It stands to reason that threats would lower organizational self-esteem; therefore, the results of this study contradict the results of studies of OCBs. Moreover, in comparing older and younger workers’ performance of OCBs, older workers were less likely to perform OCBs when they worked in an age dissimilar workplace. In contrast, younger workers were more likely to perform OCB’s in workplaces with older workers. Chattopadhyay (1999) suggested that this difference was related to a lower organizational self-esteem for older workers who work with many younger workers. However, in the present study, threat was related to more willingness to volunteer by older workers and younger workers. In this study, workers exposed to negative metastereotypes with high resources reported the most threat. Perhaps the manipulation of metastereotypes made workers feel threatened while simultaneously feeling more positive affect and higher perceptions of demands-abilities fit due to the available resources. This combination of reactions would have left workers feeling positive and competent in their abilities while also experiencing concern with failing and what people would think of them. It seems that this concern with what people may think, which is included with threat, may be related to intentions to engage with coworkers.

Compared to younger workers, older workers seemed to be more influenced by the perception of age metastereotypes being accurate of themselves. This relates to self-stereotyping literature that suggests that participants experience threat when they consider the idea that a negative metastereotype might be true for them (Wout et al., 2008). Younger workers did not show this effect, but younger workers did experience more negative affect if they believed that the metastereotypes were important. This effect may have occurred because of the specific metastereotypes that were used in the scenarios. The negative metastereotype for older workers
was “not good with technology,” which older workers may be concerned with if that metastereotype were true for them. In contrast, the negative metastereotype for younger workers was “inexperienced,” which workers new to the workforce may easily accept as true for them. However, the emphasis on the importance of having experience combined with the difficulties of getting a job may explain the increased negative affect that younger workers reported when they felt that the metastereotype was important (Hollywood, Egdell, & McQuaid, 2012).

**Limitations**

This was a fruitful first look at reactions to age metastereotypes; however, this set of research studies was not without limitations. One of the main limitations of this study was that it relied on scenarios rather than real experiences. This method was chosen so that experimental conditions could be controlled and manipulated; however, this was at the known cost of experimental realism. The reduced realism may explain the lack of significant results for some of the analyses. Specifically in the study of younger workers, there were not significant differences in reactions to age metastereotype conditions. Also, participants may have not paid close attention because the scenarios were presented online. Attention checks were included to reduce the risk of including participants who were not paying close attention. However, no participants missed more than two of the manipulation checks; therefore, no participants were dropped as a result. The lack of significant findings for younger workers may have partially occurred because of a lack of realism, which could have reduced the intensity of any emotions associated with age metastereotypes. Realism in the study could have been increased by including audio recordings of the conversations with coworkers. Alternatively, this study could have been designed in a way that participants could have been led to believe that they were working online with real coworkers from different age groups.
Currently this study and metastereotyping research are limited by a lack of dedicated scales to measure reactions to metastereotypes in research. The scales used in this study helped in gaining more insight on reactions to age metastereotypes; however, dedicated scales that have been tested for validity would be helpful in establishing consistent measurement of reactions to age metastereotypes. As discussed earlier, for example, it may be that challenge and boost are being conflated in the demands-abilities fit measure. Furthermore, the items capturing negative and positive affect on the PANAS do not allow for distinctions among some of the particular types of affect relevant to metastereotype reactions. For example, the elements of negative affect that one would expect to appear in combination when a person experiences challenge differs from that expected when a person experiences threat.

Another limitation of this set of studies was that only two types of metastereotypes were included in the scenarios. This limited number of metastereotypes can introduce problems with a lack of stimulus sampling. A lack of stimulus sampling can cause participants to respond to qualities of the stimuli that are unrelated to the manipulation, causing researchers to make incorrect conclusions (Wells & Windschitl, 1999). Specifically in this study, workers’ responses were possibly influenced by the metastereotypes content in unintended ways. For example, older workers were presented with the negative metastereotype of being bad with technology while younger workers were presented with the negative metastereotype of being inexperienced. It could be that some of the differences in reactions and behavioral intentions are artifacts of the specific metastereotypes. For example, being bad with technology could be considered more threatening because it points to a deficiency in competence. In contrast, being inexperienced may be more expected developmentally for younger workers and therefore seen as less of a deficiency and less threatening.
**Future Research**

To continue to deepen researchers’ and practitioners’ understanding of age metastereotypes, future research should investigate metastereotypes in more realistic settings, such as through video recordings to prime metastereotypes, real interactions in a lab setting, and reactions to metastereotypes in real work environments. Increasing the realism of the metastereotype situations could intensify reactions to the age metastereotypes. This could be accomplished through subtle means such as informing participants in an online study that their responses will be read by team members from a different age group. Research on metastereotypes could also use more direct methods for inducing metastereotypes, such as through the use of older or younger confederates explicitly stating stereotypes in a lab setting. Examining age metastereotypes across a variety of contexts will allow for a greater generalization of results.

