

MOOD AND SOCIAL JUDGMENTS:
THE INFLUENCE OF AFFECT ON AGE-RELATED
DIFFERENCES IN THE CORRESPONDENCE BIAS

A Thesis

Presented to

The Academic Faculty

By

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In Partial Fulfillment
Of Requirements for the Degree
Master of Science in Psychology

Georgia Institute of Technology

December 2004

MOOD AND SOCIAL JUDGMENTS:
THE INFLUENCE OF AFFECT ON AGE-RELATED
DIFFERENCES IN THE CORRESPONDENCE BIAS

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Thesis Approved October 26, 2004

ACKNOWLEDGMENT

This research was supported by National Institute on Aging grant R01 AG-07607 awarded to Fredda Blanchard-Fields. I would like to thank my committee, Dr. Fredda Blanchard-Fields, Dr. Christopher Hertzog, and Dr. Jack Feldman, for their guidance and advice. Thanks to Leonard Arthur, Jenny Tehan, Abby Heckman, Michelle Horhota, Judy Tang, Jonathan Hertzog, and everyone else in the Adult Development Lab for their assistance in collecting data and coordinating participant sessions. I would also like to thank Jamye Hickman and Richard Pak for their feedback in the computer programming involved in this study. Thank you also to Heather Byerly and my family for their encouragement.

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SUMMARY

Although age-related differences in the correspondence bias are often attributed to cognitive decline, the present study found that age-related differences in the correspondence bias were differentially influenced by the participants' mood states. Young and older participants completed an attitude-attribution task after having been induced to experience a positive, neutral, or negative mood. Whereas older adults demonstrated the correspondence bias more strongly in the negative mood condition relative to the positive mood condition, young adults exhibited the exact opposite pattern of results. Interestingly, the positive mood manipulation led older adults to be no more dispositionally biased than their younger counterparts. Further, mood and age-related differences in attributional confidence were not eliminated after controlling for individual differences in cognitive functioning.

CHAPTER 1

INTRODUCTION

Past research on social judgments has shown that there is a tendency for observers to overestimate the degree to which a given actor's behavior is caused by factors internal to the actor. Moreover, research on aging and attributional reasoning has consistently demonstrated that older adults are more prone to these dispositional biases in their causal inferences than are young adults. Although cognitive decline is often considered to be the most likely candidate as the source of age-related differences in causal attributions (for review, see Hess, 1999), other social factors have also been found to impact attributional processes. Mood is one such factor that could impact the attributional biases of young and older adults. Past research on the correspondence bias has shown that positive moods lead to more extreme dispositional biases in college-aged individuals, whereas negative moods lead to less extreme dispositional biases (Forgas, 1998). In the current study, we sought to extend past research by examining the role that mood plays in the attributions of young and older adults. More specifically, we examined the impact that mood has on age-related differences in the correspondence bias.

Correspondence Bias

A large portion of the research on attributional reasoning is devoted to exploring those factors which influence the correspondence bias. This bias emerges when an observer overestimates the degree to which an actor's behavior is caused by his or her personal characteristics while underestimating the degree to which the actor's behavior is driven by factors beyond his or her control. Research on attributional biases supports a

three-stage model for evaluating the behavior of others (Gilbert, 1998). Within this model, an observer first identifies an actor's behavior and then estimates the extent to which the actor's behavior is due to his or her dispositional characteristics and personal qualities. Because these first two steps are spontaneous and relatively automatic, observers tend to rely on dispositional factors to explain the actor's behavior. In the final stage, an observer may correct his or her initial evaluations of the actor's behavior using noticeable environmental factors that could also play a causal role in the actor's behavior. Because correcting initial dispositional attributions requires effortful processing, observers who are distracted or who are under a cognitive load exhibit an impaired capacity for correcting their initial dispositional attributions (Gilbert, Pelham, & Krull, 1988; Krull, 1993).

The attitude-attribution paradigm is one of the predominant methods used to investigate causal inferences in a social context (Jones & Harris, 1967). Participants are given an essay that either endorses or opposes a certain social issue (e.g. capital punishment). In addition, they are told that the person who wrote the essay either (a) was allowed to choose which position to take on the social issue, or (b) was specifically assigned a position on the social issue. These two conditions represent the absence or presence of a situational constraint on the target writer's behavior, respectively (Jones & Harris, 1967; Krull, 1993; Choi & Nisbett, 1998). Typically, participants in the choice condition rate the writer's "true" attitude as being correspondent with the direction of the essay that they were asked to read, and they tend to be highly confident in this attribution (Devine, 1989; Jones & Davis, 1965). When the writer's behavior is constrained, however, participants attend to this situational constraint and are thus less likely to rate

the writer's true attitude as being correspondent with the stance adopted in the essay. Moreover, the presence of the situational constraint reduces the confidence with which participants form their attributions. Failing to adequately consider the situational constraint can lead to evaluations that are based exclusively on the participant's dispositional attributions towards the writer. In practice, these dispositional biases are often referred to as the 'correspondence bias' because the participant infers that the writer's behavior is correspondent with the writer's disposition when in actuality it might not be.

Factors Influencing the Correspondence Bias

Over the past three decades, researchers have examined a number of variables that can influence the correspondence bias. More extreme dispositional biases have been found to result from a low need for cognition, a high need for closure, an individualistic cultural identity, and the inability to recognize situational constraints (Chiu, Morris, Hong, & Menon, 2000; Choi & Nisbett, 1998; Devine, 1989; Gilbert et al., 1988; Krull, 1993; Tetlock, 1985; Trope & Gaunt, 2000; Yzerbyt, Corneille, Dumont, & Hahn, 2001). Of particular relevance to the current study, mood has also been shown to influence the correspondence bias (Forgas, 1998). Individuals who were induced to experience a positive mood were found to be more susceptible to demonstrating the correspondence bias. They were also less able to recall the arguments presented by the essay writer in his or her essay. These results were taken as evidence that individuals in positive mood states engage in less effortful processing when asked to assess the writer's true attitude on the social issue addressed by the essay. On the other hand, participants in a negative mood state were less susceptible to the correspondence bias and demonstrated improved

recall of the contents of the target's essay. As a result, negative mood states were thought to lead individuals to engage in more effortful processing and to thus increase the likelihood that participants would correct their initial dispositional attributions using the situational factors that were acting to constrain the essay writer's behavior.

Unfortunately, because the research described above has only been conducted on young adult samples, the influence that mood and each of the other variables might have on the social judgments of older adults is not yet clear.

Aging and the Correspondence Bias

Prior to the few studies which have been conducted to specifically examine aging and the correspondence bias, research on age-related differences in attributional reasoning was primarily grounded in the developmental literature on causal attributions formed in the context of interpersonal problem situations. Moreover, age differences in causal attributions were often shown to stem from life span changes in the way that adults approach social interactions as they grow older. For example, past studies have demonstrated that age-related differences in dispositional biases can be mediated by individual differences in the strength of one's beliefs on certain social "hot button" issues (Blanchard-Fields, Chen, Schocke, & Hertzog, 1998; Blanchard-Fields & Hertzog, 2000). Additionally, the causal attributions of young and older adults have been shown to be differentially impacted by the social context in which causal attributions were drawn (Blanchard-Fields, 1994). More specifically, older adults were found to make more extreme dispositional attributions than young adults in the context of interpersonal situations with negative outcomes. Such age-related differences were attenuated, however, when older adults were given additional time to make their attributions (Chen

& Blanchard-Fields, 1997). After clearly demonstrating that older adults were more susceptible to dispositional biases when forming causal attributions, researchers began to explore more mainstream social psychological conceptions of attributional reasoning using paradigms that specifically addressed the correspondence bias.

As one might expect given their more extreme dispositional tendencies in the causal attribution literature, older adults were also more susceptible than young adults to the correspondence bias. In one study (Follett & Hess, 2002), participants were asked to judge a target who was instructed to respond on video to questions on a series of political issues using a procedure modified from Gilbert and Jones (1986). Some participants were told that the target was allowed to answer the questions freely (i.e., choice condition), whereas others were told that the target was not free to choose his or her responses to the questions (i.e., no-choice condition). The authors found that older adults were more likely than young adults to state that the target's actual beliefs corresponded with the viewpoints that he or she offered in the video. The authors also suggested that these age-related differences were related to variation in cognitive complexity and cognitive ability. More recent work done by Blanchard-Fields and her colleagues using the Jones and Harris attitude-attribution paradigm (1967) has also demonstrated that older adults are more susceptible to the correspondence bias than young adults (Horhota & Blanchard-Fields, 2002). In this study, however, age-related differences in the correspondence bias were not mediated by performance on a battery of cognitive tests. Despite the small differences in the two studies, both studies show that older adults are less likely than young adults to attenuate their dispositional attributions when a situational constraint is present in the context of an actor's behavior.

Age, Mood, and the Correspondence Bias

The goal of this study was to identify the impact that mood has on age-related differences in the correspondence bias. Prior research using the attitude-attribution paradigm suggests that, relative to a neutral mood state, being in a positive mood increases dispositional biases, whereas being in a negative mood reduces them (Forgas, 1998). Furthermore, mood-related differences in the correspondence bias were associated with the number of details that could be recalled from the essay presented in the attribution task. Greater recall performance was inferred to be indicative of more systematic, effortful processing of the essay's contents, whereas poor recall was associated with more heuristic processing. Interestingly, other researchers have found that mood influences central executive functioning by either positively or negatively adjusting the participant's available processing capacity (Oaksford, Morris, Grainger, & Williams, 1996; Phillips, Bull, Adams, & Fraser, 2002). One obvious question emerges from these studies: Does induced mood impact the attributions of older adults in the same way that it influences those of young adults?

To begin to answer this question, we first have to turn to literature on emotion and emotion regulation to determine whether young and older adults are capable of having similar emotional experiences. Research on age-related differences in emotion suggests that young and older adults do not differ in their subjective experience of emotion even though older adults show attenuated physiological responses to emotion (Lawton, 2001; Levenson, Carstensen, Friesen, & Ekman, 1991; Malatesta, Izard, Culver, & Nicholich, 1987; Tsai, Levenson, & Carstensen, 2000). Moreover, older adults have been found to be equally as susceptible to affect induction as young adults (Fox, Knight, & Zelinski,

1998; Phillips, Smith, & Gilhooly, 2002). When asked to recall the emotions tied to a past emotional event older adults recall their emotions as having been more positive than do young adults (Levine & Bluck, 1997). Such an emotion regulation strategy serves as further support for the contention that advancing age is related to maintained or improved emotional control (Gross, Carstensen, Pasupathi, Tsai, Skorpen, & Hsu, 1997; Lawton, Kleban, Rajagopal, & Dean, 1992; Kunzmann, Kupperbusch, & Levenson, in press). According to Carstensen's Socio-emotional Selectivity Theory, age-related differences in how one recalls emotional events are due to the evolution of our social processing goals as we age. Essentially, Carstensen maintains that as we age - or, more precisely, as we get closer and closer to death – the goals that we have for our interactions with others shift. With age, information-gathering is prioritized less, whereas maximizing positive perceptions of our own well-being receives more attention (Carstensen, Isaacowitz, & Charles, 1999). As a result, when recalling past emotional events, older adults will focus on those lessons that they have learned from their experiences rather than on the emotional turmoil that may have occurred in their past (Carstensen, Pasupathi, Mayr, & Nesselrode, 2000).

