

Age-Related Differences in Responses to Emotional Advertisements

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This research investigated motivational influences associated with age on responses to emotional advertisements. Experiment 1 showed increased liking and recall of emotional ads among older consumers and that time horizon perspective moderates these age-related differences. Experiment 2 revealed influences of age and time horizon perspective on responses to different types of emotional ads. Ads focusing on avoiding negative emotions were liked and recalled more among older consumers and among young consumers made to have a limited time horizon perspective. This research illustrates the importance of considering age-related differences in information processing due to motivational as well as to cognitive changes.

Researchers increasingly recognize the growing size and economic importance of the older (age 65 and over) consumer segment (e.g., Cole and Gaeth 1990; Yoon 1997). Accordingly, interest in and research on the psychology of older consumers has been steadily on the rise. Much of this research has focused on changes in information processing due to aging (for a review, see Roedder-John and Cole 1986). For example, research shows that, with age, consumers become more susceptible to misleading advertising (Gaeth and Heath 1987) and the truth-inflating effects of repetition (Law, Hawkins, and Craik 1998; Skurnik et al. 2005). Further, research shows that, compared to younger consumers, older consumers rely more on schema-based rather than detailed processing strategies (Yoon 1997).

Past research has explained such differences in how older consumers process information primarily in terms of the deleterious effects of aging on the cognitive system. However, aging also has important effects on motivational processes that can significantly affect information processing. In particular, aging is associated with an increase in the

motivation to attend to emotional versus factual information (e.g., Labouvie-Vief and Blanchard-Fields 1982; see Isaacs-witz, Turk-Charles, and Carstensen [2000] for a review).

Studies indicate that older adults' increased focus on emotional information is partly due to their perceptions of time as limited (Carstensen 1992). Far more than young adults, older adults describe their futures as limited; they recognize they are approaching the end of their lives (Carstensen and Lang 1997). As a result of their limited time horizon perspective, older adults are more likely to engage in certain emotion regulation processes, particularly processes focused on preventing the occurrence of negative emotions (Gross 1998).

The purpose of our research is to investigate the influence of aging and its associated time horizon perspective on responses to emotional advertisements. Experiment 1 examines how time horizon perspective affects older and young adult consumers' attitudes toward and recall of emotional (vs. rational) appeals. Experiment 2 examines how differences in age and time horizon perspective influence consumers' attitudes toward and recall of emotional appeals that focus on the avoidance of negative emotional experiences.

AGING AND THE INCREASING IMPORTANCE OF EMOTION

Research suggests that, as we age, we devote more resources to and take a more active role in the management and processing of emotion (Carstensen 1992). Though findings on whether physiological arousal and affect intensity increase (Schulz 1985), remain constant (Levenson et al. 1991), or decrease (Blanchard-Fields 1997) with age are

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mixed, they consistently suggest that the basic emotional system, particularly the subjective experience and expression of emotion, remains stable (Isaacowitz et al. 2000) and may even be enhanced with age (Malatesta-Magai et al. 1992). Notwithstanding, older and young adults appear to have different modes of information processing with respect to emotions. Undirected, older adults tend to adopt a more subjective and evaluative (i.e., emotional) mode than do young adults, who tend to engage in more objective and factual processing (Isaacowitz et al. 2000). This difference affects a variety of outcomes, including the quantity and type of information recalled (Hashtroudi et al. 1994).

What explains older adults' increased focus on emotion? Research suggests it is partly due to a cognitive system in decline, in particular a decline in working memory capacity (Hasher and Zacks 1988); older adults' performance on many tasks resembles that of young adults under cognitive load. However, besides differences in cognitive ability, research recognizes differences in older adults' motivation to focus on emotional versus factual information. For example, older adults place more emphasis on personal values and experiences (Labouvie-Vief and Blanchard-Fields 1982). This motivational change in emphasis interacts with reduced cognitive ability to inhibit attentional processes, resulting in reduced performance on many cognitively-oriented memory and decision-making tasks (Isaacowitz et al. 2000).

What accounts for older adults' increased motivation to attend to emotion? Maturation appears partly responsible. As individuals mature, they develop a more complex understanding of emotions and endeavor more to integrate emotions and cognitions (Labouvie-Vief 1998). This integration process is an important part of ego and wisdom development and is seen as adaptive. As a result, older adults appear better able to acknowledge their emotions (Blanchard-Fields 1986), solve emotionally charged problems (Labouvie-Vief, DeVoe, and Bulka 1989), and endure the tension of mixed emotional experiences (Williams and Aaker 2002). In addition to maturation, perceptions of the shortness of life span contribute to older adults' increased motivation to focus on emotion.

Aging, Time Horizon Perceptions, and Increased Emotion Focus

According to socioemotional selectivity theory, people tend to assess time as either limited or expansive (Carstensen 1992). Such monitoring of time is believed to be a nonconscious, regular process that produces motivational changes in processing goals (Carstensen, Isaacowitz, and Turk-Charles 1999). When time is viewed as limited, people tend to be present-oriented, which is associated with finding satisfaction in the moment, and they devote greater attention to social connectedness, feeling states, and deriving emotional meaning, all of which can be experienced and enjoyed now (Carstensen et al. 1999). In contrast, when time is viewed as expansive, people tend to be future-oriented, which is associated with paying more attention to planning,

being analytical, and pursuing knowledge so as to be prepared for the future.

Viewing time as limited has consequences for the selection of social partners. Older adults are typically more focused on intimacy and affective gain in social interactions. Thus, they tend to limit social interactions to those with whom they care most about because emotional outcomes are generally predictable and positive with these partners. When considering new social partners, older (vs. young) adults are more focused on their emotional potential rather than their potential for future contact or for supplying new information (Carstensen et al. 1999).