Along with a variety of contexts, different metastereotypes content should also continue to be tested to reduce the possibility that the reactions and anticipated behavioral outcomes only occur in response to specific metastereotypes. This series of studies examined metastereotypes concerning work experience and ability to use technology. Future studies should examine additional metastereotypes that can be drawn from Finkelstein and colleagues’ (2013) inventory of common metastereotypes for different age groups. Pretesting metastereotypes for perceived importance and accuracy is also recommended to understand how metastereotypes of varying accuracy and relevance elicit different reactions from workers.
Along with these suggestions for experimental methods, age metastereotype researchers should also develop scales for consistent and valid measurement of the metastereotypes reactions: challenge, threat, and boost. The future validation process for reactions to age metastereotypes should follow scale development guidelines by DeVellis (2017) and include generating items to capture the definitions of the reactions; enlisting subject-matter experts to review items; administering items to the target population; checking reliability; interitem correlations and factor structure of data; and producing scales for use in future research. Such rigorous psychometric work will likely involved many iterations of data collection to gather sufficient validation evidence to recommend widespread use. However, this type of systematic effort will enable researchers to better understand affective and cognitive responses to metastereotypes. Moreover, validated scales that measure reactions to metastereotypes will enable researchers to more easily compare results across studies.

Future researchers would also benefit from simultaneously examining interpersonal reactions to metastereotypes along with performance so that the reactions can be mapped onto performance outcomes. In the current study, the expected threat condition caused participants to react with responses aligned more with challenge reactions. Therefore future research should examine how interpersonal and performance-based measurements of reactions to metastereotypes compare. For example, participants could be given an online task that they perform with either a group of workers around their age or a group of workers who are older or younger. One of the workers could comment with a metastereotype (either positive or negative) and then participants can choose how to react interpersonally; then participants would perform a task related to the metastereotype. These interpersonal reactions and performance reactions could
be examined to see if interpersonal reactions follow the same patterns laid out in the stereotype threat research (Klinger, 1977; Shih et al., 2002; Steele & Aronson, 1999).

Implications for Research and Practice

This set of studies offers a first look for researchers interested in cognitive and affective reactions to age metastereotypes. The results of this study show that older workers seem to have stronger and more distinct reactions to age metastereotype valence and availability of resources. However, this does not minimize the importance for examining metastereotypes in younger workers because both older workers and younger workers indicated different behavioral intentions based on their reactions to age metastereotypes. This study measured behavioral intentions outcomes, which, while not directly measuring actual behaviors, can be good predictors of future behavior (Doll & Ajzen, 2002; Fazio & Zanna, 1981; Montano & Kasprzyk, 2015).

This study was designed to partially test a model of age metastereotypes developed by Finkelstien and colleagues (2015). In support of the model, the results from this set of studies found that older workers’ reactions to age metastereotypes were often influenced by resources, sometimes by the combination of metastereotype valence and resources. Younger workers’ challenge reactions relating to anticipated conflict also supported the model. Some of the results in these research studies raised questions about the model. For example, older workers showed a pattern of responses that seemed to be a mix of threat and challenge in response to negative metastereotypes with high resources. Moreover, both older workers and younger workers who were experiencing threat showed a peculiar pattern of intending less avoidance and more engagement with workers of different ages. This result is the most surprising out of this set of studies and warrants further investigation by researchers. If these patterns persist in future work,
this would raise important questions about reactions to age metastereotypes and behavioral intentions of older and younger workers and call for further theoretical refinement.