The portrayal of negative emotions in a more positive light can reduce the harmful physiological effects that accompany the stress of reliving these emotions (Gross & Levenson, 1993). Although it can be helpful in maintaining a positive sense of well-being, the suppression of negative emotions might come at a cost to one's cognitive abilities. Richards and Gross (2000) have demonstrated that suppressing an outward affective response to emotionally arousing situations can act as a cognitive load. That is, in order to actively suppress negative emotions, cognitive resources would be diverted

from one's current focus of attention. In comparison to young adults, older adults normally have a more diminished cognitive capacity (Salthouse, 1991). This would suggest that older adults have fewer cognitive resources to dedicate to emotional suppression. Interestingly, though, older adults are generally believed to be more skilled at emotion regulation than young adults. If older adults are normally more dispositionally biased than young adults, what will happen to the attributions of older adults if they come into the social judgment task carrying a negative mood? There are at least two possibilities. If older adults truly strive to maintain an affective balance, they may dedicate some of their limited cognitive resources to regulate their emotions. If this is the case, one might expect that the older adults would be even more susceptible to the correspondence bias when in a negative mood. However, given that older adults are generally believed to be more efficient at regulating their emotions than young adults, mood regulation might operate more automatically for older adults such that mood regulation is not so effortful as to influence their attributions.

One aim of the current study was to identify which of the above possibilities holds true in a social judgment situation. There is some evidence that mood can differentially affect the executive functioning of young and older adults (Phillips, Smith, & Gilhooly, 2002). For both young and older adults, positive moods led to poorer performance on a planning task. Negative moods, however, led to improved performance for young adults and impaired performance for older adults. Not only did young and older adults display opposite patterns of performance on the planning task in response to the negative mood condition, but older adults demonstrated much more improvement in their mood state immediately after the negative mood induction than did young adults. The authors

suggest that older adults in the negative mood condition were drawing attentional resources away from the planning task so that they could devote some of their energy to neutralizing their negative mood (Phillips et al., 2002). This suggestion is consistent with Carstensen's Socio-emotional Selectivity theory. That is, because older adults prioritize the maintenance of a sense of positive well being, they are willing to divert some of their cognitive resources away from other less important activities in order to return to a baseline positive mood state.

Given these results, the goal of the current study was to demonstrate that induced mood would differentially impact the attributional biases of young and older adults. Moreover, we also hoped to find evidence that young and older adults would differ in the pattern of affective responses that they provided after the negative mood induction. The current study extended past research on mood and the correspondence bias (Forgas, 1998) by including assessments of the participants' confidence in their attitude-attributions of the target. As a part of their theory of correspondent inferences, Jones and Davis (1965) specifically recommended assessing the correspondence bias using "rating scales designed to measure the strength of the attribution to the actor *and* his confidence in making the rating." They further posit that, "operationally, correspondence means ratings toward the extremes of trait dimensions which are given with confidence." More recently, it has been suggested that judgmental uncertainty is more clearly reflected by the participants' confidence ratings than by the extremity of their attributions in the attitude-attribution paradigm (Devine, 1989). To remain consistent with past research on age-related differences in the correspondence bias, confidence scales were included with the primary attitude-attribution questions of interest (Horhota & Blanchard-Fields, 2002).

Additionally, the current study extended past research on aging and attributional reasoning by examining the possible influence that working memory capacity has on age-related differences in the correspondence bias.

CHAPTER 2
HYPOTHESES

Hypotheses for Study

1. Age-Related Differences in Attributional Reasoning in the Neutral Condition

In the neutral condition, older adults will be **more** dispositionally biased than young adults. This hypothesis is consistent with previous findings (Horhota & Blanchard-Fields, 2002).

2. The Influence of Mood on Attributional Reasoning across the Life Span

Within the young adult sample and relative to the neutral condition...

Young adults in the positive mood condition will be **more** dispositionally biased, whereas young adults in the negative mood condition will be **less** dispositionally biased (Forgas, 1998).

Within the older adult sample and relative to the neutral condition...

Older adults in both the positive and negative mood conditions will be **more** dispositionally biased.

3. Age-Related Differences in Essay Recall

Within the young adult sample and relative to the neutral condition...

Young adults in the positive mood condition will be **less** able to recall the content of the attribution task's essay, whereas young adults in the negative mood condition will be **better** able to recall the content of the attribution task's essay (Forgas, 1998).

Within the older adult sample and relative to the neutral condition...

Older adults in both the positive and negative mood conditions will be *less* able to recall the content of the attribution task's essay.

4. Age-Related Differences in Emotion Regulation

Regardless of the mood condition to which they are assigned...

Young adults **will not** demonstrate a change in their self-rated mood between the affect induction and the end of the experiment (Phillips et al., 2002).

Within the older adult sample and relative to the neutral condition...

Older adults in the positive mood condition **will not** exhibit a change in their self-rated mood between the affect induction and the end of the experiment, whereas older adults in the negative mood condition **will** evince a positive gain in self-rated mood across these two measurements.

5. The Role of Working Memory Capacity in Mood-Related Differences in Attributions and Essay Recall

Within the young adult sample and regardless of the mood condition...

Working memory capacity measured prior to the mood induction will not significantly co-vary with the essay recall and attribution ratings of the young adults. Thus, differences in the attributions and essay recall of the young adults will be due to the experimental manipulation of mood.

Within the older adult sample and relative to the neutral mood condition...

Although working memory capacity measured prior to the mood induction might significantly co-vary with the essay recall and attribution ratings of the older adults in the negative mood condition, controlling for individual differences in

working memory capacity will not eliminate the effect that negative mood has on the essay recall and attribution ratings of older adults.

CHAPTER 3

METHOD

Overview

Young and older participants first completed general abilities tests and then were randomly assigned to one of three mood conditions. After undergoing a mood induction to create a positive, negative, or neutral mood, participants completed a social judgment task. Below is a description of the pilot study that was conducted to develop the materials used in the mood induction. Also described below are the measures that were used to examine cognitive and social factors during the study.

Pilot Study

Past research has successfully demonstrated that young and older adults can be induced to experience positive and negative mood states (Fox, Knight, & Zelinski, 1998; Phillips et al., 2002). Although Forgas (1998) had used a success-failure manipulation to induce positive and negative mood in young adults to study the correspondence bias, this study employed a more passive approach to inducing mood. Because short film clips have been shown to be able to temporarily alter the mood state of young and older participants, the film clip approach was adopted in this study. By favoring this approach over a success-failure manipulation, it was possible for experimenters to avoid deceiving the participants. To ensure the effectiveness of the potential materials to be used in the mood induction, participants viewed nine different film clips (four positive, two negative, and three neutral), ranging in length from 8 to 13 minutes. After each clip, participants used six bipolar 7-point rating scales to indicate the degree to which the film clip was

sad-happy, calming-arousing, uplifting-depressing, boring-exciting, amusing-serious, and aggravating-relaxing. Participants also used a 5-point rating scale (1 = not at all to 5 = extremely) to indicate the degree to which each film clip led them to feel 19 different emotions (Events and Emotions Questionnaire; Kennedy, Carstensen, & Pasupathi, 1999): anger, guilt, pride, sadness, happiness, fear, accomplishment, shame, amusement, anxiety, joy, contentment, irritation, frustration, disgust, interest, embarrassment, boredom, and excitement.

In total, 32 participants viewed the nine short film segments: 15 young adults (7 women and 8 men; age range: 19-23) and 17 older adults (8 women and 9 men; age range: 60-79). Of the nine clips, five were chosen for further testing (two positive, one negative, and two neutral films). These five films were later narrowed down to three: a film describing the development of the personal computer in the modern world (neutral condition film), a film in which a mother must choose to abandon one of her two children in a concentration camp during World War II (negative condition film), and a film in which an actor fidgets and distracts himself during a church service (positive condition film). When examining the bipolar 7-point happiness-sadness rating scale, both young and older adults reported that the positive condition film produced significantly more happiness ($M = 5.66$, $SE = 0.18$) than did the neutral condition film ($M = 4.13$, $SE = 0.07$). Additionally, the negative condition film was reported to produce significantly less happiness ($M = 1.25$, $SE = 0.17$) in both young and older adults than did the neutral condition film. Similar results were found when examining the bipolar 7-point uplifting-depressing rating scale (positive condition film $M = 2.84$, $SE = 0.20$; neutral condition film $M = 3.56$, $SE = 0.17$; negative condition film $M = 6.44$, $SE = 0.20$). Comparisons

between the positive, negative, and neutral condition films using the additional 19-item emotion inventory were consistent with the above comparisons within each age group. The three films chosen from the pilot study were those that successfully produced the intended mood and did so equally well for young and older adults.

Participants

Two hundred and forty-nine individuals were recruited from a southeastern metropolitan region for this study: 121 young adults (YA; age range: 18-30; $M = 20.57$, $SD = 1.81$) and 128 older adults (OA; 60.2% women; age range: 56-80; $M = 69.33$, $SD = 5.93$). Most of the participants were Caucasian (77.9%; African-American = 10.8%, Asian = 5.6%, and Other = 5.7%) and identified themselves as Christians (75.5%; Jewish = 4.4%, Other = 10.1%, None = 10.0%). On average, young and older adults reported having relatively the same level of education (i.e., some college). Young adults, however, rated their health as being significantly better than that of older adults ($p < .05$; 1 = poor to 5 = excellent; YA $M = 3.98$, $SE = 0.08$; OA $M = 3.54$, $SE = 0.09$). Older adults also reported that health problems were more likely to keep them from participating in activities than did the young adults ($p < .05$; 1 = not at all to 4 = a great deal; YA $M = 1.20$, $SE = 0.05$; OA $M = 1.67$, $SE = 0.07$).