Much research has focused on age as a determinant of time horizon perceptions. However, there are other natural determinants, and such perceptions can also be manipulated. For example, college seniors (vs. freshman) tend to prefer familiar (vs. new) social partners (Frederickson 1995). And young adults made to adopt a limited time horizon view prefer to interact with known (vs. unknown) others (Frederickson and Carstensen 1990). Likewise, older adults made to adopt an expansive time horizon view have preferences that mimic those typically found for young adults (e.g., Fung, Carstensen, and Lutz 1999). Without prompting, however, the default mode appears to be for young adults to view time as expansive and older adults to view time as limited (Fung et al. 1999). Socioemotional theory predicts that, in order to efficiently regulate their emotions, people who view their time as limited are motivated to focus on emotional content in all contexts, including consumer information processing contexts (Isaacowitz et al. 2000).

Experiment 1 examines the effects of aging and time horizon perspective on responses to emotional and rational advertising appeals. Given their influence on the motivation to focus on emotion and emotional aspects of stimuli, we predict that both aging and time horizon perspective will moderate evaluations of emotional and rational appeals. We expect that both older consumers and young consumers who view time as limited will evaluate emotional (vs. rational) appeals more favorably. In contrast, we expect that both young consumers and older consumers who view time as expansive will evaluate rational (vs. emotional) appeals more favorably. In the absence of a time horizon view manipulation, we expect older (young) consumers will evaluate emotional (rational) advertising appeals more favorably. In summary, we predict that perceptions of time horizon length will interact with age to moderate attitudes toward emotional (vs. rational) appeals. In addition, as a result of increased emotion focus, we expect aging and time horizon perspective to have similar effects on recall. Although young adults typically do better than older adults in overall memory performance, older adults have been found to have a memory bias for emotional versus nonemotional materials (Carstensen and Turk-Charles 1994).

Past evidence as to the effects of age and time horizon perspective on responses to emotional and rational appeals is limited. Fung and Carstensen (2003) investigated the effects of age on attitudes toward advertisements that em-

phasized either emotion-related goals (how the product is related to love and caring) or knowledge-related goals (how the product is related to gaining new knowledge or achieving success in the future). They found qualified evidence of increased preferences and memory for emotion-related ads (vs. knowledge-related or control ads) among older (vs. young) adults and for those in limited time horizon (vs. control) conditions. However, they found no corresponding differences in preferences for the knowledge-related ads. Neither young adults nor older adults in the expansive time horizon conditions showed increases in preferences for knowledge-related goal advertisements. As reviewed above, individuals with an expansive view of time tend to be more knowledge-focused, so we would expect them to exhibit a relative preference for rational (vs. emotional) ads. Experiment 1 addresses a number of the shortcomings of previous research to offer a fuller investigation of the moderating influences of age and time horizon view (limited vs. expansive vs. control) on attitudes toward and also recall memory for both emotional and rational appeals. Experiment 2 extends the investigation of the influence of age and time horizon perspective on preferences for emotional appeals by considering differences in preferences and recall for different types of emotional appeals.

Aging, Time Horizon, and Increased Management of Negative Emotional Experiences

Given a preference for emotions in general, are older adults motivated to attend to all types of emotions equally? Importantly, research suggests that older adults are especially focused on avoiding negative emotion. Consistent with this, negative emotion is reported and observed less among older adults (Charles, Reynolds, and Gatz 2001; Gross et al. 1997). Additionally, older adults report less anxiety and greater contentment (Lawton, Kleban, and Dean 1993), as well as greater overall psychological well-being, due to a higher proportion of positive to negative affective experiences (Ryff 1989). These findings run counter to the stereotype of older people as more depressed and less happy than younger people. In fact, some evidence indicates that older adults suffer from fewer affective disorders, such as depression, than young adults do (Isaacowitz et al. 2000). Moreover, older adults may experience positive affect as often (Charles et al. 2001) or even more often (Mroczek and Kolarz 1998) than their younger counterparts.

What accounts for older adults' decreased experience of negative emotions? Research suggests the decrease is due to increased emotion regulation among older adults. Emotion regulation refers to processes by which individuals try to influence which emotions are experienced when and how these emotions are experienced and/or expressed (Gross and Levenson 1997). Older adults appear more likely than young adults to engage in emotion regulation, particularly in antecedent-focused emotion regulation, which involves attempts to prevent emotions from occurring in the first place, such as by avoiding situations or people in order to

avoid emotional triggers (Gross et al. 1997). For example, people may avoid encounters with others (antecedents of emotional outcomes) known to provoke feelings of anger, fear, or sadness. Consistent with a greater focus on avoiding negative emotions and their triggers, studies show that older adults recall fewer negative (vs. positive) images (Charles, Mather, and Carstensen 2003). Findings of functional magnetic resource imaging (fMRI) studies imply that older adults have reduced encoding of negative emotional experiences, showing less activation in the amygdala for negative (vs. positive) images. This pattern of activation does not occur among young adults (Mather et al. 2004). Additionally, older (vs. younger) adults report greater control of their emotions (Lawton et al. 1992) and hence may be more able to reduce their experience of negative emotions (Gross et al. 1997). In summary, aging appears to lead to increasingly effective antecedent-focused emotion regulation so that older adults more effectively manage the experience of negative emotions (Isaacowitz et al. 2000).

Given greater motivation to avoid negative emotional experiences and related differences in emotion regulation processes, we expect that older (vs. young) consumers will respond differently to negative (vs. positive) emotional appeals. Experiment 2 examines the effects of aging and time horizon perspective on responses to emotional appeals that differ in their focus on avoiding negative emotions versus achieving positive emotions. Specifically, we expect that older (vs. young) consumers will respond more favorably to appeals framed in terms of avoiding negative emotional experiences. Further, we expect that time horizon perspective will moderate these age-related effects. Consumers who view time as limited (expansive) are expected to prefer and have better recall for appeals that focus on avoiding negative emotion (vs. achieving positive emotion).

EXPERIMENT 1

The design of experiment 1 is a 2 (age group: older vs. young) \times 2 (appeal type: emotional vs. rational) \times 3 (time horizon perspective: limited vs. expansive vs. control). In control conditions, we expect age to interact with appeal type such that: (1) older participants will have more favorable attitudes toward and better recall of emotional (vs. rational) appeals and (2) young participants will have more favorable attitudes toward and better recall of rational (vs. emotional) appeals. In addition we expect time horizon perspective to moderate the above effects such that in limited time horizon conditions, we expect young participants will show increased attitudes toward and recall of emotional (vs. rational) appeals. In expansive time horizon conditions, we expect older participants will show increased attitudes toward and recall of rational (vs. emotional) appeals.