Turning to practical implications, the findings of this study suggest that when workers are potentially faced with negative age metastereotypes, enabling these workers to get relevant resources, or recognize the resources they already possess, may be able to help mitigate the negative effects of a negative metastereotype. This research study suggests that empowering both older and younger workers with the resources that they need to counter negative metastereotypes can enhance workers’ intentions for engagement with coworkers of different ages.

The specific negative metastereotypes measured in this study were that older people are not good with technology and younger workers are inexperienced. Resources could be used to counter these negative metastereotypes by having employers offer technology training to workers to combat the negative metastereotypes suggesting that older workers are not good with technology. As an introduction for new employees, organizations could offer a training with the goal of giving new workers experience in key areas of their job to ameliorate the effects of the negative metastereotypes concerning experience. These offerings should be available to all employees, but as shown in this study, the resources may be especially important for workers experiencing negative metastereotypes.

Of course, reducing the prevalence of age stereotyping at work would be a challenging endeavor, but one worth pursuing. Including age as a factor in diversity training, for example, and helping employees recognize stereotypical beliefs can assist in creating a more age inclusive climate. However, as this type of training cannot eliminate the often automatic process of stereotyping, it is important to also equip workers with the resources to counter their effects.
REFERENCES


APPENDIX A: DEMOGRAPHIC STUDY RECRUITMENT STATEMENT
Recruitment Statement

This page provides information on the research study that you have the opportunity to participate in today. The purpose of this research study is to gather demographic information to determine qualification for future studies.

Qualified Participants: Participants must reside in the United States and must be 18 years of age or older.

Time Commitment: If you decide to participate, the full study will take about 5 minutes to complete.

Compensation: Participants who complete the study will be paid $0.50

Confidentiality: If you choose to participate in this study please proceed to the following page. Your responses will be recorded in a confidential manner.

Participation: Participation in this study is voluntary. You may choose to withdraw from the study at any point in time without any penalty.

Contact us: All information will remain anonymous. Interested participants are invited to continue with the survey.
APPENDIX B: DEMOGRAPHIC CONSENT FORM
Consent Form

This page provides information on a research study that you have the opportunity to participate in in exchange for monetary compensation. In this survey, you will be asked demographic questions to see if you qualify for future studies.

Risks: There are no known risks to participating in this study.

Benefits: Direct benefits include an increased understanding of research methods through exposure to the informed consent process, study design, and debriefing.

Participation in this study will take approximately 5 minutes. All of your information collected in these studies will be confidential. Your participation in this study is voluntary. Although there are no foreseeable risks associated with participating in these studies, you are free to decline participation at any time during this study without penalty or prejudice. If you decide that you wish to participate in this study, please continue onto the next page of the survey. If you have any questions or concerns about any part of this study, please feel free to contact Elora Voyles and Dr. Lisa Finkelstein at 815-753-0439. You may also contact the NIU Office of Research Compliance at 815-753-8588 if you have any questions about your rights as a participant.

I understand the procedures and requirements of this study and I consent to participate.

I agree- proceed to the survey
I do not agree- exit the survey
Debriefing

Thank you for participating in this study. The purpose of this study was to gather information to determine eligibility for future studies.

If you have any questions about this research study, please contact Dr. Finkelstein at LisaF@niu.edu or Elora Voyles at eloracv@gmail.com

If you should have any questions or concerns regarding your rights as a research participant, please contact the Northern Illinois University of Research Compliance (815-752-8588).
APPENDIX D: RECRUITMENT STATEMENT
Recruitment Statement

This page provides information on the research study that you have the opportunity to participate in today. The purpose of this research study is to examine how people respond to workplace scenarios.

Qualified Participants: Participants must reside in the United States and must be 18 years of age or older.

Time Commitment: If you decide to participate, the full study will take about 20 minutes to complete.

Compensation: Participants who complete the study will be paid $2.00

Confidentiality: If you choose to participate in this study please proceed to the following page. Your responses will be recorded in a confidential manner.

Participation: Participation in this study is voluntary. You may choose to withdraw from the study at any point in time without any penalty.

Contact us: All information will remain anonymous. Interested participants are invited to continue with the survey.
APPENDIX E: CONSENT FORM
Consent Form

This page provides information on a research study that you have the opportunity to participate in in exchange for monetary compensation. In this survey, you will be presented with a brief workplace scenario. Then you will answer a few short questions about the scenario.

**Risks:** There are no known risks to participating in this study.

**Benefits:** Direct benefits include an increased understanding of research methods through exposure to the informed consent process, study design, and debriefing.