After excluding those who did not meet the criteria that were necessary to be included in the final analyses of the data set, only 165 participants remained. A total of 84 participants were excluded for the following reasons: did not meet criteria of screening measures ($n = 15$), ineffective mood manipulation ($n = 26$), change in the experiment's materials ($n = 14$), failed manipulation check in the attitude-attribution task ($n = 26$), and experimenter error ($n = 3$). Elaborated explanations of these exclusions are

provided in the results and in the description of the materials used in this study. The remaining young ($n = 85$; 44.7% women; age range: 18-28; $M = 20.49$; $SD = 1.75$) and older ($n = 80$; 56.3% women; age range: 60-80; $M = 68.62$; $SD = 5.89$) participants did not differ in education level or in health from those young and older participants who were excluded. Additionally, the remaining young adults outperformed the remaining older adults on the reading span test of working memory (YA $M = 6.72$, $SD = 2.16$; OA $M = 4.18$, $SD = 2.22$; $t(163) = 7.46$, $p < .001$). The opposite pattern was found for the young and older adults' vocabulary scores, with the older adults outperforming the young adults (YA $M = 17.53$, $SD = 4.30$; OA $M = 21.64$, $SD = 7.33$; $t(163) = -4.42$, $p < .001$).

Materials

Vocabulary. The ETS Vocabulary Test (Ekstrom, French, Harman, & Dermen, 1976) was used to assess verbal ability. For each item, participants chose the best match to a target word from four possible responses. Participants were allowed four minutes to complete each 18-item half of the test. Each participant's vocabulary score is equivalent to the number of correct responses. Those participants who fail to answer at least five items correctly were screened from the study.

Working Memory. The reading span task was used to assess working memory (Engle, 2003). During this task, participants were required to read a series of sentences. For each sentence, the participant had to read the sentence aloud, indicate whether or not the sentence seemed meaningful, and then read the letter that followed each sentence aloud. Participants were asked to try to remember as many of the letters as possible for a later test. The set size ranged from two to five letters. Each participant's score is the number of sets of letters that were correctly recalled (i.e., content and order of letters

correct). Those participants who failed to correctly recall at least one set of letters were screened from the study.

Attitude-Attribution Essay Task. In most examinations of the correspondence bias, participants are randomly assigned to one of two target constraint conditions. More specifically, participants are either assigned (a) to a condition where they are told that the target was free to choose the direction of his or her essay (i.e., the “choice” condition), or (b) to a condition where they are told that the target was assigned to take a particular stance (i.e., the “no-choice” condition) when writing the essay (Jones & Harris, 1967). In this study, all of the participants were told that the target was not free to choose the position that he or she would endorse when writing the essay. Participants also were randomly assigned one of two essays to read: essay in favor of capital punishment or essay opposed to capital punishment. The instructions to the target and the essays written by the target can be found in Appendix A. These essays were equated on the length and strength of the arguments.

After reading the instructions to the target and after reading the target’s essay, participants were asked to complete a series of ratings. Among the items rated by the participants on this essay questionnaire were (1) the author’s attitude towards capital punishment (rating scale for all attitude-attributions: 1 = very much opposed to capital punishment to 4 = neither in favor nor opposed (neutral) to 7 = very much in favor of capital punishment), (2) the participant’s certainty (confidence) in the rating of the author’s attitude (1 = not at all certain to 5 = extremely certain), (3) the participant’s own attitude towards capital punishment, (4) the attitude of the “average person” towards capital punishment, (5) the position that the writer was expected to endorse (manipulation

check of the constraint on the target: 1 = in favor of capital punishment, 2 = opposed to capital punishment, 3 = neither in favor nor opposed), (6) the position endorsed by the essay (same rating scale as the attitude-attributions), and (7) the extent to which the position in the essay was well-defended (essay quality: 1 = very poorly defended to 3 = neither poorly nor well defended to 5 = very well defended).

It is important to note that participants were excluded from the study if they failed to provide the correct answer to the manipulation check of the constraint on the target. This question tests each participant's awareness of the constraint on the target's behavior. For example, if a participant was assigned to the condition in which the target was instructed to write an essay 'in favor of' capital punishment, a correct response by the participant would reflect his or her awareness of this fact (i.e., participant response: "1 = in favor of capital punishment"). Those participants who were not aware of the constraint placed on the target by the instructions had nothing upon which to base a correction of their initial dispositional attributions of the target's attitude and were thus excluded.

Essay recall. Upon completing the attitude-attribution essay task, the participants were asked to recall as much of the essay as possible. Each participant's score is equal to the number of idea fragments recalled. Participants' responses were qualitatively coded independently by two research assistants (α for YA = 94.9%; α for OA = 95.1%). As is displayed in Appendix B, each essay was divided into eight idea fragments. Participants were said to have recalled a fragment if they recalled the main point (or gist) of the fragment.

Mood Induction. Each participant was randomly assigned to one of three mood conditions: happy, neutral, or sad. Affect was induced in this study by having the participants watch a short film clip. After each film clip, a mood congruent musical piece was played to sustain the emotions that were experienced while viewing the film clip. The musical pieces (positive: Vivaldi's The Four Seasons, Spring Allegro; negative: Albinoni's Adagio; neutral: Bach's Sonata for violin Nos. 1 or 2) were selected on their ability to successfully induce affect in past research (Fox, Knight, & Zelinski, 1998; Knight, Maines, & Robinson, 2002). The film clips used in the mood induction were the three described above in the pilot study.

Mood Assessment. Mood was assessed at several key points during the study using 20 emotion adjectives from the Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988) and six additional emotion adjectives (happy, contented, amused, sad, frustrated, and disgusted) taken from the Events and Emotions Questionnaire (Kennedy, Carstensen, & Pasupathi, 1999). Participants were asked to rate the extent to which each adjective described how they were currently feeling (1 = very slightly or not at all to 5 = extremely) at four different time points: immediately prior to the mood induction (Time 1), after the mood induction and just prior to the first administration of the attitude-attribution essay task (Time 2), immediately after the attitude-attribution essay task and before the essay recall task (Time 3), and after the second administration of the attitude-attribution essay task (Time 4). In previous research, the mood state of the participants was tracked using the difference between the aggregates of the positive and negative affect adjectives (Phillips, Smith, & Gilhooly, 2002) and by using a single item sadness-happiness scale (Forgas, 1998). For this study,

one's mood state was determined by examining both the positive and negative affect aggregates separately and by examining the participants' ratings on the six other emotion adjectives. Those participants who did not display affect that was consistent with their assigned mood states were excluded from the study. The criteria used to determine these exclusions will be discussed below in the results section.

Procedure

Participants were greeted by the experimenter when they arrived to the laboratory, and they were directed to an individual testing room. Participants were run through the entire experiment one at a time. After informed consent was obtained, each participant was told that this study was part of a program of research that examined attitudes and styles of social reasoning. Participants were also told that the study consisted of three parts. In the first part, participants completed the vocabulary and reading span tasks. Participants also completed a short mouse tutorial designed to familiarize them with the functions of the computer mouse during the study. Participants next completed the first mood assessment (Time 1) at their own pace using the computer and mouse. In the second part of the experiment, each participant viewed the short film clip for the mood condition to which he or she was assigned. After the clip, participants were informed that they would be moving on to the final part of the study, and the appropriate musical piece was turned on in the background. The participants were instructed that they would first complete a second questionnaire on their emotions (Time 2 mood assessment) and that after this they would complete the attitude-attribution essay task that was mentioned in the consent form and in the study's introduction. After the essay task, participants completed a third mood assessment (Time 3). Next, participants were given a lined sheet

of paper and were asked to write down as much of the essay from the essay task as they could recall. Both young and older participants required approximately five minutes for the essay recall task. Once the participants were finished with the essay recall task, they repeated the attitude-attribution essay task (again at their own pace) and completed one last mood assessment (Time 4). Immediately after the final mood assessment, participants were given a second lined sheet of paper and were told to take a few minutes to write down those things that they might have been thinking about during the course of

Table 1. Sequence of Tasks and Experimental Manipulations

1. Informed Consent
 2. ETS Vocabulary test
 3. Reading Span Task
 4. Mouse tutorial
 5. Time 1 mood assessment
 6. Mood induction film clip shown
 7. Mood induction musical piece started
 8. Time 2 mood assessment
 9. First Attitude-Attribution Essay task
 10. Time 3 mood assessment
 11. Essay recall task
 12. Second Attitude-Attribution Essay task
 13. Time 4 mood assessment
 14. Thought-listing task
 15. Mood induction musical piece played
 16. Demographics form
 17. Participant Debriefing
-

the experiment. Finally, the background music was turned off and participants filled out a demographics questionnaire. Table 1 displays the order of tasks for each session. On average, this entire procedure required 90 minutes to complete. Participants were thoroughly debriefed after the session. Older participants received a small honorarium for their participation, and young adults were awarded educational credit to apply towards their college psychology courses.

CHAPTER 4

RESULTS

Overview

This study has a 2 (age group: young and older adults) by 2 (gender: men and women) by 3 (mood condition: neutral, positive, and negative) by 2 (essay direction: ‘in favor of’ and ‘opposed to’ capital punishment) between-subjects design. Because no main effects or interactions involving the gender or essay direction variables were found, these variables were excluded from the below analyses. Unless otherwise stated, all of the statistical tests reported below use an $\alpha = .05$ level for hypothesis testing.

Additionally, when a hypothesis involves a directional prediction, one-tailed hypothesis tests were used.

Mood Validation

Of the 249 individuals who participated in this experiment, 84 participants were excluded for those reasons described previously. As a part of these exclusions, 26 participants (12 young and 14 older adults) were excluded for not demonstrating the appropriate mood in the positive and negative mood conditions. In other words, criteria were established to identify those individuals for which the mood induction was successful in creating the experimentally desired mood state. More specifically, participants were excluded from the positive mood condition if they did not rate their happiness at a level of 3 (moderately happy) or higher during the mood assessment immediately after the mood induction (i.e., Time 2). Similarly, participants were excluded from the negative mood condition if they did not rate their happiness at a level

below 3 during the second mood assessment. Because the neutral mood condition was supposed to replicate the average mood state experienced in an experimental setting, participants were not excluded from the neutral mood condition on the basis of their affect ratings. Happiness was chosen from the 26 emotional adjectives as the key to establishing the above exclusion criteria because it was the only adjective for which the young and older participants did not differ after the mood induction within each mood condition.

Happiness Ratings. A two-way analysis of variance (ANOVA) evaluating the effects of mood condition and age group on the participants' happiness ratings immediately after the mood induction demonstrated a significant effect of mood, $F(2,159) = 88.15$. Figure 1 displays the mean happiness for young and older participants at each of the four assessment time points within each mood condition. A contrast between the neutral and positive mood conditions revealed that time 2 happiness ratings were greater in the positive condition ($\underline{M} = 3.73$, $\underline{SD} = 0.67$) than in the neutral ($\underline{M} = 3.22$, $\underline{SD} = 1.16$), $t(118) = 2.91$. Additionally, a contrast between the neutral and negative mood conditions revealed that time 2 happiness ratings were lower in the negative condition ($\underline{M} = 1.51$, $\underline{SD} = 0.51$) than in the neutral, $t(107) = 9.26$. These findings provide evidence that the happiness ratings of the three experimental mood conditions differed at time 2.