Method

Participants and Procedure. Experiment 1 had 244 participants, 122 older participants (52% female, median age = 69, age range 65–98) and 122 young participants

(48% female, median age = 20, age range 19–24). Older participants were recruited from a midwestern library and participated in exchange for a \$15 donation to the library. Young participants were undergraduates at an East Coast university who received course credit in return for participation.

Older and young participants were asked to read either an emotional or a rational appeal, which also included an explicit time horizon manipulation, for a product (coffee or film). After reading the appeal, participants answered questions about their attitude toward it. They next completed manipulation checks and answered product use and demographic questions. Last, they were asked to recall all they could about the appeal they read.

Participants were randomly assigned to one of three time horizon groups: limited, expansive, or control. All participants in the emotional appeal condition were presented with the same copy except that the first and last line differed by time horizon group. Participants in the time horizon limited condition read appeals whose first and last lines emphasized the brevity of time, while participants in the time horizon expansive condition read appeals whose first line and last lines emphasized the extensiveness of time. Participants in the time horizon control group read appeals whose first and last lines did not suggest any particular time horizon. Likewise, all participants in the rational appeal condition were presented with the same copy except for the first and last lines that varied by time horizon group. See the appendix for stimuli.

In both experiments 1 and 2, we attempted to control for participants' cognitive capacity in several ways. We controlled for level of educational background. All young participants were college students, and all older participants reported having at least graduated from high school. We also controlled for "time of day" effects on cognitive functioning in both studies by surveying older participants in the morning when they are typically at their peak cognitive capacity and thus most like younger participants in terms of cognitive ability (Yoon 1997). Last, we excluded participants who reported having any major illness or medical condition that might affect intellectual functioning.

Pretests. We conducted several pretests to create the stimuli used in experiment 1. Detailed pretest information is available from the authors. The first pretest identified products that would be viewed as relatively neutral (i.e., neither more emotional nor rational) so that both emotional and rational appeals would suit equally well. We tested 10 products that research (Ratchford 1987) suggests vary in terms of being viewed as emotional (i.e., based on how the product makes one feel) or rational (i.e., based on consideration of product attributes). Coffee and film were viewed as relatively neutral products and approximately equal in terms of their relevance to young and older consumers. A second pretest was conducted to identify emotional and rational attributes of each product that could be highlighted in the emotional versus rational appeals. Approximately 10 attributes of each type were examined for each product.

Participants were asked to indicate how important each attribute would be in a decision to buy that product. Attributes that were rated as moderately important (with no age group differences) were selected for use in the stimuli. A third pretest identified statements that would evoke perceptions of limited versus expansive time horizons. Analysis indicated that the statement "Because Life is Long" best evokes perceptions of time horizon as expansive and "Because Life is Short" best evokes perceptions of time horizon as limited. Appeals were created using these time horizon manipulation statements, and the emotional or rational attributes previously identified. A final pretest assessed the perceived relevance and credibility of the completed appeals, as well as whether consumers viewed them as primarily emotional or rational. There were no significant differences due to appeal or age on measures of relevance or credibility. Analysis confirmed that the appeals intended to be more emotional were viewed as such compared to the appeals intended to be more rational. There were no age-related differences in these perceptions.

Results

In all analyses, we tested for potential differences due to our use of two different products (coffee and film). We found no significant differences in results (all p 's > .30), and analyses below are collapsed across the two products. We also tested product category use as a potential covariate in all analyses. No effects were significant (p 's > .30) and will not be discussed further.

Manipulation Checks. Participants indicated the degree to which they viewed the appeal as emotional versus rational ("This advertisement made me focus on my feelings about the brand," "This advertisement is directed at making me feel something about the brand," "This advertisement made me focus on my thoughts about the brand," "This advertisement is directed at making me think something about the brand," 1–7 scale, anchors = "strongly disagree" and "strongly agree"). To create a single measure of emotional versus rational focus, the items measuring emotional focus were subtracted from those measuring rational focus; negative values indicate the appeal was viewed as relatively more emotional, while positive values indicate it was viewed as relatively more rational. A $2 \times 2 \times 3$ ANOVA on the index ($\alpha = .88$) found a significant main effect of appeal type ($F(1, 243) = 1,413.6, p < .0001$). Participants rated the emotional appeals as less rational and more emotional ($M = -3.25$) compared to the rational appeals ($M = 3.32$). No other effects were significant (F 's < 1).

Participants rated their agreement with three statements each regarding the relevance of the appeal ("This advertisement was meaningful to me," "This advertisement is relevant to me," and "This advertisement is important to me;" 1–7 scale, anchors = "not at all" and "very much"; $\alpha = .92$) and its credibility ("This advertisement is believable," "This advertisement is realistic," and "This advertisement is credible;" 1–7 scale, anchors = "not at all" and

TABLE 1
EXPERIMENT 1 RESULTS

Time horizon	Older adults						Young adults					
	Limited		Expansive		Control		Limited		Expansive		Control	
	EA	RA	EA	RA	EA	RA	EA	RA	EA	RA	EA	RA
Aad	5.26 (.79)	2.93 (.58)	2.52 (.76)	5.46 (.87)	5.30 (1.30)	2.79 (.97)	5.14 (.36)	2.85 (.47)	2.70 (.58)	5.27 (.46)	2.79 (.34)	5.50 (.66)
Recall (% total items recalled)	.21 (.09)	.07 (.06)	.06 (.09)	.24 (.11)	.22 (.10)	.07 (.09)	.38 (.12)	.13 (.10)	.14 (.10)	.39 (.18)	.13 (.06)	.40 (.11)

NOTE.—EA = emotional appeal; RA = rational appeal. Standard deviations reported in parentheses under mean values. Cell sizes range from 17 to 24 participants.