Participation in this study will take approximately 20 minutes. All of your information collected in these studies will be confidential. Your participation in this study is voluntary. Although there are no foreseeable risks associated with participating in these studies, you are free to decline participation at any time during this study without penalty or prejudice. If you decide that you wish to participate in this study, please continue onto the next page of the survey. If you have any questions or concerns about any part of this study, please feel free to contact Elora Voyles and Dr. Lisa Finkelstein at 815-753-0439. You may also contact the NIU Office of Research Compliance at 815-753-8588 if you have any questions about your rights as a participant.

**I understand the procedures and requirements of this study and I consent to participate.**

I agree- proceed to the survey

I do not agree- exit the survey
APPENDIX F: STUDY 1 OLDER WORKERS NEGATIVE METASTEREOTYPES
**Older worker scenario: Technology**

Imagine that you have been working in an office environment for a few months. Most of your coworkers are 35 years and younger. Today you have been assigned to schedule and organize a meeting with colleagues to discuss a big project with a new client.

For the meeting, another colleague is joining the meeting via video chat. As your coworkers are filing into the room, you notice a small group of your coworkers having difficulties with the video conference program. You think about offering to help, and you recall a time when a younger coworker implied that older people are afraid of technology.

**High Resource:** Also, you use this video chat program regularly, and you feel fairly certain that you could identify the problem and solve it before the meeting begins.

**Low Resource:** Also, you have never used this particular video chat program, and you feel that you probably wouldn’t be able to solve the problem before the meeting begins.

**Open-ended manipulation check**
Based on the scenario, what do younger workers generally think about older workers at that workplace?

**Older Manipulation Check:** How do you think that your younger coworkers feel about older workers’ skills and abilities?

- Very Negatively
- Negatively
- Slightly Negatively
- Neutral
- Slightly Positively
- Positively
- Very Positively

Why do you think this?
Resource Manipulation Check

Based on the scenario, would you have the ability to successfully address the situation?
Not at all
Very Little
Somewhat
To a Great Extent

Instructions

In the following pages of questions we are asking you to **respond as if you are actually working in the environment we described in the scenario and have experienced the event we described.**

Do not answer the questions based on your own actual workplace. For example, if we ask a question about how you would respond to a coworker in the future, answer it in regard to the coworkers in the scenario, and not your actual coworkers in your real job.

So, if we asked you how you would respond to a coworker in the future, we mean a coworker in this scenario, not on your own job.

Keeping in mind the instructions that you read on the previous page, how should you respond to the remaining questions in this survey?
Behavioral Intention Measures:

How likely are you to volunteer to help with the video chat program?

1 – Extremely unlikely
2 – Unlikely
3 – Neutral
4 – Likely
5 – Extremely likely

If you were directly asked by one of your coworkers to help with the video chat program, how likely would you be to turn down the request to help?

1 – Extremely unlikely
2 – Unlikely
3 – Neutral
4 – Likely
5 – Extremely likely

If one of your frustrated coworkers made a rude remark toward you, how likely would you be to confront your coworker?

1 – Extremely unlikely
2 – Unlikely
3 – Neutral
4 – Likely
5 – Extremely likely

Relevance and Accuracy Measures
How much does the stereotype that older workers are afraid of technology describe you?
Not at all
Very Little
Somewhat
To a Great Extent

How much does it matter if members of other age groups believe this stereotype about you?
Not at all
Very Little
Somewhat
To a Great Extent
APPENDIX G: STUDY 1 OLDER WORKERS POSITIVE METASTEREOTYPES
Older worker scenario Experience

Imagine that you have been working in an office environment for a few months. Most of your coworkers are under 35 years old. Today you have been assigned to schedule and organize a meeting with colleagues to discuss the legal contract a big project with a potential new client.

A few minutes before the meeting is set to begin, you notice a small group of your younger coworkers working together on a list of legal questions that are likely to be asked to gather information from the client during a future focus group meeting.

Your coworkers look around the room and ask if anyone would like to volunteer to conduct the focus group meeting with the new clients. You think about volunteering, and remember a time when a younger worker implied that older workers are experienced.

High Resource: You have done some research about the client and you know the procedures for formalizing the contract the focus group meeting. Overall, you are fairly certain that could win over the client and answer their legal questions so that they could sign the contract during the meeting.