Within the neutral condition, happiness ratings did not demonstrate a significant change between the pre- and post- mood induction assessments (Time 1: $\underline{M} = 3.41$, $\underline{SD} = 0.97$; Time 2: $\underline{M} = 3.22$, $\underline{SD} = 1.16$). Within the positive condition, the happiness ratings at time 2 ($\underline{M} = 3.73$, $\underline{SD} = 0.67$) were significantly greater than those at time 1 ($\underline{M} = 3.55$,

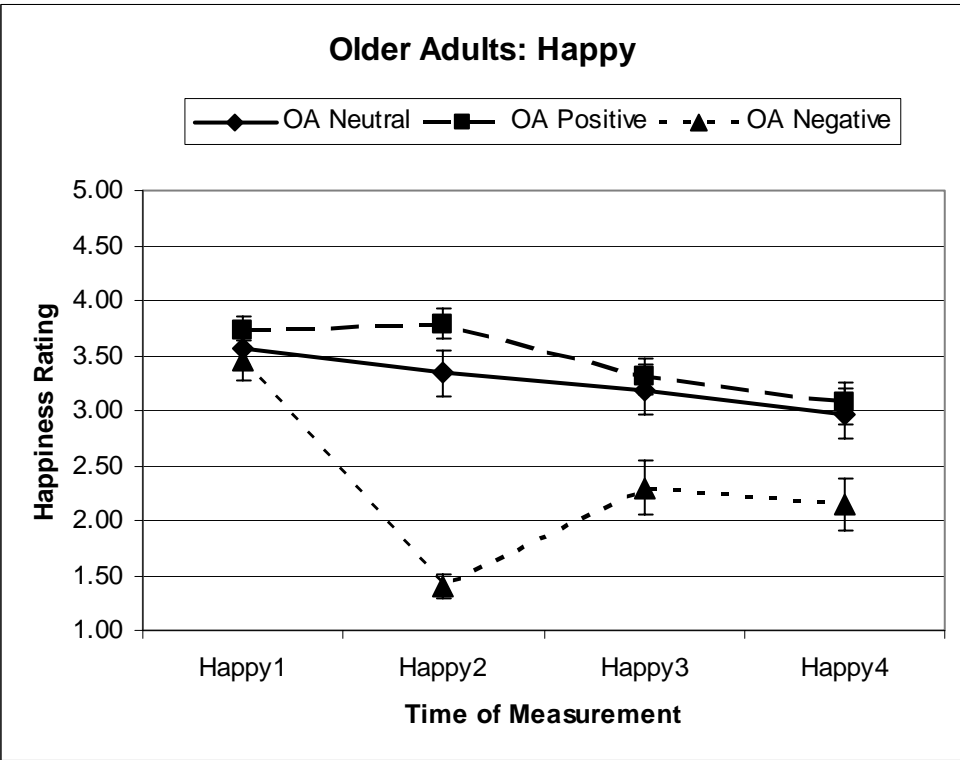
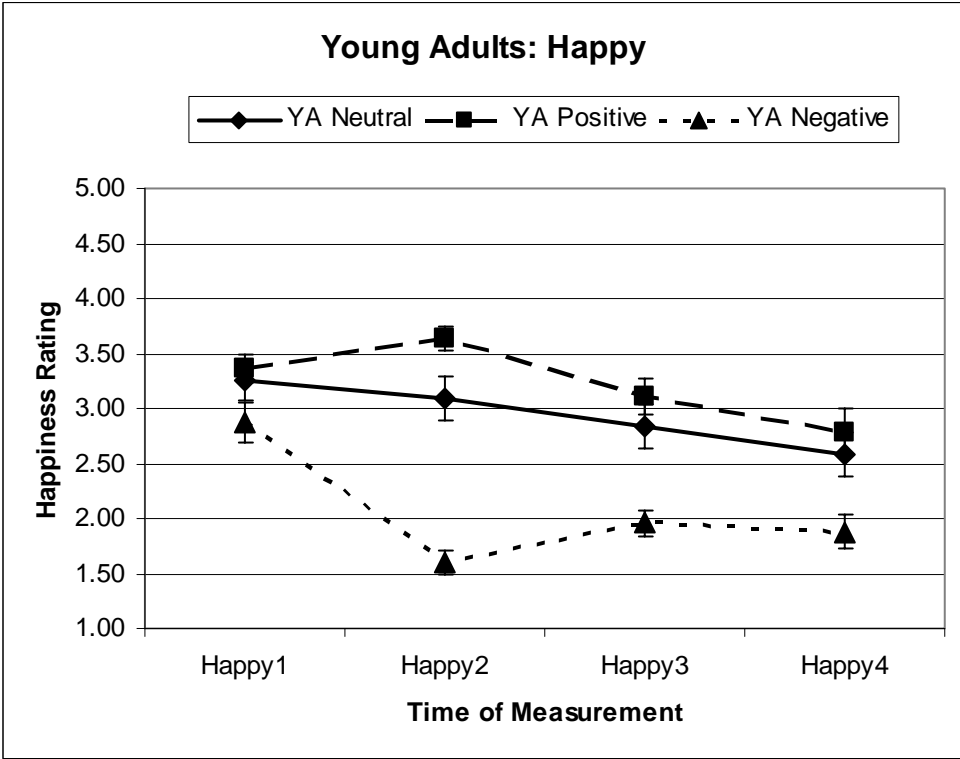


Figure 1. Happiness Ratings of Young and Older Adults Separated by Mood Condition.

$SD = 0.71$), $t(55) = 2.01$. Within the negative condition, the happiness ratings at time 2 ($M = 1.51$, $SD = 0.51$) were significantly lower than those at time 1 ($M = 3.13$, $SD = 0.89$), $t(44) = 10.36$. These findings provide evidence that the mood induction led to the desired experimental changes in affect within each mood condition.

Sadness Ratings. Figure 2 displays the mean sadness ratings for young and older participants at each of the four assessment time points within each mood condition. A two-way ANOVA evaluating the effects of mood condition and age group on the participants' time 2 sadness ratings revealed significant main effects of age and mood qualified by a mood by age group interaction, $F(2,159) = 6.60$. Additional contrasts revealed that this interaction was driven by higher time 2 sadness ratings of those individuals in the negative condition (neutral mood condition: $M = 1.14$, $SE = 0.04$; positive mood condition: $M = 1.11$, $SE = 0.04$; negative mood condition: $M = 3.02$, $SE = 0.20$). Within the negative mood condition, older adults ($M = 3.50$, $SD = 1.40$) were significantly more sad at time 2 than the young adults ($M = 2.64$, $SD = 1.15$), $t(43) = 2.27$. These findings provide additional evidence for the effectiveness of the mood induction, especially for those participants in the negative mood condition.

Within the neutral condition, neither young nor older adults demonstrated significant change in their sadness ratings from immediately before to immediately after the mood induction. Young adults assigned to the positive condition did demonstrate a significant decline in sadness from time 1 to time 2, $t(27) = 2.71$, but the mean sadness rating never rose above 1.50 (on a scale from 1 to 5). Older adults in the positive condition did not rate their sadness differently between times 1 and 2. Within the negative condition, both young and older adults demonstrated significantly higher

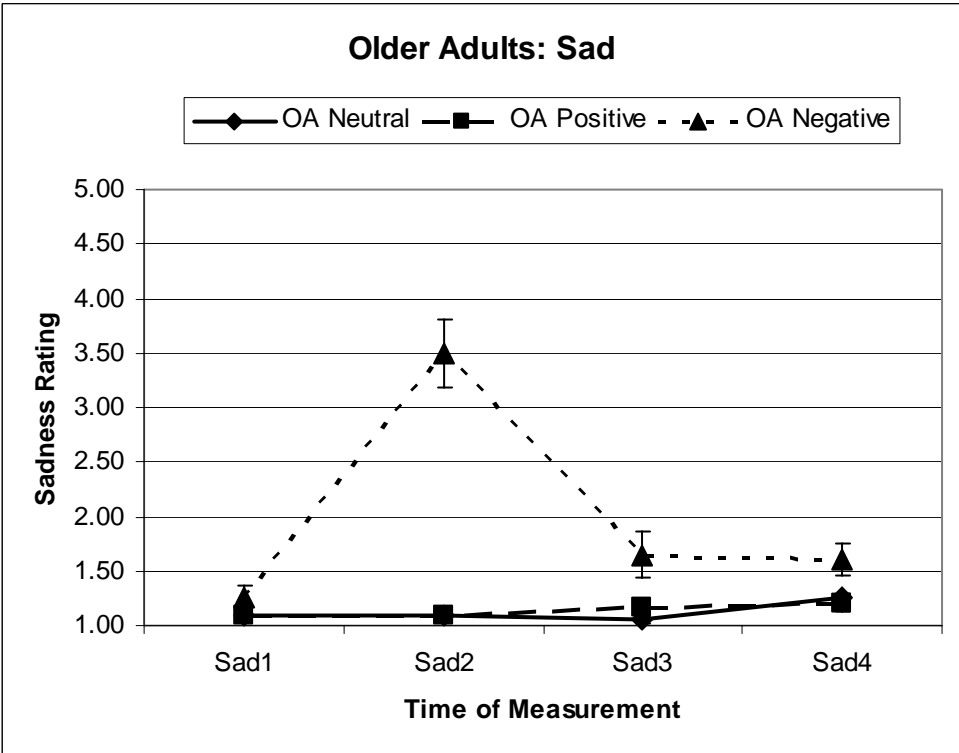
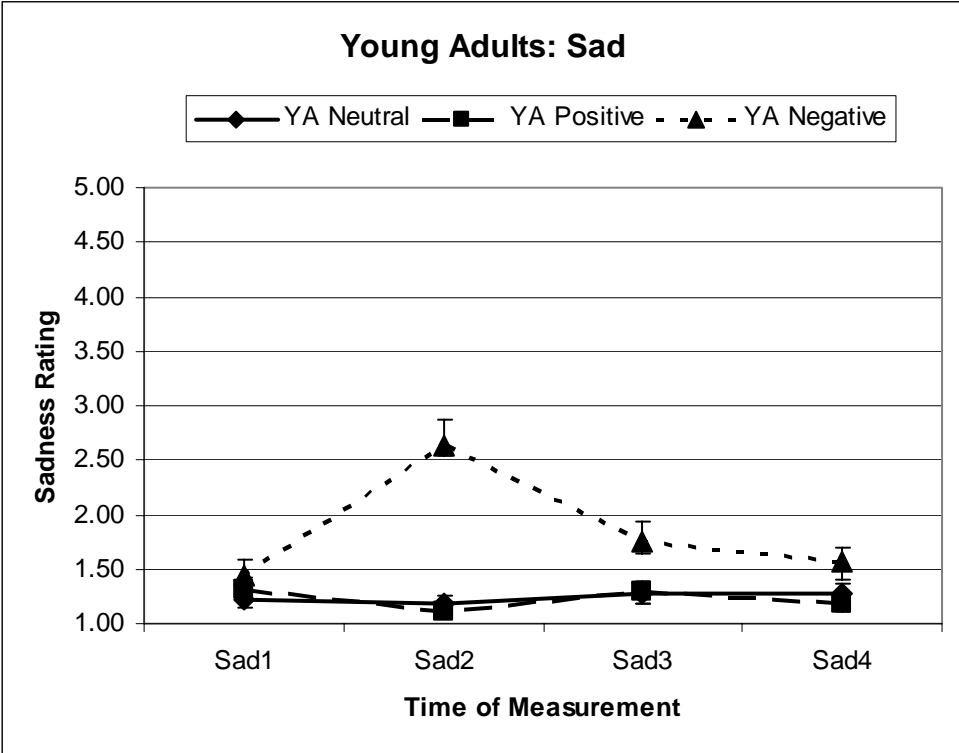


Figure 2. Sadness Ratings of Young and Older Adults Separated by Mood Condition.

sadness ratings between time 1 and time 2, $t(24) = 5.56$ and $t(19) = 6.49$, respectively (young Time 1: $M = 1.44$, $SD = 0.77$; young Time 2: $M = 2.64$, $SD = 1.15$; older Time 1: $M = 1.25$, $SD = 0.55$; older Time 2: $M = 3.50$, $SD = 1.40$).