“very much”; $\alpha = .92$). There were no significant main or interaction effects of age group, appeal type, or product type (all F 's < 1) for relevance or credibility. The appeals were rated as equally and moderately credible and relevant to all participants (means for relevance range from 3.55 to 4.20; means for credibility range from 3.94 to 4.63).

We also tested for age-related differences in participants' positive ($\alpha = .96$) and negative ($\alpha = .89$) emotional reactions to the appeals. Participants rated (1–7 scale, anchors = “not at all” and “extremely”) the degree to which the appeals made them feel positive (six items: warm, touched, sentimental, happy, joyful, and delighted; $\alpha = .96$) versus negative emotions (three items: down-hearted, depressed, sad; $\alpha = .95$; items from Edell and Burke 1987). To create a single measure of emotional response, negative responses were subtracted from positive responses; higher means indicate a more positive emotional response. A $2 \times 2 \times 3$ ANOVA on the combined index found a significant main effect of appeal type ($F(1,160) = 636.0$, $p < .0001$). The emotional appeals elicited relatively more net positive emotional reactions ($M = 2.77$) than rational appeals ($M = 0.20$). There were no other significant effects (p 's $> .13$).

To assess the success of the time horizon manipulation, participants also completed two three-item scales measuring the degree to which the appeals suggested a limited time horizon (“This statement made me think about endings,” “This statement made me think time is limited,” “This statement made me think about the present,” 1–7 scale, endings = “disagree completely” and “agree completely”) or an expansive time horizon (“This statement made me think about beginnings,” “This statement made me think time is limitless,” “This statement made me think about the future”; items from Carstensen and Lang 1997). By subtracting the sum of items associated with an expansive time view from the sum of the items associated with a limited time view, the items were combined to create a single measure ($\alpha = .89$). Negative values on the index suggest a more expansive view of time and positive values a more limited view of time. A $2 \times 2 \times 3$ ANOVA on the score revealed a significant two-way interaction between age group and time horizon ($F(2, 242) = 152.5$, $p < .0001$). Simple effects analysis showed that both older ($F(1, 121) = 213.3$, $p < .0001$) and young ($F(1, 121) = 368.7$, $p < .0001$) participants viewed time as more expansive in the time horizon expansive condition ($M_{\text{older}} = -2.71$ and $M_{\text{young}} = -2.94$) versus in the time horizon limited condition ($M_{\text{older}} = 2.66$ and $M_{\text{young}} = 3.04$), implying that the manipulation of time horizon was successful. In the control condition, older and young participants had different views of the time horizon. Older participants viewed time as more limited ($M = 2.52$) compared to young participants who viewed time as more expansive ($M = -2.88$). Consistent with other research, these results suggest that, in the absence of a time horizon manipulation, the default view of time is limited for older adults and expansive for young adults.

Attitude toward the Advertisement. Participants completed a 12-item Aad scale (bad-good, dislike-like, unpleasant-pleasant, awful-nice, irritating-not irritating, uninteresting-interesting, annoying-not annoying, negative-positive, unfavorable-favorable, unbelievable-believable, ineffective-effective; 1–7 scale, $\alpha = .98$). Items were averaged to create a single index. Analysis of Aad found a significant three-way interaction ($F(2, 243) = 94.5$, $p < .0001$; see table 1). Simple effects analysis by age group found significant two-way interactions between appeal type and the time horizon group for both young ($F(2, 121) = 331.3$, $p < .0001$) and older ($F(2, 121) = 113.4$, $p < .0001$) age groups. Further analysis shows that young participants had more positive attitudes toward the rational (vs. emotional) appeal in the time horizon expansive condition ($F(1, 40) = 252.0$, $p < .0001$; $M = 5.27$ vs. $M = 2.70$) and in the time horizon control condition ($F(1, 41) = 312.3$, $p < .0001$; $M = 5.50$ vs. $M = 2.79$). However, young participants in the time horizon limited group had more positive attitudes toward the emotional ($M = 5.14$) versus the rational appeal ($M = 2.85$; $F(1, 35) = 282.3$, $p < .0001$). A different pattern of results was found for older participants. For them, the emotional appeal produced more positive attitudes than the rational appeal in the time horizon limited ($F(1, 39) = 113.7$, $p < .0001$; $M = 5.26$ vs. $M = 2.93$) and control ($F(1, 41) = 52.38$, $p < .0001$; $M = 5.30$ vs. $M = 2.79$) conditions. However, older participants in the expansive group had more positive attitudes toward the rational (vs.

emotional) appeal ($M = 5.46$ vs. $M = 2.52$; $F(1, 36) = 122.9$, $p < .0001$).

Advertisement Recall. Participants completed an open-ended recall question that was coded by two independent coders (interrater reliability = .93). Participants were asked to recall as much as they could from the appeal they had seen. Coders jointly identified and agreed upon discrete phrases or elements in each appeal (total items range from 12 to 14; see appendix). Recalled items were deemed correct even if they were not exactly identical to the copy in the appeal as long as they retained the gist of the copy. For example, in the emotional appeals for coffee, the following item was coded as correct: "The coffee has a smooth flavor" (for phrase "Coffee has a smooth, velvety flavor"). Items included in the protocol that did not appear in the appeal or were unrelated (e.g., "I buy a lot of film" and "I don't drink coffee anymore") were considered intrusions and were counted separately. Disagreements between coders were resolved through discussion. For each participant, we calculated the proportion of items correctly recalled from each appeal. An arcsine transformation of the proportion recalled was used for analysis. However, to ease understandability, we report the untransformed means. The pattern of results for the two measures was the same.