Low Resource: You could do some research about the client before meeting but you’re still uncertain of the procedures for the focus group meeting with new clients. Overall, you are not certain that you could win over the client and answer their legal questions in order to get them to sign the contract during the meeting.

Open-ended manipulation check
Based on the scenario, what do younger workers generally think about older workers at that workplace?

Older Manipulation Check: How do you think that your younger coworkers feel about older workers’ skills and abilities?

Very Negatively
Negatively
Slightly Negatively
Neutral
Slightly Positively
Positively
Very Positively

Why do you think this?
Resource Manipulation Check

Based on the scenario, would you have the ability to successfully address the situation?
Not at all
Very Little
Somewhat
To a Great Extent

Instructions

In the following pages of questions we are asking you to **respond as if you are actually working in the environment we described in the scenario and have experienced the event we described.**

Do not answer the questions based on your own actual workplace. For example, if we ask a question about how you would respond to a coworker in the future, answer it in regard to the coworkers in the scenario, and not your actual coworkers in your real job.

So, if we asked you how you would respond to a coworker in the future, we mean a coworker in this scenario, not on your own job.

Keeping in mind the instructions that you read on the previous page, how should you respond to the remaining questions in this survey?
Behavioral Measures:
How likely are you to volunteer to conduct the focus group meeting?

1 – Extremely unlikely
2 – Unlikely
3 – Neutral
4 – Likely
5 – Extremely likely

If you were directly asked by one of your coworkers to conduct the focus group meeting, how likely would you be to turn down the request to help?

1 – Extremely unlikely
2 – Unlikely
3 – Neutral
4 – Likely
5 – Extremely likely

If one of your frustrated coworkers made a rude remark toward you, how likely would you be to confront your coworker?

1 – Extremely unlikely
2 – Unlikely
3 – Neutral
4 – Likely
5 – Extremely likely

Relevance and Accuracy Measures
How much does the stereotype that older workers are experienced describe you?
Not at all
Very Little
Somewhat
To a Great Extent
How much does it matter if members of other age groups believe this stereotype about you?
Not at all
Very Little
Somewhat
To a Great Extent
APPENDIX H: STUDY 2 YOUNGER WORKERS NEGATIVE METASTEREOTYPES
Imagine that you have been working in an office environment for a few months. Most of your coworkers are over 50 years old. Today you have been assigned to schedule and organize a meeting with colleagues to discuss the legal contract with a potential new client.

A few minutes before the meeting is set to begin, you notice a small group of your older coworkers working together on a list of legal questions that are likely to be asked to gather information from the client during a future focus group meeting.

Your coworkers look around the room and ask if anyone would like to volunteer to conduct the focus group meeting with the new clients. You think about volunteering, and remember a time when an older worker implied that younger workers are inexperienced.

**High Resource:** You have done some research about the client and you know the procedures for formalizing the contract the focus group meeting. Overall, you are fairly certain that could win over the client and answer their legal questions so that they could sign the contract during the meeting.

**Low Resource:** You could do some research about the client before meeting but you’re still uncertain of the procedures for the focus group meeting with new clients. Overall, you are not certain that you could win over the client and answer their legal questions in order to get them to sign the contract during the meeting.

**Open-ended manipulation check**
Based on the scenario, what do older workers generally think about younger workers at that workplace?

**Younger Manipulation Check:** How do you think that your older coworkers feel about younger workers’ skills and abilities?

Very Negatively
Negatively
Slightly Negatively
Neutral
Slightly Positively
Positively
Very Positively

Why do you think this?

Resource Manipulation Check

Based on the scenario, would you have the ability to successfully address the situation?
Not at all
Very Little
Somewhat
To a Great Extent

Instructions

In the following pages of questions we are asking you to respond as if you are actually working in the environment we described in the scenario and have experienced the event we described.

Do not answer the questions based on your own actual workplace. For example, if we ask a question about how you would respond to a coworker in the future, answer it in regard to the coworkers in the scenario, and not your actual coworkers in your real job.

So, if we asked you how you would respond to a coworker in the future, we mean a coworker in this scenario, not on your own job.

Keeping in mind the instructions that you read on the previous page, how should you respond to the remaining questions in this survey?
Behavioral Intention Measures:

How likely are you to volunteer to conduct the focus group meeting?