Summary of Affect Ratings. As was demonstrated by both the happiness and sadness ratings of the young and older adults above, the mood induction technique used in this experiment was successful in effectively manipulating the participants' mood. Relative to the ratings of those participants in the neutral mood condition, young and older adults in the positive mood condition exhibited higher happiness and lower sadness ratings immediately after viewing the positive film clip. Also relative to the ratings of those participants in the neutral mood condition, young and older adults in the negative mood condition exhibited lower happiness and higher sadness ratings immediately after the viewing the negative film clip.

Attitude-Attribution Task

As has been done in previous research, attitude-attribution ratings of the target's attitude towards capital punishment were recoded to express the extremity of the participants' attributions (Horhota & Blanchard-Fields, 2002). To do this, four (i.e., the neutral anchor) was subtracted from each attitude-attribution rating, and the absolute value of this figure was then calculated (e.g., attitude-attribution = 6; extremity score = $|6 - 4| = 2$). For the resulting extremity scores, lower scores indicate neutral or less biased ratings, whereas higher (or extreme) scores signal biased attributions. The results of this study did not change when the attitude-attribution ratings were recoded using a 7-point scale which was similar to the original ratings but which instead reflected a rating of the degree to which the target's beliefs correspond with the assigned essay position (i.e., 1 =

target's beliefs are in the completely opposite direction as the assigned essay position to 7
= target's beliefs are completely correspondent with the assigned essay position).

In addition to the attitude-attribution extremity ratings, the participants' ratings of their confidence in their attitude-attributions were also examined. Because Forgas's 1998 study on mood and the correspondence bias did not include such confidence ratings, no specific hypotheses were made regarding the participants' confidence ratings. Past research on attributional reasoning in young adults suggests that the patterns of results found with confidence ratings should mirror those which are found for the attitude-attributions (Devine, 1989). More specifically, experimental manipulations that lead to less extreme attributions should lead to reduced confidence, and manipulations that lead to more extreme attributions should lead to increased confidence. Assessing the participants' confidence ratings is an important part of investigating the correspondence bias. Given the strong demand on participants to consider the essay to be diagnostic of the target's attitude, it comes as no surprise that the correspondence bias emerges even when the target's behavior is dictated by external factors. Consequently, extreme attitude-attributions that are made with reduced confidence may also be indicative of less correspondent inferences on the part of the participant (Miller et al., 1984), and they are interpreted as such in the current study. Extremity scores and confidence ratings are displayed in Figures 3 and 4.

Results for Hypotheses

Hypothesis #1 – Age-Related Differences in the Correspondence Bias. The goal of hypothesis #1 was to replicate the findings of past research on age-related differences in the correspondence bias by demonstrating that older adults were more extreme in their

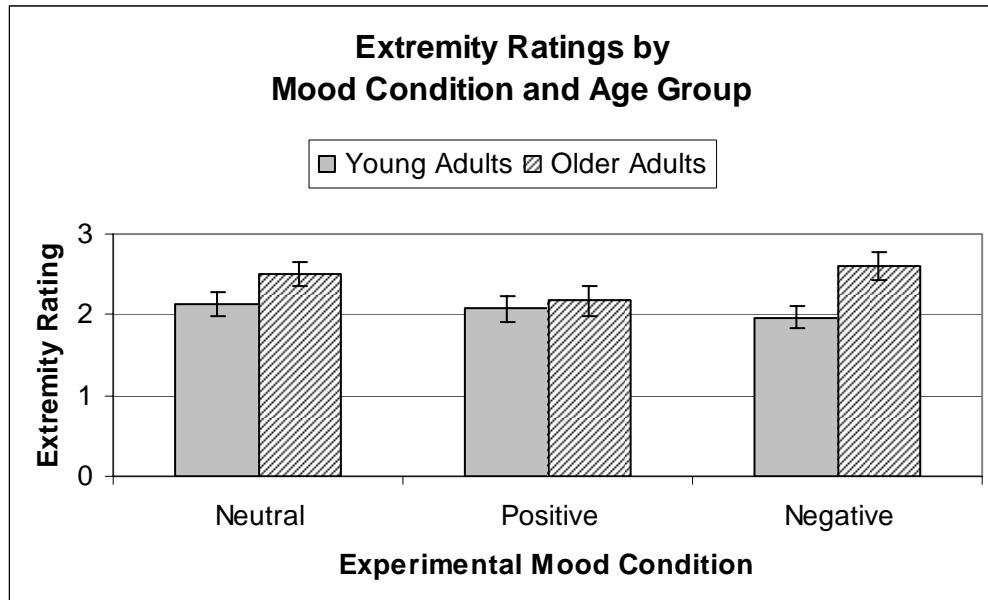


Figure 3. Attitude-Attribution Extremity Ratings for Young and Older Adults by Mood Condition.

attributions than young adults (Horhota & Blanchard-Fields, 2002). In order to test this hypothesis, the extremity scores of young and older adults in the neutral mood condition were compared. This t-test confirmed our predictions by showing that the older adults' ratings of the target's attitude ($\underline{M} = 2.50$, $\underline{SD} = 0.80$) were significantly more extreme than the ratings of the young adults ($\underline{M} = 2.13$, $\underline{SD} = 0.87$), $t(62) = 1.79$. In addition to the t-test comparing the extremity scores of young and older adults in the neutral mood condition, a second t-test was conducted to examine age-related differences in their confidence ratings. Based on past research, we were expecting older adults to be more confident in their attributions than young adults. Again our predictions were confirmed. Older adults in the neutral mood condition ($\underline{M} = 3.53$, $\underline{SD} = 1.34$) were more confident than the neutral young adults ($\underline{M} = 2.91$, $\underline{SD} = 0.96$), $t(62) = 2.14$.

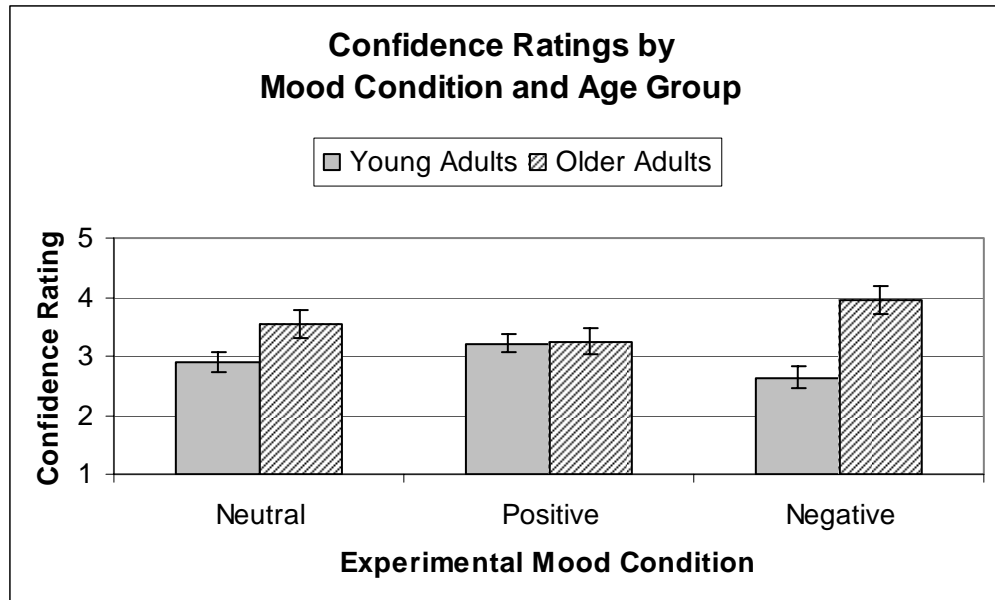


Figure 4. Confidence Ratings for Young and Older Adults by Mood Condition

Hypothesis #1 – Summary. Overall, our results for hypothesis #1 were consistent with past research on age-related differences in the correspondence bias (Horhota & Blanchard-Fields, 2002). Older adults were more susceptible to the correspondence bias than young adults.

Hypothesis #2 – Mood’s Influence on Attributions. For hypothesis #2, it was predicted that the mood induction would differentially impact the extremity scores of young and older adults. In order to test hypothesis #2, a series of planned comparisons were conducted (1) within each age group between the mood conditions, and (2) within each mood condition between the age groups.

The comparisons within each age group between the mood conditions will be described first. These comparisons contrasted the extremity scores of those participants in the neutral mood condition (a) with those in the positive mood condition, and (b) with those in the negative mood condition. Within each age group, none of the planned

comparisons demonstrated significant effects. Moreover, the dispositional attributions of young adults specifically did not display the mood-related effects found in past research on mood and the correspondence bias (Forgas, 1998). Consequently, hypothesis #2 was not supported by the young adults' attitude-attribution data.

Given that past research has demonstrated that positive and negative mood states can have entirely opposite effects on the attributions of young adult participants (Forgas, 1998), additional comparisons were conducted between these extreme mood conditions. This time, for each age group, the attitude-attribution extremity ratings of those in the positive and negative mood conditions were compared. Although the extremity scores of young adults in the positive and negative mood conditions did not differ (young positive: $M = 2.07$, $SE = 0.17$; young negative: $M = 1.96$, $SE = 0.14$), there was a trend for the older adults in the positive mood condition ($M = 2.18$, $SE = 0.19$) to rate the target's attitude as less extreme than those older adults in the negative mood condition ($M = 2.60$, $SE = 0.17$), $t(46) = 1.61$, $p = .11$. Although not originally predicted in hypothesis #2, older adults provided more extreme attributions in the negative mood condition than in the positive mood condition.