A $2 \times 2 \times 3$ ANOVA on the arcsine transformation of the percent recalled showed a significant three way-interaction between age group, appeal type, and the time horizon manipulation ($F(2, 231) = 27.68$, $p < .0001$). Simple effects analysis found a significant two-way interaction between appeal type and the time horizon manipulation for young participants ($F(2, 115) = 51.20$, $p < .0001$). Further analysis showed that young participants in the time horizon limited group recalled relatively more of the emotional appeal ($M = .38$ vs. $M = .13$; $F(1, 36) = 41.90$, $p < .0001$). In contrast, young participants in the time horizon expansive group recalled relatively more from the rational (vs. emotional) appeal ($M = .39$ vs. $M = .14$; $F(1, 40) = 29.24$, $p < .0001$). Likewise, in the time horizon control condition, young participants recalled more from the rational (vs. emotional) appeal ($M = .40$ vs. $M = .13$; $F(1, 41) = 80.49$, $p < .0001$).

For older adults, we also found a two-way interaction between appeal type and time horizon ($F(2, 116) = 42.65$, $p < .0001$). Like their young counterparts, older participants in the time horizon limited group recalled more of the emotional (vs. rational) appeal ($M = .21$ vs. $M = 0.06$; $F(1, 39) = 34.56$, $p < .0001$). And, older participants in the time horizon expansive group recalled more from the rational (vs. emotional) appeal ($M = .24$ vs. $M = .07$; $F(1, 36) = 29.00$, $p < .0001$). However, in the time horizon control condition, older participants recalled more from the emotional (vs. rational) appeal ($M = .22$ vs. $M = 0.07$; $F(1, 41) = 31.35$, $p < .0001$).

Discussion

Experiment 1 finds support for the predicted moderating effects of aging and time horizon perspective on liking and

recall of emotional versus rational appeals. As expected, in the control time horizon conditions, older participants had greater liking and recall of the emotional appeals and young participants had greater liking and recall of the rational appeals. In the limited time horizon conditions, both older and young participants' attitudinal and memory responses were higher for the emotional appeals. In contrast, in the expansive time horizon conditions, the attitudinal and memory responses were higher for the rational appeals for both age groups.

Experiment 1 demonstrated that age and time horizon perspective moderate responses not only to emotional appeals but also to rational appeals and not only among older adults but among young adults as well. Accordingly, results of experiment 1 differ from results of past research (Fung and Carstensen 2003), which found limited evidence regarding the impact of aging and time horizon perspective on preferences for emotional or rational appeals. There are a number of differences between the present work and the work by Fung and Carstensen that likely underlie the strong effects observed in experiment 1. First, we compared emotional and rational appeals rather than emotion-focused and knowledge-focused goal appeals. This is an important, though perhaps subtle, difference. Fung and Carstensen used ads that consisted of a single slogan (i.e., "Capture the unexplored world" or "Stay healthy for your bright future," for the knowledge-focused ad vs. "Capture those special moments" or "Stay healthy for the ones you love" for the emotion-focused ad), a brand name, and a picture of the product. Although these ads are differentially focused on emotional outcomes, they do not strongly manipulate emotional responses. Nor do they manipulate rational content. Their knowledge-focused appeals do not contain facts about the products, rather they focus on the goals of gaining new knowledge or of achieving future success. We used ads that were extensively pretested and featured considerable information about rational and emotional attributes of products. As a result, our stimuli enabled us to manipulate strongly the underlying emotional or rational focus of each appeal. Second, some of their ads, particularly those with a knowledge-focus, confound appeal type with time horizon (i.e., slogans such as "Brighten your future" and "Protect your future"). As a result, it is impossible to separate the effects of appeal type from the time horizon expansion manipulation in their research. Our focus on emotional versus rational appeals, rather than emotion-focused versus knowledge-focused appeals, allows us to fully separate time horizon from appeal type and assess their effects independently. Third, we manipulated time horizon perspective within the ads rather than in a separate imagination scenario. Fourth, we included manipulations of both expansive and limited time horizon perspectives. Results of experiment 1 suggest that, at least in the short-term, preferences for different types of appeals can shift readily and largely in response to subtle manipulations of time horizon perceptions within the ads themselves. Fifth, Fung and Carstensen studied effects of age and an expansive time horizon view on

recognition memory and not recall memory and on forced choices for ad types and not on expressed attitudes.

EXPERIMENT 2

Previous research indicates that age and time horizon perceptions impact not only the processing of emotional inputs relative to rational ones but also the processing of different types of emotional inputs. In particular, older adults and others with limited time horizon perspective are motivated to attend to negative (vs. positive) emotional information in order to avoid negative emotional experiences. Experiment 2 investigates the impact of aging and time horizon perceptions on preferences for different types of emotional appeals, specifically those that focus on realizing positive emotions versus avoiding negative emotions as a result of product purchase and/or use.

Method

Participants and Procedure. Experiment 2 had 246 participants, 121 older (59% female, median age = 70, age range 63–88) and 125 young (50% female, median age = 20, age range 17–24). Older participants were recruited from a midwestern library and participated in exchange for a \$15 donation to the library. Young participants were undergraduates at an East Coast university who received course credit in return for their participation.

The design of experiment 2 was a 2 (age group: older vs. young) × 2 (appeal type: positive emotional frame vs. negative emotional frame) × 3 (time horizon group: limited vs. expansive vs. control). Participants read either a positively framed or negatively framed emotional appeal. To increase the relevance of the emotional appeals to all participants, participants read an appeal for one of two emotional products, greeting cards or flowers. After reading the appeal, participants answered questions about their attitudes toward it. They then completed manipulation checks and answered product use and demographic questions. Last, they were asked to recall all they could about the appeal.

As in experiment 1, participants were randomly assigned to one of three time horizon groups: limited, expansive, or control. All participants in the positively framed emotional appeal condition were presented with the same copy except that the first and last line of the appeal differed by time horizon group. Participants in the time horizon limited condition read appeals whose first (“Because Life is Shorter than You Think”) and last lines (“Live in the moment” for greeting cards and “Focus on the moment” for flowers) emphasized the brevity of time, while participants in the time horizon expansive condition read appeals whose first line (“Because Life is Longer than you Think”) and last lines (“See What’s Ahead” for greeting cards and “Focus on What’s Yet to Come” for flowers) emphasized the extensiveness of time. Participants in the time horizon control group read appeals whose first line (“Celebrate life”) and last lines (“Live Life” for both greeting cards and flowers) did not suggest any particular time horizon. Likewise, all

participants in the negatively framed emotional appeal condition were presented with the same copy except for the first and last lines that varied by time horizon group.