- 1 – Extremely unlikely
- 2 – Unlikely
- 3 – Neutral
- 4 – Likely
- 5 – Extremely likely

If you were directly asked by one of your coworkers to conduct the focus group meeting, how likely would you be to turn down the request to help?

- 1 – Extremely unlikely
- 2 – Unlikely
- 3 – Neutral
- 4 – Likely
- 5 – Extremely likely

If one of your frustrated coworkers made a rude remark toward you, how likely would you be to confront your coworker?

- 1 – Extremely unlikely
- 2 – Unlikely
- 3 – Neutral
- 4 – Likely
- 5 – Extremely likely

Relevance and Accuracy Measures
How much does the stereotype that younger workers are inexperienced describe you?
Not at all
Very Little
Somewhat
To a Great Extent

How much does it matter if members of other age groups believe this stereotype about you?
Not at all
Very Little
Somewhat
To a Great Extent
APPENDIX I: STUDY 2 YOUNGER WORKERS POSITIVE METASTEREOTYPES
Younger worker scenario Positive Metastereotype Technology

Imagine that you have been working in an office environment for a few months. Most of your coworkers are 50 years and older. Today you have been assigned to schedule and organize a meeting with colleagues to discuss a big project with a new client.

For the meeting, another colleague is joining the meeting via video chat. As your coworkers are filing into the room, you notice a small group of your coworkers having difficulties with the video conference program. You think about offering to help and remember a time that when an older coworker implied that young people are good with technology.

**High Resource:** Also, you use this video chat program regularly, and you feel fairly certain that you could identify the problem and solve it before the meeting begins.

**Low Resource:** Also, you have never used this particular video chat program, and you feel that you probably wouldn’t be able to solve the problem before the meeting begins.

**Open-ended manipulation check**
Based on the scenario, what do older workers generally think about younger workers at that workplace?

**Younger Manipulation Check:** How do you think that your older coworkers feel about younger workers’ skills and abilities?

Very Negatively  
Negatively  
Slightly Negatively  
Neutral  
Slightly Positively  
Positively  
Very Positively

Why do you think this?
Resource Manipulation Check

Based on the scenario, would you have the ability to successfully address the situation?
Not at all
Very Little
Somewhat
To a Great Extent

Instructions

In the following pages of questions we are asking you to respond as if you are actually working in the environment we described in the scenario and have experienced the event we described.

Do not answer the questions based on your own actual workplace. For example, if we ask a question about how you would respond to a coworker in the future, answer it in regard to the coworkers in the scenario, and not your actual coworkers in your real job.

So, if we asked you how you would respond to a coworker in the future, we mean a coworker in this scenario, not on your own job.

Keeping in mind the instructions that you read on the previous page, how should you respond to the remaining questions in this survey?
Behavioral Intention Measures:

How likely are you to volunteer to help with the video chat program?

- 1 – Extremely unlikely
- 2 – Unlikely
- 3 – Neutral
- 4 – Likely
- 5 – Extremely likely

If you were asked by one of your coworkers to help with the video chat program, how likely would you be to turn down the request to help?

- 1 – Extremely unlikely
- 2 – Unlikely
- 3 – Neutral
- 4 – Likely
- 5 – Extremely likely

If one of your frustrated coworkers made a rude remark toward you, how likely would you be to confront your coworker?

- 1 – Extremely unlikely
- 2 – Unlikely
- 3 – Neutral
- 4 – Likely
- 5 – Extremely likely

Relevance and Accuracy Measures

How much does the stereotype that younger workers are good with technology describe you?

- Not at all
- Very Little
- Somewhat
- To a Great Extent
How much does it matter if members of other age groups believe this about you?
Not at all
Very Little
Somewhat
To a Great Extent
APPENDIX J: QUESTIONS TO DETERMINE AFFECTIVE REACTIONS
Metastereotype Reactions

Please select one of the following options that best describes how you felt right after reading the work scenario:

A. I feel threatened and worried about confirming my coworkers’ negative expectations about my age group.
B. I feel challenged and motivated to disprove my coworkers’ negative expectations about my age group.
C. I feel boosted up and excited to show my coworkers that their positive expectations fit my age group.
D. I feel threatened and worried about not being able to live up to my coworkers’ positive expectations about my age group.
APPENDIX K: PANAS
**PANAS**

This scale consists of a number of words that describe different feelings and emotions. Read each item and indicate to what extent you feel this way right now, that is, in response to the scenario that you just read.