Now that we have explored mood's impact on attributions *within each age group*, we can turn to describing the impact that age had on attributions *within each mood condition*. Although the age group by mood condition interaction was not significant in the omnibus ANOVA conducted above, we were curious to see if the main effect of age on the extremity scores held within each mood condition. In order to examine age-related differences in the correspondence bias within each mood condition, t-tests were conducted to compare the extremity scores of young and older adults in the neutral,

positive, and negative mood conditions. As described for hypothesis #1, older adults in the neutral mood condition provided more extreme attributions than young adults. In the positive mood condition, young and older adults did not differ in the extremity of their attribution ratings (young: $\underline{M} = 2.07$, $\underline{SD} = 0.90$; older: $\underline{M} = 2.18$, $\underline{SD} = 0.98$), $t(54) = 0.43$. In the negative mood condition, older adults ($\underline{M} = 2.60$, $\underline{SD} = 0.75$) again were more extreme in their attributions than were the young adults ($\underline{M} = 1.96$, $\underline{SD} = 0.68$), $t(43) = 3.00$. Although older adults exhibited more extreme attributions than young adults in the neutral and negative mood conditions, young and older adults in the positive mood condition did not differ in the degree to which they were susceptible to the correspondence bias. Interestingly, the positive mood induction ameliorated age-related differences in the correspondence bias for older adults.

Hypothesis #2 – Mood’s Influence on Confidence Ratings. Although no predictions were made with respect to the participants’ confidence ratings in hypothesis #2, one would ultimately expect the participants’ confidence ratings here to be influenced in a manner similar to the attitude-attributions of the young adults in Forgas’s study (1998). More specifically, relative to the neutral mood, the positive mood condition should lead young adults to be more confident and the negative mood condition should lead young adults to be less confident. In light of our results thus far for older adults, relative to the neutral mood condition, the positive mood condition should lead older adults to be less confident and the negative mood condition should lead older adults to be more confident. Because we did not specifically predict the above effects in hypothesis #2, a preliminary ANOVA was conducted to examine the influence that age group and mood condition had on confidence ratings. This test revealed that a significant effect of

age group, $F(1,159) = 15.38$, was qualified by an age group by mood interaction, $F(2,159) = 4.46$. Although older adults ($M = 3.54$, $SD = 1.22$) were generally more confident than young adults ($M = 2.93$, $SD = 0.92$), this age-related difference varied by mood condition. Contrasts were conducted to examine (a) mood-related differences within each age group, and (b) age-related differences within each mood condition.

We began our decomposition of the age group by mood condition interaction by conducting contrasts to investigate the impact of mood on confidence within each age group. Because comparisons of each the positive and negative mood conditions with the neutral mood condition did not yield any significant results, additional within-age group comparisons were conducted between the positive and negative mood conditions. Interestingly, young and older adults exhibited exactly the opposite patterns of means in the comparisons. Whereas young adults in the positive mood condition ($M = 3.21$, $SD = 0.79$) were more confident in their attributions than those in the negative mood condition ($M = 2.64$, $SD = 0.95$), $t(51) = 2.40$, older adults in the positive mood condition ($M = 3.25$, $SD = 1.11$) were less confident in their attributions than those in the negative mood condition ($M = 3.95$, $SD = 1.10$), $t(46) = 2.16$. These results suggest that induced positive and negative moods had the opposite effect on the confidence ratings of young and older adults. Again, this interpretation of the results discounts the lack of significant differences when comparing the confidence ratings of each the positive and negative mood conditions to the neutral mood condition.

Contrasts were then conducted within each mood condition to compare the confidence ratings of young and older adults. In the neutral mood condition, older adults ($M = 3.53$, $SD = 1.34$) were more confident than young adults ($M = 2.91$, $SD = 0.96$),

$t(62) = 2.14$. This age-related difference was amplified in the negative mood condition in which older adults ($M = 3.95$, $SD = 1.10$) were again more confident than their younger counterparts ($M = 2.64$, $SD = 0.95$), $t(43) = 4.28$. In the positive mood condition, the effect of age disappears; young and older adults demonstrated equivalent confidence ratings (young: $M = 3.21$, $SD = 0.79$; older: $M = 3.25$, $SD = 1.11$). As was the case with the extremity scores, age-related differences emerged when comparing the confidence of young and older adults in the neutral and negative mood conditions, but, no age-related differences emerged in the positive mood condition.

Hypothesis #2 – Summary. Although the attributional data does not support a clear interaction between age group and mood condition, a more specific investigation of age-related differences within each mood condition did uncover an interesting finding. Although age-related differences appeared in the extremity scores of participants in the negative and neutral mood conditions, they did not appear in the extremity scores of those in the positive mood condition.

Inasmuch as the participants' confidence ratings can also be thought of as an indicator of one's susceptibility to the correspondence bias (Devine, 1989), a clear pattern of findings emerged. The results for the confidence ratings are consistent with the hypothesis that mood differentially influenced the susceptibility of young and older adults to the correspondence bias. Young adults in the positive mood condition believed more strongly than those young adults in the negative mood condition that their correspondent assessment of the target's beliefs was accurate. On the other hand, older adults in the positive mood condition believed less strongly than those older adults in the

negative mood condition that their correspondent assessment of the target's beliefs was accurate.

Hypothesis #3 – Mood's Influence on Essay Recall. For hypothesis #3, it was predicted that the mood induction would differentially impact the amount of the essay that young and older adults would recall. Based on previous findings, we predicted that positive moods would lead young adults to more heuristically examine the essay and the instructions to the target. As a result, young adults in the positive mood condition were expected to recall less of the essay than young adults in the neutral condition. On the other hand, negative moods were expected to lead young adults to engage in more effortful processing of the essay and the instructions to the author. Consequently, we expected young adults in the negative mood condition to recall more than young adults in the neutral mood condition. For the older adult sample, we were expecting both the positive and negative mood conditions to lead older adults to less carefully process the instructions to the target and the contents of the essay. In order to examine hypothesis #3, an ANOVA was conducted to examine the effect that age group and mood condition had on essay recall. Because preliminary analyses identified that baseline (pre-mood induction) working memory performance marginally differed between the positive and negative mood conditions, reading span performance was included as a covariate in the ANOVA. An effect of age group was the only significant effect that emerged; young adults ($M = 4.87$, $SD = 0.13$) recalled more of the essay than older adults ($M = 3.65$, $SD = 0.18$), $F(1,158) = 14.96$. Additionally, reading span was not a significant covariate of essay recall performance.

Hypothesis #3-Summary. Given the above, the results of this study did not support our predictions for hypothesis #3. Analyses of the young adults' essay recall performance did not replicate findings from past research on the influence of mood on the correspondence bias (Forgas, 1998). In fact, mood did not impact the recall performance of young and older adults in any way.

Hypothesis #4 – Within Age Group Change in Affect Ratings over Time. This hypothesis predicted that young adult participants would not demonstrate a significant change in their affect after the mood induction. Older adults were, however, hypothesized to display a significant change in their affect after the mood induction. More specifically, the affect of older adults in the negative condition was hypothesized to change more than the older adults in the positive and neutral mood conditions. Within each age group, a mixed model ANOVA was conducted to examine the impact of mood condition and time of mood assessment on happiness ratings. Mood condition was entered as a between-subjects factor, and time of assessment was entered as a within-subjects factor with two levels (Time 2 and Time 3).

For the young adults, a main effect of mood condition, $F(2,82) = 30.54$, was qualified by an interaction between mood condition and time of assessment, $F(2,82) = 10.06$. Paired-samples t-tests were conducted to identify the source of this interaction. The happiness ratings of young adults in the neutral mood condition did not change between time 2 ($M = 3.09$, $SD = 1.12$) and time 3 ($M = 2.84$, $SD = 1.10$). In the positive mood condition, the happiness ratings of young adults declined between time 2 ($M = 3.64$, $SD = 0.56$) and time 3 ($M = 3.11$, $SD = 0.83$), $t(27) = 3.81$. The happiness ratings of young adults in the negative condition improved between time 2 ($M = 1.60$, $SD =$

0.50) and time 3 ($M = 1.96$, $SD = 0.61$), $t(24) = 2.82$. These results do not support hypothesis #4; young adults *did* experience some change in mood after the mood induction.

For the older adults, a main effect of mood condition, $F(2,77) = 23.91$, was qualified by an expected interaction between mood condition and time of assessment, $F(2,77) = 11.68$. Once again, paired-samples t-tests were conducted to identify the source of this interaction. As expected, the happiness ratings of older adults in the neutral mood condition did not change between time 2 ($M = 3.34$, $SD = 1.21$) and time 3 ($M = 3.19$, $SD = 1.26$). Unexpectedly, in the positive mood condition, the happiness ratings of older adults declined between time 2 ($M = 3.82$, $SD = 0.77$) and time 3 ($M = 3.32$, $SD = 0.95$), $t(27) = 2.75$. As was expected, the happiness ratings of older adults in the negative mood condition were greater at time 3 ($M = 2.30$, $SD = 1.08$) than at time 2 ($M = 1.40$, $SD = 0.50$), $t(19) = 3.94$. In summary, unexpectedly young and older adults displayed the same pattern of change in their happiness ratings between time 2 and time 3. The happiness ratings of participants in the positive mood condition declined after the mood induction, whereas the happiness ratings of the participants in the negative mood condition increased. In the neutral mood condition, neither age group exhibited change in their mood after the mood induction.

When the participants' time 2 and time 3 sadness ratings were examined, the only noticeable change occurred in the negative mood condition for both age groups. Both young and older adults demonstrated higher sadness ratings at time 2 than at time 3, $t(24) = 5.63$ and $t(19) = 5.53$, respectively (young sad time 2: $M = 2.64$, $SD = 1.15$; young sad

time 3: $\underline{M} = 1.76$, $\underline{SD} = 0.83$; older sad time 2: $\underline{M} = 3.50$, $\underline{SD} = 1.40$; older sad time 3: $\underline{M} = 1.65$, $\underline{SD} = 0.93$).

Hypothesis #4 – Between Age Group Change in Affect over Time. Contrary to our expectations, both young and older adults demonstrated some change in mood between time 2 and time 3. Consequently, two additional mixed model ANOVAs were conducted to determine if there were age-related differences in the patterns of the happiness and sadness ratings between time 2 and time 3. To assess potential age-related differences in change in these affect ratings, age group was added as a second between-subjects factor to the mixed model ANOVAs conducted earlier. The mixed model ANOVA for the happiness ratings is described first, followed by that for the sadness ratings.

For the happiness ratings, a main effect of mood condition, $\underline{F}(2,159) = 53.65$, was qualified by an interaction between mood condition and time of assessment, $\underline{F}(2,159) = 21.91$. No effects involving age group emerged. That is, young and older adults demonstrated the same pattern of change in happiness ratings between time 2 and time 3 within each mood condition.