The positively framed appeals emphasized how consumers could have positive emotional experiences by buying or using the advertised product. For example, the (common) copy for the positively framed appeal for flowers included statements such as “Say how you feel, flowers say it all so beautifully” and “You’re busy, but you’ll feel happy indulging someone special in your life.” In contrast, the negatively framed appeals emphasized how consumers could avoid negative emotional experiences by purchasing/and or using the advertised product. For example, the (common) copy for the negatively framed appeal for flowers included statements such as “Don’t leave your feelings unsaid when flowers say it all so beautifully” and “You’re busy, but you’ll feel sad if you miss the chance to indulge someone special.” Stimuli are available from the authors.

Pretests. Several pretests were conducted to design the stimuli. Detailed pretest information is available from the authors. The first pretest identified products that were primarily emotional and equally relevant to young and older consumers. Flowers and greeting cards were rated as being similarly emotional and relevant to both age groups. A second pretest identified statements that would evoke perceptions of a limited versus an expansive time horizon. As above, participants evaluated several statements and rated the degree to which each statement made them think of time as limited or expansive. Analysis indicated that the statements “Because Life is Longer than You Think,” “See What’s Ahead,” and “Focus on What’s Yet to Come” evoked perceptions of time as expansive; “Because Life is Shorter than You Think,” “Live in the Moment,” and “Focus on the Moment,” evoked perceptions of time as limited. Appeals were created using these time horizon manipulation statements. A third pretest examined the degree to which the completed appeals were perceived as relevant and credible. There were no significant differences due to appeal or age on any of these measures. All appeals were viewed as moderately relevant and credible. Participants also rated the degree to which they perceived the appeals to be primarily emotional or rational. All appeals were seen as primarily and equally emotional. There were no age-related differences in these perceptions. In addition, participants were asked to indicate the degree to which they felt the appeals focused on achieving positive emotions versus avoiding negative emotions. As intended, both age groups viewed the appeals focusing on providing positive emotional outcomes as more focused on achieving positive emotions compared to the appeals focusing on avoiding negative emotions.

Results

In all analyses, we tested for differences due to our use of two emotional products (greeting cards and flowers). We found no significant differences in results (p 's > .30). Thus, analyses are collapsed across the two products. We also

TABLE 2
EXPERIMENT 2 RESULTS

Time horizon	Older adults						Young adults					
	Limited		Expansive		Control		Limited		Expansive		Control	
	PF	NF	PF	NF	PF	NF	PF	NF	PF	NF	PF	NF
Aad	4.16 (.87)	5.21 (1.32)	5.26 (1.08)	4.13 (1.29)	4.58 (.92)	5.23 (1.32)	4.07 (.90)	4.83 (.71)	4.58 (.56)	3.77 (.69)	4.78 (.61)	3.33 (1.01)
Recall (% total items recalled)	.08 (.09)	.26 (.17)	.28 (.11)	.12 (.11)	.12 (.09)	.25 (.15)	.26 (.17)	.41 (.16)	.43 (.22)	.15 (.08)	.41 (.20)	.23 (.12)

NOTE.—PF = positive frame; NF = negative frame. Standard deviations reported in parentheses under mean values. Cell sizes range from 18 to 23 participants.

tested product category use as a potential covariate. No effects were significant and this will not be discussed further (p 's > .40).

Manipulation Checks. As in experiment 1, participants were asked to indicate the degree to which they felt the appeal was more emotional versus rational ($\alpha = .90$). Because all of the appeals in this experiment were intended to be emotional, we expected no significant differences across conditions with respect to this manipulation check. To create a single measure of emotional versus rational focus, the items measuring emotional focus were subtracted from those measuring rational focus; negative values indicate the appeal was viewed as relatively more emotional, while positive values indicate it was viewed as relatively more rational. A $2 \times 2 \times 3$ ANOVA on the index found no significant effects (F 's < 1). Participants also rated the perceived relevance ($\alpha = .90$) and credibility of the appeal ($\alpha = .86$). Analysis found no significant main or interaction effects of age group, appeal type, or product type (all F 's < 1) for relevance or for credibility. The appeals were equally and moderately credible and relevant to both age groups (means for relevance range from 3.78 to 4.07; means for credibility range from 4.27 to 4.57).

To test for differences in emotional reactions to the appeals, participants were asked to rate the degree to which they agreed with two statements regarding positive emotional framing ("This ad focused on how I could feel positive emotions," "This ad focused on how I could feel pleasant emotions," 1–7 scale, anchors = "not at all" and "very much") and two statements regarding negative emotional framing ("This ad focused on how I could avoid feeling negative emotions," "This ad focused on how I could avoid feeling unpleasant emotions"). A $2 \times 2 \times 3$ ANOVA on the combined index of positive minus negative emotional items ($\alpha = .97$) found a significant main effect of appeal type ($F(1, 245) = 1,721.7$, $p < .0001$). The positively framed appeals were viewed as more focused on evoking positive emotions ($M = 3.33$) compared to the negatively framed appeals ($M = -3.37$). Analysis found no other significant effects (F 's < 1). Additionally, we tested for differences in positive ($\alpha = .92$; see items above) and negative emotional responses to the appeals. In addition to the neg-

ative emotions assessed in experiment 1 appeals, we measured five additional items that were consistent with the framing of the negative appeal in terms of avoiding negative emotions, such as regret and anxiety (worry, uneasy, regret, concern, and apprehensive, $\alpha = .95$; combined $\alpha = .96$ for all negative emotional items). A $2 \times 2 \times 3$ ANOVA on the combined index of positive minus negative emotional responses found a significant main effect of appeal type ($F(1, 245) = 744.3$, $p < .0001$). The positively framed emotional appeals elicited relatively more net positive emotional reactions ($M = 3.48$) than the negatively framed appeals ($M = -3.44$). Analysis found no other significant effects (p 's > .14).