<table>
<thead>
<tr>
<th></th>
<th>Very Slightly or Not at all</th>
<th>A little</th>
<th>Moderately</th>
<th>Quite A Bit</th>
<th>Extremely</th>
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<tbody>
<tr>
<td>1. Interested</td>
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<td>2. Distressed</td>
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<td>3. Excited</td>
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<td>4. Upset</td>
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<td>5. Strong</td>
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<td>6. Guilty</td>
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<td>7. Scared</td>
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<td>8. Hostile</td>
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<td>9. Enthusiastic</td>
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<td>10. Proud</td>
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<td>11. Irritable</td>
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<td>12. Alert</td>
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<td>13. Ashamed</td>
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<td>14. Inspired</td>
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<td>15. Nervous</td>
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<td>16. Determined</td>
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<td>17. Attentive</td>
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<td>18. Jittery</td>
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<td>19. Active</td>
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<td>20. Afraid</td>
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APPENDIX L: CHALLENGE AND THREAT SCALES
Challenge and Threat Scales

Skinner and Brewer 2002

Intensity and frequency of state appraisals were measured on separate 6-point response scales (1 _ strongly disagree, 6 _ strongly agree)

(In the set or measures, the threat and challenge measures will be together as they are in the article)

1. I am focusing on the positive aspects of the situation. (C)
2. This situation makes me worried that I will say or do the wrong things. (T)
3. I’m thinking about what it would be like if I do very well. (C)
4. I believe that this stressful situation contains the potential for positive benefits. (C)
5. This situation makes me worried about the kind of impression I make. (T)
6. This situation makes me concerned that others will find fault with me. (T)
7. I expect that I will achieve success rather than experience failure. (C)
8. I look forward to the rewards and benefits of success. (C)
9. I think that I am too concerned with what other people think of me. (T)
10. I feel that difficulties are piling up so that I cannot overcome them. (T)
11. This situation makes me lack self confidence. (T)
12. This challenging situation motivates me to increase my efforts. (C)
13. I anticipate being successful in this situation, rather than expecting to fail. (C)
14. This situation makes me worried what other people will think of me even when I know that it doesn’t make any difference. (T)
15. This situation makes me concerned that others will not approve of me. (T)
16. I’m looking forward to this opportunity to fully test the limits of my skills and abilities. (C)
17. This situation makes me worried about what other people may be thinking about me. (T)
18. This situation makes me feel like a failure. (T)
APPENDIX M: DEMANDS-ABILITIES FIT SCALE
Demands-Abilities Fit Scale

Please respond to the following items based on the scenario that you read.

1 = Not at all
2 = Slightly
3 = Somewhat
4 = Moderately
5 = Completely

1. Based on the scenario, I believe my skills and abilities match those required by the job.
2. Based on the scenario, my job performance is hurt by a lack of expertise on the job.
3. Based on the scenario, my knowledge, skills, and abilities match the requirements of the job.
4. Based on the scenario, I possess the skills and abilities to perform this job.
APPENDIX N: EXPLORATORY CHALLENGE, THREAT, AND BOOST SCALES
CHALLENGE
The scenario made me feel challenged to prove to people at my workplace that I do not fit negative stereotypes of my age group.
The scenario made me feel motivated to show others at work that I am better than their expectations they have of me because of my age.
The scenario made me feel want to work extra hard to go above and beyond expectations people had of me because of my age.

THREAT
The scenario made me worried that people at my workplace will draw conclusions about my ability based on my age.
The scenario made me worried that my behavior will cause people in my workplace to think that stereotypes about my age group are true.
The scenario made me think some people at my workplace felt that I have less ability because of my age.
The scenario made me think some people at my workplace felt that I’m not committed to my work because of my age.
The scenario made me think some people at my workplace felt that I have less to contribute because of my age.
The scenario made me think I faced biased evaluations at my workplace due to my age.
The scenario made me feel that my career options are limited because of my age.