For the sadness ratings, significant main effects of mood condition, $\underline{F}(2,159) = 74.73$, and time of assessment, $\underline{F}(1,159) = 58.58$, were qualified by a three-way interaction between age group, mood condition, and time of assessment, $\underline{F}(2,159) = 6.63$. Ultimately, the three-way interaction emerged because of the sadness ratings of those participants in the negative mood condition. The sadness ratings for these individuals were higher at time 2 and time 3 than for those individuals in the positive and neutral conditions. Moreover, young and older adults in the negative condition did not

demonstrate equivalent change in sadness between times 2 and time 3. To specifically target the time 2 and time 3 sadness ratings of the participants in the negative mood condition, a mixed model ANOVA was conducted to determine the effects of age group and time of assessment on these ratings. The analysis yielded a significant interaction between age group and time of assessment, $F(1,43) = 7.86$. Older adults ($M = 3.50$, $SE = 0.31$) experienced significantly more sadness than did young adults ($M = 2.64$, $SE = 0.23$) at time 2, but young adults ($M = 1.76$, $SE = 0.17$) and older adults ($M = 1.65$, $SE = 0.21$) did not differ in their sadness at time 3. Furthermore, older adults experienced a larger improvement in mood between time 2 and time 3.

Hypothesis #4 – Summary. The results described above partially support the predictions that were made for this hypothesis. Unexpectedly, young adults demonstrated change in both their happiness and sadness ratings between times 2 and 3. Also unexpectedly, young and older adults demonstrated exactly the same pattern of change in happiness between time 2 and time 3. Immediately after the negative mood induction, young and older adults both started to improve in their happiness ratings. After the positive mood induction (i.e., between time 2 and time 3), however, both young and older adults started to decline in happiness. Although young and older adults also unexpectedly demonstrated a similar pattern of change in sadness ratings in the negative mood condition, the sadness ratings of older adults did lessen more than those of young adults. This difference was accounted for by the older adults' higher sadness ratings in response to the negative mood induction (at time 2) relative to the young adults' sadness ratings.

Hypothesis #5 – Mood-Related Differences in Attributions and Confidence

Controlling for Baseline Cognitive Performance. For hypothesis #5, we predicted that controlling for individual differences in baseline working memory capacity would not eliminate mood-related differences in essay recall performance or in attitude-attribution extremity scores. Because essay recall and the attitude-attribution extremity scores were not found to vary by mood condition as originally specified in hypothesis #2 for either age group, direct tests of hypothesis #5 could not be carried out. Instead, ANOVAs were conducted for each age group to examine the impact of mood condition on the participants' confidence in their ratings of the target's attitude towards capital punishment. Again, we would expect that the same predictions that were made for the attitude-attributions would hold for the participants' confidence ratings. In other words, for young adults, mood-related differences in confidence should not be eliminated by controlling for baseline working memory performance. For older adults, although working memory capacity could be a significant covariate of attributional confidence, mood-related differences in confidence should remain after controlling for individual differences in baseline working memory performance.

For these analyses, only the positive and negative conditions were included as levels of the between-subjects mood condition factor. Additionally, reading span performance was used as a covariate. For young adults, individuals in the positive mood condition were more confident than those in the negative mood condition, $F(1,51) = 5.77$. This main effect remained significant, $F(1,50) = 4.70$, after reading span performance was added as a covariate. Reading span was not a significant covariate of confidence for the young adults. For older adults, individuals in the negative mood

condition were more confident than those in the positive mood condition, $F(1,46) = 4.68$. This main effect remained significant, $F(1,45) = 4.66$, when reading span performance was included as a covariate. Reading span was itself a significant covariate of confidence for older adults in the positive and negative mood conditions ($r_{\text{confidence,Rspan}} = -0.33$, $p < .05$.)

Given the findings associated with hypothesis #1, we were also curious to see if age-related differences in confidence for participants in the neutral condition remained after controlling for individual differences in baseline working memory performance. Adding baseline working memory performance as a covariate to an ANOVA examining age-related differences in attributional confidence did not change the outcome of the analyses; a strong age-related effect remained after controlling for individual differences in baseline working memory performance. Reading span performance was not a significant covariate. Additionally, the significant interaction between mood condition and age-group for the participants' attributional confidence that was described with hypothesis #2 remained significant after controlling for individual differences in baseline working memory capacity. Here again, working memory performance was not a significant covariate of participant confidence.

Hypothesis #5 – Summary. Controlling for individual differences in baseline cognitive functioning did not eliminate mood- and age-related differences in the participants' confidence in their attributions.

Additional analyses

Attitude-Attribution Task. When examining within-subject differences in the extremity scores and in the confidence ratings between the first and second administration of the attitude-attribution essay task, only young adults in the negative mood condition demonstrated significant time of assessment effects. More specifically, young adults in the negative mood condition had lower extremity ratings in the first essay task ($M = 1.96$, $SD = 0.68$) than in the second essay task ($M = 2.24$, $SD = 0.83$), $t(24) = 2.06$. Young adults in the negative mood condition also had lower confidence ratings in the first essay task ($M = 2.64$, $SD = 0.95$) than in the second essay task ($M = 3.08$, $SD = 1.15$), $t(24) = 2.68$. Finally, neither the participants' own attitude towards capital punishment nor the participant's assessment of the quality of the target's essay accounted for mood or age-related differences in the attitude-attribution extremity scores or confidence ratings. For older adults, however, the more the target's essay conflicted with the participant's own beliefs on capital punishment, the greater the essay recall performance ($r = -.29$, $p < .01$).

Emotional reactivity: Affect ratings between time 1 and time 2. Although past research suggests that young and older adults do not differ in their subjective ratings of emotion, more recent studies have found evidence for age-related disparity in such ratings. More specifically, when older adults are exposed to films which present age-relevant themes (e.g., loss of a loved one, death and dying, life-threatening disease), they tend to provide greater subjective ratings of sadness than younger adults who are exposed to the same films (Kunzmann & Gruhn, in press). In the current study, participants in the negative mood condition viewed a film segment which portrayed a mother who was

forced to abandon one of her two children in a Nazi concentration camp. The contents of this negative film were associated with the loss of a family member and with World War II. Relative to the young adults sampled for this study, the events portrayed in the film may have had more of a personal impact on the older adults participating in this study. Consequently, a series of analyses were conducted to examine age-related differences in the participants' emotional reactivity to the film shown in the negative mood condition.

Whereas young ($M = 1.44$; $SD = 0.77$) and older ($M = 1.25$; $SD = 0.55$) adults in the negative mood condition did not differ in their baseline (i.e., time 1) ratings of sadness, $t(43) = 0.93$ ($p > 0.35$), older adults ($M = 3.50$, $SD = 1.40$) displayed higher levels of sadness after viewing the negative film than did the young adults ($M = 2.64$, $SD = 1.15$), $t(43) = 2.27$. A mixed model ANOVA conducted on the sadness ratings of participants in the negative mood condition using age group as a between-subjects variable and time of assessment as a within-subjects variable yielded a significant main effect of time of assessment, $F(1,43) = 77.11$. This main effect was qualified by a significant time of assessment by age group interaction, $F(1,43) = 7.14$. Although the negative mood induction increased sadness above baseline for both the young and older adults, the older adults displayed a significantly heightened level of sadness. Despite the emergence of age-related differences in the subjective ratings of the participants' induced sadness, negative reactivity itself, as assessed using either the time 2 sadness rating or a time 1 to time 2 difference score, was not systematically correlated with the participants' attitude-attributions or confidence ratings.

CHAPTER 5

DISCUSSION

Age-Related Differences in the Correspondence Bias

As has been established in many studies conducted by Blanchard-Fields and Horhota, older adults in the current study were more susceptible to the correspondence bias than young adults (Blanchard-Fields, Chen, Horhota, & Wang, 2004; Blanchard-Fields & Horhota, 2004; Horhota & Blanchard-Fields, 2002). Older adults demonstrated both more extreme attitude-attributions and higher confidence in these attributions than young adults in the neutral mood condition. Although the older adults were more biased in their attributions than the young adults, both young and older adults were aware of the situational constraint underlying the essay writer's actions. Provided that both young and older participants use the situational constraint to correct the dispositional attributions which they form in response to the contents of the essay, it is possible that the situational constraint is not as accessible to older adults at the time of the attitude-attribution.

Mood and Age-Related Differences in Attitude-Attributions

Interestingly, within the three different mood conditions, this pattern of age-differences did not always hold. In the negative mood condition, older adults were much more extreme in their attributions than the young adults. Conversely, in the positive mood condition, young and older adults did not differ in the extremity of their attributions. However, because we were unable to replicate previous research on mood's influence on the attitude-attributions of young adults, it is impossible to discuss the possible factors that might be driving age-related differences in the correspondence bias

strictly in the context of the participants' attitude-attribution data. Originally, we had predicted that the mood would influence the correspondence bias of young adults in the same way that it had in past research (Forgas, 1998). That is, relative to the neutral mood condition, we expected positive moods to lead to more extreme attributions and negative moods to lead to less extreme attributions in young adults. Despite the fact that we did not replicate this pattern of results in our young adult sample's attributions, the pattern did emerge in the confidence ratings of the young adults.

Confidence Ratings as an Indicator of the Correspondence Bias

The current study extended past research by including a confidence assessment in conjunction with the attitude-attribution. Confidence levels have been described as a better tool for assessing participant susceptibility to the correspondence bias because, as indicators of judgmental uncertainty, they are more immune to experimental demand than are the attitude-attribution judgments themselves (Devine, 1989). Even so, past research on the correspondence bias does not specify how confidence ratings are influenced by experimental manipulations of mood. Previous research on the correspondence bias does suggest, however, that meaningful differences which emerge in attitude-attributions also emerge in the participants' confidence levels (Devine, 1989; Miller, Schmidt, Meyer, Colella, 1984). In other words, less extreme attitude-attributions are usually associated with lower levels of confidence, as was the case in this study ($r = .517$, $n = 165$, $p < .001$). Further, experimental factors which are hypothesized to lead to less extreme attributions should also lead to lower levels of confidence, and vice versa.

If this relationship between attributions and confidence ratings holds true, then mood should influence the confidence ratings of young adults in the same way that it

influenced the attitude-attributions of young adults in past research on mood and the correspondence bias. More specifically, positive moods should lead young adults to be more confident in their attributions, whereas negative moods should lead young adults to be less confident. As was described in the results section, this is the exact pattern that emerged for the young adults' confidence ratings in the current study. Young adults were more confident in their attitude-attributions in the positive mood condition, whereas young adults were less confident in the negative mood condition. These results are consistent with past interpretations of mood's influence on young adult behavior (Forgas, 1998; Martin, Ward, Achee, & Wyer, 1993). When in a positive mood, young adults are less motivated to carefully process all of the information that is available to them when forming an impression. Instead, they are satisfied with using a more global, heuristic form of processing which assigns more weight to those pieces of information that are immediately accessible to them. In this case, the most accessible pieces of information were the dispositional characteristics of the target that were inferred by the positive participant while reading the essay in the attitude-attribution task. On the other hand, when in a negative mood state, young adults are motivated to more carefully consider all of the information that is available to them. It is possible that adopting a more effortful, focused form of processing improves the likelihood that the situational constraint will remain accessible when the negative participant is asked to rate the target's attitude. Interestingly, mood influenced the confidence ratings of older adults in exactly the opposite way.