Finally, participants rated the degree to which the appeals suggested a limited or an expansive time horizon. By subtracting the sum of items associated with an expansive time horizon view from the sum of the items associated with a limited time horizon view, the items were combined to create a single measure ($\alpha = .97$). Negative values on the index suggest a more expansive view of time and positive values a more limited view of time. A $2 \times 2 \times 3$ ANOVA on the score revealed a significant two-way interaction between age group and time horizon ($F(2, 245) = 3.19$, $p < .05$). Simple effects analysis showed that both older ($F(2, 120) = 3.31$, $p < .04$) and young ($F(2, 124) = 3.58$, $p < .03$) participants viewed time as more expansive in the time horizon expansive condition ($M_{\text{older}} = -3.23$ and $M_{\text{young}} = -3.12$) compared to time in the time horizon limited condition ($M_{\text{older}} = 3.63$ and $M_{\text{young}} = 3.58$), implying that the manipulation of time horizon perceptions was successful. In the control condition, older and young participants had different views of the time horizon. Older participants viewed time as more limited ($M = 3.46$) compared to young participants who viewed time as more expansive ($M = -3.19$). Consistent with expectation and experiment 1 results, in the absence of a time horizon manipulation, older adults' default view of time was limited and young adults' view expansive.

Attitude toward the Advertisement. Analysis of Aad ($\alpha = .98$) found a significant three-way interaction ($F(2, 245) = 9.06$, $p < .001$; see table 2). Simple effects analysis by age group found significant two-way inter-

actions between appeal type and the time horizon group for both young ($F(2, 124) = 22.3, p < .0001$) and older ($F(2, 120) = 10.7, p < .0001$) age groups. Further analysis showed that, young participants had more positive attitudes toward the positively (vs. negatively) framed emotional appeal in the time horizon expansive condition ($F(1, 45) = 18.1, p < .0001; M = 4.58$ vs. $M = 3.77$) and in the time horizon control condition ($F(1, 38) = 28.8, p < .0001; M = 4.78$ vs. $M = 3.33$). However, young participants in the time horizon limited group had more positive attitudes toward the negatively (vs. positively) framed appeal ($M = 4.83$ vs. $M = 4.07; F(1, 39) = 8.94, p < .01$). A different pattern of results emerged for older participants. For them, the negatively (vs. positively) framed appeal produced more positive attitudes in the time horizon limited ($F(1, 38) = 8.79, p < .01; M = 5.20$ vs. $M = 4.16$) and control ($F(1, 42) = 4.18, p < .05; M = 5.22$ vs. $M = 4.58$) conditions. However, older participants in the time horizon expansive group had more positive attitudes toward the positively framed (vs. negative) emotional appeal ($M = 5.26$ vs. $M = 4.13; F(1, 38) = 8.76, p < .01$).

Advertisement Recall. Participants completed an open-ended recall question, which was coded by two independent coders (interrater reliability = .90). Disagreements between coders were resolved through discussion. As in experiment 1, coders jointly identified and agreed upon discrete elements in each appeal (total items range from 10 to 12). For each participant, we calculated the proportion correctly recalled from each appeal. Again, we used an arcsine transformation of the proportion recalled for the analysis, but report the untransformed means. The pattern of results for the two measures was the same.

A $2 \times 2 \times 3$ ANOVA on the arcsine transformation of the proportion recalled showed a significant three-way interaction between age group, appeal type, and time horizon ($F(2, 245) = 5.32, p < .01$). Simple effects analysis found a significant two-way interaction between appeal type and time horizon for young participants ($F(2, 124) = 20.2, p < .0001$). Further analysis showed that young participants in the time horizon limited group recalled relatively more of the negatively framed emotional appeal ($M = .41$ vs. $M = .26; F(1, 39) = 9.01, p < .01$). In contrast, young participants in the time horizon expansive condition recalled more from the positively (vs. negatively) framed appeal ($M = .43$ vs. $M = .15; F(1, 45) = 33.1, p < .0001$). Similarly, in the time horizon control condition, young participants recalled more from the positively (vs. negatively) framed appeal ($M = .41$ vs. $M = .23; F(1, 38) = 12.0, p < .001$).

For older participants, we also found a two-way interaction between appeal type and time horizon ($F(2, 120) = 21.2, p < .0001$). Further analysis showed that, like their young counterparts, older participants in the time horizon limited group recalled more of the negatively framed emotional appeal ($M = .26$ vs. $M = .08; F(1, 38) = 16.7, p < .001$). And older participants in the time horizon expansive condition recalled more from the positively (vs. negatively)

framed appeal ($M = .28$ vs. $M = .12; F(1, 38) = 20.7, p < .0001$). However, in the time horizon control condition, older participants recalled more from the negatively (vs. positively) framed appeal ($M = .25$ vs. $M = .12; F(1, 42) = 12.5, p < .001$).

Discussion

Experiment 2 demonstrates that aging and time horizon perspective impact not only preferences for emotional versus rational appeals, but also preferences for different types of emotional appeals. In particular, emotional appeals focusing on the avoidance of negative emotional outcomes are more likable and memorable among older consumers and young consumers who had a limited time horizon view. In contrast, young consumers and older consumers who had an expansive time horizon view found the appeals that focused on the achievement of positive emotions more likable and memorable.

GENERAL DISCUSSION

This research provides strong evidence that age and associated differences in time horizon perspective influence responses to emotional advertisements. Experiment 1 showed significant age and time horizon related differences in attitudinal and memory responses to emotional versus rational appeals. Specifically, older adults had higher liking and recall of emotional appeals. In contrast, young adults had higher liking and recall of rational appeals. Further, experiment 1 manipulates perceptions of time horizon length within the appeals and demonstrates that time horizon perspective moderates these age-related differences. Experiment 2 builds on the results of experiment 1, showing that age and time horizon view are also associated with preferences for different types of emotional appeals. Older and young consumers with a limited time horizon perspective found emotional appeals that focused on avoiding negative emotions more likable and memorable. In contrast, young and older consumers with an expansive time horizon perspective found appeals that focused on achieving positive emotions more likable and memorable.