BOOST
The scenario made me feel good about the positive expectations people have of me because of my age.
The scenario made me feel that others’ beliefs in the positive characteristics of people my age gave me a boost.
The scenario gave me confidence lift from the positive beliefs others have about people my age.
The scenario made me think that some people at my workplace felt that I have greater ability because of my age.
The scenario made me think that some people at my workplace felt that I’m more committed to my work because of my age.
The scenario made me think that some people at my workplace felt that I have more to contribute because of my age.
APPENDIX O: EXPLORATORY OUTCOME MEASURES
**Older Worker Survey**

**CONFLICT**
In the future, I anticipate conflict with younger people at work.
In the future, I might not get along with younger people at work.
In the future, I might confront a younger person at work.

**AVOIDANCE**
In the future, I would try to avoid interacting with younger people at work.
In the future, I won’t feel like being around younger people at work.
In the future, I will try to keep to myself and away from younger coworkers at work.

**ENGAGEMENT**
In the future, I would engage in meaningful interactions with younger people at work.
In the future, I would feel energized by the interactions I had with younger people at work.
In the future, I would seek out opportunities to spend time enjoying younger coworkers at work.

**Younger Worker Survey**

**CONFLICT**
In the future, I anticipate conflict with older people at work.
In the future, I might not get along with older people at work.
In the future, I might confront an older person at work.

**AVOIDANCE**
In the future, I would try to avoid interacting with older people at work.
In the future, I won’t feel like being around older people at work.
In the future, I will try to keep to myself and away from older coworkers at work.

**ENGAGEMENT**
In the future, I would engage in meaningful interactions with older people at work.
In the future, I would feel energized by the interactions I had with older people at work.
In the future, I would seek out opportunities to spend time enjoying older coworkers at work.
APPENDIX P: OPEN-ENDED ITEMS
Open-ended items

In your own work experience, what types of negative expectations could coworkers have about your age group?

How do these negative expectations make you feel about older (Younger) workers?

In your own work experience, what types of positive expectations could coworkers have about your age group?

How do these negative expectations make you feel about older (younger) workers?
APPENDIX Q: DEMOGRAPHIC ITEMS
What is your current age?

________

How long have you been in your current job?

[ ] years  [ ] months

Which of the following statements BEST describes your workgroup?

☐ We are all close to the same age.

☐ Most people are about the same age but I am younger.

☐ Most people are about the same age but I am older.

☐ People are all different ages, and I am about average.

☐ People are all different ages, and I am on the younger end.

☐ People are all different ages, and I am on the older end.

☐ Most people are my age, but a few are older.

☐ Most people are my age, but a few are younger

Race

How would you classify yourself?

Arab

Asian/Pacific Islander

Black

Caucasian/White

Hispanic

Latino
Multiracial
Other

**What is your gender?**
Female
Male
Transgender
Other
Prefer not to say

**What is the highest level of education you have completed?**
High school or equivalent
Vocational/technical school (2 year)
Some college
Bachelor’s degree
Master’s degree
Doctoral Degree
Professional degree (MD, JD, etc.)
Other

**What is your current household income in U.S. dollars?**

____
Which of the following categories best describes your primary area of employment (regardless of your actual position)?

Homemaker
Retired
Student
Unemployed
Agriculture, Forestry, Fishing, or Hunting
Arts, Entertainment, or Recreation
Broadcasting
Education - College, University, or Adult
Education - Primary/Secondary (K-12)
Construction
Finance and Insurance
Government and Public Administration
Health Care and Social Assistance
Hotel and Food Services
Information - Services and Data
Processing
Legal Services
Manufacturing
Military
Mining
Publishing
Real Estate, Rental, or Leasing
Religious
Retail
Scientific or Technical Services
Software
Telecommunications
Transportation and Warehousing
Utilities
Wholesale
Other

Which of the following best describes your role in industry?
Upper management
Middle management
Junior management
Administrative staff
Support staff
Student
Trained professional
Skilled laborer
Consultant
Temporary employee
Researcher
Self-employed
Other

What is your Mturk ID?
________________
APPENDIX R: DEBRIEFING
Debriefing

Thank you for participating in this study. The purpose of this study was to gather information about how people react to age stereotypes in the workplace.

If you have any questions about this research study, please contact Dr. Finkelstein at LisaF@niu.edu or Elora Voyles at eloracv@gmail.com

If you should have any questions or concerns regarding your rights as a research participant, please contact the Northern Illinois University of Research Compliance (815-752-8588).