Mood and Age-Related Differences in Confidence Ratings

In our original predictions, we expected that, relative to the neutral mood condition, both positive and negative moods would lead older adults to be more susceptible to the correspondence bias. Given the results of the current study, we were only half right. Negative moods led to higher levels of confidence in older adults, whereas positive moods led to lower levels of confidence. Based upon the literature examining emotion and aging, we had no reason to predict that positive moods would influence the attributions of young and older adults differently. As mentioned earlier, findings from recent research conducted by Phillips et al. (2002) suggest that positive moods impair the executive functioning of both young and older adults. Consequently, we hypothesized that positive moods would lead both young and older adults to be more susceptible to the correspondence bias. Interestingly, whereas positive moods led young adults to be more confident in their attributions in the current study, positive moods led older adults to be less confident. Essentially, older adults were less susceptible to the correspondence bias when they were in a positive mood state.

Given that young and older adults differ in the emotional goals that they carry into social situations (Carstensen et al., 1999), it is possible that young and older adults interpret their positive moods in different ways. If it truly the case that older adults are much more likely than young adults to continuously scrutinize their state of well-being, then experiencing a positive mood may grant older adults temporary access to cognitive resources that were previously devoted to the miserly monitoring of their mood state. This temporary boost may help older adults to more carefully deliberate both the essay written by the target and the instructions to the target. This interpretation of the results is

consistent with the broaden-and-build theory of positive emotions which suggests that positive moods can lead individuals to drop their defenses in order to approach tasks from novel perspectives (Fredrickson, 1998; Fredrickson & Branigan, in press). It is also consistent with past research which demonstrates that happy moods can increase the cognitive capacity that is available for completing effortful tasks by leading individuals to rely on general knowledge structures when performing more routine tasks (Bless, Clore, Schwarz, Golisano, Rabe, & Wölk, 1996). Of course, additional research is needed to prove that (a) positive mood states are interpreted differently by young and older adults, and (b) such differences in motivation actually confer cognitive advantages to older adults.

As was anticipated, the attributional reasoning of young and older adults was also differentially impacted by the negative mood induction. Whereas young adults were less confident in their attributions when they were in a negative mood, older adults were more confident when they were in a negative mood. It appears that negative mood states motivate young adults to more carefully consider the situational constraint placed on the essay writer when forming their impressions. Because older adults were more susceptible to the correspondence bias when they were in a negative mood, it appears that negative moods did not lead the situational constraint to be as accessible to older adults when forming their attitude-attribution of the essay writer.

We hypothesized that this disparity in attributional reasoning would be due to the older adults' preoccupation with maintaining a positive sense of well-being. Two pieces of evidence emerged to support this assertion. First, although both young and older adults in the negative mood condition demonstrated significant improvement in their

mood after the mood induction, older adults demonstrated a greater amount of overall improvement (e.g., see time 2 and time 3 happiness and sadness ratings in Figures 1 and 2). The source of this difference in improvement arose from the effect that the negative mood induction had on the sadness ratings of young and older adults. More specifically, older adults exhibited a greater amount of sadness than young adults in response to viewing the negative film clip. Because both age groups recovered to the same level of baseline sadness, the uneven starting point immediately after the mood induction creates the impression that older adults had to put forth more effort than young adults to recover from their sadness. Second, young and older adults in the negative mood condition provided slightly different responses to the thought-listing task administered at the end of the experiment. When asked to list those things that they were thinking about during the course of the study, young and older adults were equally as likely to mention that the negative mood induction created some form of negative affect within them. Relative to all of the possible thoughts listed within each age group and mood condition, older adults in the negative mood condition were more likely than young adults to provide a description of (a) why the film clip from the mood induction put them in a negative mood state, or (b) how the contents of the film clip pertained to the state of humanity today. Thoughts like these were coded in a category under the heading ‘emotion reactivity, release, and regulation’ (inter-rater reliability for all participants on all items coded: $\alpha = 87.8\%$). Only a few young and older adults specifically mentioned consciously regulating their emotional responses to the negative film clip. Several participants in the current study, however, described having thoughts which appeared to resemble some form of emotional release. Of course, this is not concrete evidence that young and older

adults were differentially motivated to regulate their negative emotions. A more direct investigation of the immediate coping behaviors of young and older adults in response to experiencing negative emotions is needed before such a claim can be made.

Mood- and Age-Related Effects on Confidence: Controlling Baseline Cognitive Ability

In addition to examining mood and age-related differences in the correspondence bias, the present study also sought to examine the role that cognitive ability played in mediating attributional reasoning. To do this, we examined baseline working memory performance as a covariate of the participants' confidence levels. *Within* each age group, mood's influence on attributional confidence was not eliminated by controlling for individual differences in the baseline assessment of this cognitive ability. This suggests that mood influences one's susceptibility to the correspondence bias regardless of one's baseline working memory capacity. Additionally, when confidence ratings were examined *between* the age groups, individual differences in working memory did not eliminate the age group by mood interaction that emerged in participant confidence. These findings support the idea that age-related differences and individual differences in baseline cognitive performance do not always play a major role in the social reasoning ability of young and older adults.

Limitations

Although we were expecting distinct differences to emerge in the attitude-attributions of participants in the positive and negative mood conditions, the attributions made in each of these mood conditions were not significantly different than those made in the neutral mood condition. Because the trends of the mean attitude-attribution ratings within the young adult sample were in the expected direction, it is possible that a more

effective mood induction would have strengthened these effects. Past research on mood and the correspondence bias involved a success-failure manipulation to induce the desired mood states in young adults (Forgas, 1998). It is possible that the success-failure mood manipulation technique is a stronger mood induction technique than that which was used in the current study.

Additionally, studies conducted to examine the correspondence bias using the attitude-attribution paradigm (Jones & Harris, 1967) have traditionally included both the writer-unconstrained ('choice') and writer-constrained ('no-choice') conditions. Because past research did not yield age-related attributional differences in the 'choice' condition (Horhota & Blanchard-Fields, 2002), we felt that it was unnecessary to include the 'choice' condition in this study. Additionally most studies of the correspondence bias incorporating the attitude-attribution paradigm typically use social issues for the essay stimuli which clearly have popular and unpopular positions in the population. A more stringent examination of dispositional biases would then involve examining the attributional tendencies of those participants who read the unpopular essay in the no-choice condition. If a participant rates the author's attitude as being correspondent with the position in the essay in this case, then the dispositional bias is exacerbated by the fact that the participant is not fully considering the situational constraint nor the average position endorsed by the vast majority of the population. For this study, we chose to use a social issue (i.e., capital punishment) which was roughly evenly supported and opposed in the population. Although using this strategy allowed us to aggregate the participants in each essay position condition, it does not allow us to directly examine the influence that favorableness of the essay position has on the participants' attributional reasoning.

Future studies will undoubtedly examine the influence that issue favorableness has on age-related differences in the correspondence bias.

Conclusion

In summary, this study demonstrates that age-related differences in the correspondence bias are influenced by the mood state of the participant. Young adults were less susceptible to the correspondence bias when they were in a negative mood, but they were more susceptible when they were in a positive mood. Conversely, older adults were more susceptible to the correspondence bias when they were in a negative mood, but they were less susceptible in a positive mood. The findings from this study also provide support for the hypothesis that social judgments can be influenced by age-related differences in affect management. Additional studies are needed to better substantiate age-related differences in the emotion regulation goals and strategies that are used by young and older adults to deal with the emotions that are experienced in an online, immediate social situation. Moreover, a wider sampling of age groups and measurement occasions are needed to actually study change in age-related differences in socio-emotional goal-prioritization across the life span.

APPENDIX A

Instructions to the Target for the “in favor of” capital punishment condition

Below are the instructions that were given to the students who took part in the study. Once you have finished reading the instructions, please read the essay that follows on the next page and estimate the writer’s actual position on this issue. That is, what does the writer truly believe about capital punishment? Keep in mind that the writer was given the following instructions:

“Please write a short essay in favor of capital punishment, regardless of your own attitude towards capital punishment. What is important is your ability to generate arguments and reason about a social issue. Please keep your essay shorter than 200 words in length.”

Instructions to the Target for the “opposed to” capital punishment condition

Below are the instructions that were given to the students who took part in the study. Once you have finished reading the instructions, please read the essay that follows on the next page and estimate the writer’s actual position on this issue. That is, what does the writer truly believe about capital punishment? Keep in mind that the writer was given the following instructions:

“Please write a short essay opposed to capital punishment, regardless of your own attitude towards capital punishment. What is important is your ability to generate arguments and reason about a social issue. Please keep your essay shorter than 200 words in length.”

APPENDIX B

Target Writer's Essay Endorsing Capital Punishment

Capital punishment should be legal in all states (1). There are many reasons for having this position (2). Capital punishment decreases crime (3) because it acts as a deterrent to criminals who engage in serious or life-threatening illegal activities (4). By eliminating hardened criminals, capital punishment decreases the number of individuals who are in prison at a given time (5). This is also a useful way to reduce the amount of money that the government has to spend on the upkeep of prison facilities (6). Another benefit is that capital punishment teaches morality to young people (7) by making it clear that there are consequences for committing crimes (8). Moreover, capital punishment is the only just means to punish a convicted murderer (9). Finally, by putting serious offenders to death, capital punishment can provide closure to those families who have been victimized by criminals (10). Clearly there are many good reasons why capital punishment should be legal in all states (11).

Number of sentences: 9

Number of words: 151

Number of coded arguments: 8 (items 3-10)

Target Writer's Essay Opposing Capital Punishment

Capital punishment should not be legal in any state (1). There are many reasons for having this position (2). Because capital punishment involves the death of a criminal, it is itself a form of murder (3) and it will only increase the amount of violence in society (4). Also, there is the potential that capital punishment may execute an innocent person (5). Once convicted of a crime that carries the death penalty, the accused is less likely to receive an unbiased appeal (6). Another problem is that capital punishment is out of date (7); in this day and age, every western democracy except this country has abolished the death penalty (8). Moreover, capital punishment does not leave room for rehabilitation (9). Finally, by putting serious offenders to death, capital punishment does not provide psychological closure to the families of those who are victimized by criminals (10). Clearly there are many good reasons why capital punishment should not be legal in any state (11).

Number of sentences: 9

Number of words: 151

Number of coded arguments: 8 (items 3-10)

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