This research has a number of limitations to be addressed in future research. We attempted to control for various factors that might influence the processing of the ads, including elements of the appeals themselves (e.g., relevance, credibility, importance of emotional and rational attributes), and differences among the participants (e.g., educational backgrounds, time of day effects on cognitive abilities). Further we used multiple operationalizations of appeal types, product categories, and time horizon manipulations. However, it is possible that results of this research may not generalize to other ads or information processing situations.

Likewise, results of experiment 2 suggest topics for future research. First, past studies have found that older (vs. younger) adults are less likely to recall negative images (e.g., Charles et al. 2003). Yet, experiment 2 found that older adults and young adults with a limited time horizon view

had higher liking and recall for ads with a negative emotional frame. How can these findings be reconciled? Studies that have investigated older adults' responses to negative images have used unambiguously negative faces or other images. In contrast, the appeals in experiment 2 were not negative emotional appeals in the sense that they evoked feelings of sadness or fear, for example. Instead, they focused on how consumers could avoid experiencing such negative emotions. This focus on the avoidance of negative emotions is consistent with older adults' greater use of antecedent-focused emotional regulation strategies. Thus, it is not contradictory for older adults to both prefer appeals framed to avoid negative emotions and to show decreased processing and recall of explicitly negative stimuli. In fact, the decreased processing and recall of such negative stimuli is often attributed to a desire to avoid negative emotions (Gross et al. 1997). Future research might examine the effects of age on relative liking of explicitly negative emotional appeals, such as fear appeals.

In addition, the results of experiment 2 are relevant to the many studies examining attitudes toward appeals framed as gains versus losses (e.g., Maheswaran and Meyers-Levy 1990; Shiv, Edell and Payne 1997). To an extent, the framed appeals typically used in these studies are comparable to the appeals used in experiment 2. Although they tend to focus on positive/negative attributes or benefits gained/lost

through product use, they also bring to mind positive or negative emotions that can be achieved/avoided through product use. The results of experiment 2 imply that there is merit in investigating the influence of motivational tendencies associated with age and time horizon view on preferences for message frames in general.

In summary, the present findings have several important implications. Overall, they draw attention to motivational differences that underlie aging's effects on information processing. Most past research on older consumers has focused on shortfalls in cognitive ability to explain information processing differences between young and older adults. In contrast, the present research implies that researchers need to also account for age-related differences in motivational states and goals. Effects of the time horizon manipulations in the experiments indicate that differences in motivational states and goals rather than in cognitive ability cause differences in preferences for emotional (vs. rational) appeals, as well as for positively (vs. negatively) framed emotional appeals. In addition to theoretical implications, knowledge of motivational differences between older and young consumers has considerable practical value. Older adults are an increasingly important market segment. Understanding the goals of older adults' consumption activities is key for marketers seeking to create products and services relevant to them.

APPENDIX

TABLE A1

EXPERIMENT 1 APPEAL STIMULI TEXT

Coffee category		Film category	
Emotional appeal	Rational appeal	Emotional appeal	Rational appeal
<p><i>Common text:</i> "If your passion is coffee, then your pleasure will be Coffea. Join in the joyous celebration of this magic bean by savoring each sip of our rich brew. Coffea has a smooth, velvety flavor that evokes its exotic journey from the tree in its country of origin to the cup in your hand. With a deep, enticing aroma that draws people to the coffee and to one another. Specially blended for complexity and balance. Try it and delight in our extraordinary coffee. Coffea . . ."</p> <p><i>Time horizon ending group:</i> "Life is Short." [common text] "Savor the moment." (Total Recall Items = 12)</p> <p><i>Time horizon expansive group:</i> "Life is Long." [common text] "Enjoy it forever." (12)</p> <p><i>Time horizon control group:</i> "Enjoy Life". [common text] "Savor Coffea." (12)</p>	<p><i>Common text:</i> "For your next cup of coffee, choose Coffea. A gourmet blend at grocery store prices, Coffea provides an excellent value. In ground, whole bean and flavored varieties, Coffea is carefully blended and roasted to have moderate acidity. With 10 gourmet varieties available in both caffeinated and decaf. Each foil package is vacuum-sealed for freshness. Try it for its non-bitter taste."</p> <p><i>Time horizon ending group:</i> "Life is Short." [common text] "Savor the moment." (12)</p> <p><i>Time horizon expansive group:</i> "Life is Long." [common text] "Enjoy it forever." (12)</p> <p><i>Time horizon control group:</i> "Enjoy Life". [common text] "Savor Coffea." (12)</p>	<p><i>Common text:</i> "Capture Your Memories with Diamond Color Film. Picture your life with Diamond Color Film. Taking photographs is more than just the recording of an experience. It's a way to capture and hold onto the feelings from those special times and relationships. Photographs can reveal the devotion of friendship, the optimism of youth, the delight of surprise, the joys of love, both quiet and exuberant."</p> <p><i>Time horizon ending group:</i> "Life is Short." [common text] "Focus on the moment and capture the emotion today. Diamond Color Film" (14)</p> <p><i>Time horizon expansive group:</i> "Life is Long." [common text] "Capture the future on film and capture the emotion forever." (14)</p> <p><i>Time horizon control group:</i> "Enjoy Life." [common text] "Capture the emotion." (13)</p>	<p><i>Common text:</i> "Get the Shot with Diamond Color Film. When you're taking pictures, you want film you rely on, in any situation. Diamond Color Film features fine grain and very high sharpness of color and images, reproduces subtle colors naturally, and can be used both in natural light and flash photography. Diamond Color Film offers a wide selection of films for every occasion. Look for our affordable array of color film options."</p> <p><i>Time horizon ending group:</i> "Life is Short." [common text] "Focus on the moment and get the shot today." (14)</p> <p><i>Time horizon expansive group:</i> "Life is Long." [common text] "Focus on the future. Get the shot forever." (14)</p> <p><i>Time horizon control group:</i> "Enjoy Life". [common text] "Get the shot." (13)</p>

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