Effects of age, need for cognition, and affective intensity on advertising effectiveness

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ABSTRACT

This paper explores how individual characteristics of age, need for cognition (NFC), and affective intensity (AI) interact with each other and with advertising appeal frames (i.e., rational, positive-emotional, negative-emotional) to influence ad attitudes, involvement, and recall. The mixed design study reveals that younger adults recall emotional messages, especially negative ones, better than rational ones, but recall does not differ for older adults across appeal frames. Older adults prefer rational and positive messages to negative-emotional messages but ad attitudes do not differ among younger adults across appeal frames. Finally, age interacts with AI, but not NFC, to influence ad responsiveness. Both age and AI influence ad attitudes such that older adults exhibit the most positive ad attitudes across all appeal frames.

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1. Introduction

Consumers today are bombarded with marketing messages and the sheer abundance of these messages causes marketers to be increasingly concerned with advertising effectiveness. Consequently, researchers exploring advertising effectiveness have identified message framing as a factor contributing to persuasion (e.g., Chandran and Menon, 2004). How ad information is presented, or framed, influences consumers’ willingness to attend to and remember ad content.

Marketing messages can be framed in various ways (Bagozzi et al., 1999). For example, rationally-framed messages provide information to persuade through appeals to recipients’ thoughts. Alternatively, emotionally-framed messages attempt to persuade through appeals to emotions. Emotional appeals can be further differentiated in terms of valence: positive (e.g., joy, warmth, happiness) or negative (e.g., fear, guilt, worry).

Research shows that both thoughts and feelings contribute to advertising effectiveness (Edell and Burke, 1987). However, conditions under which thoughts versus positive or negative feelings are more important for advertising effectiveness are not fully understood. This research addresses this issue by exploring moderating effects of three specific individual differences on the relationship between message framing and ad effectiveness. Specifically, this work explores the interaction of age, need for cognition (NFC), and affective intensity (AI) with advertising message frames (positive-emotional, negative-emotional, and rational) to influence ad attitudes (Aad), ad involvement (Iad), and ad recall (Rad).

This research both replicates and extends previous work. Involvement’s inclusion extends Williams and Drolet’s (2005) work on older adults. Consideration of positive and negative emotions, versus positive and negative information in ad appeals extends Zhang and Buda’s (1999) work on NFC. Inclusion of involvement and recall extends Moore and Harris's (1996) work on AI. Finally, this work contributes to understanding factors that influence advertising effectiveness by examining how previously identified moderators interact with each other (i.e., age and NFC, and age and AI) and with message appeal frames to influence ad attitudes, involvement, and recall.

2. Theoretical background

2.1. Emotional versus rational message frames and ad effectiveness

Some researchers argue that informational properties of messages are more influential than emotions in generating positive attitudes (Holbrook, 1978). Other researchers contend that emotions can influence behavior independent of cognitions and accord greater importance to emotion’s role in determining advertising effectiveness (Brown et al., 1998). Affective processes, however, are most likely to
take precedence over cognitions for low-relevance attitudes and objects (Zajonc, 1984). Age also moderates the effectiveness of emotionally-framed advertising appeals. Older adults better like and recall emotional than rational appeals, whereas younger adults better like and recall rational than emotional appeals (Williams and Drolet, 2005). Together, these findings suggest that, under low-involvement conditions, emotionally-framed appeals will be more effective than rationally-framed ones, especially for older than younger adults. Therefore,

**Hypothesis 1a.** For low-involvement products, emotionally-framed ad appeals will produce more positive $A_{ad}$, and greater $I_{ad}$, and $R_{ad}$ than rationally-framed ad appeals.

**Hypothesis 1b.** Age will moderate the effects of emotional appeals on $A_{ad}$, and $I_{ad}$, and $R_{ad}$, such that the effects will be stronger for older than younger adults.

### 2.2. Positive- versus negative-emotion appeal frames

The valence of ad-evoked feelings influences attitudes toward the ad and the brand. Some suggest that positive-appeal frames produce more favorable attitudes toward ads, and that positive emotions increase attitudes toward ads and brands, whereas negative emotions do the opposite (e.g., Edell and Burke, 1987; Cotte et al., 2005). However, both the mood as information hypothesis (Schwarz and Clore, 1988) and the mood repair hypothesis (Isen, 1984) propose that cognitive elaboration is greater when negative emotions predominate, suggesting that negative ad frames will be more effective than positive ones in influencing $A_{ad}$. Indeed, negative emotions cause consumers to process information effortlessly and systematically (Keller et al., 2002). Together, these findings suggest that whereas a positive frame may cause one to like an ad, a negative frame that evokes greater elaboration, will generate greater $I_{ad}$ and $R_{ad}$.

Age also moderates the effectiveness of positive- versus negative-emotional appeals. Older adults are more likely than younger adults to attend to and remember emotionally meaningful information, especially positive information (Fung and Carstensen, 2003). However, older adults recall emotional appeals that focus on avoiding negative-emotional outcomes better than ones that focus on achieving positive-emotional outcomes (Williams and Drolet, 2005). Therefore, this study predicts an age by framing interaction. Specifically,

**Hypothesis 2a.** Older adults will have more positive $A_{ad}$, and greater $I_{ad}$, and $R_{ad}$ when ads are framed positively versus negatively.

**Hypothesis 2b.** Younger adults will have more positive $A_{ad}$, and greater $I_{ad}$, and $R_{ad}$ when ad appeals are framed negatively versus positively.

### 2.3. Need for cognition

NFC is the tendency of an individual to derive intrinsic enjoyment from engaging in effortful information processing (Cacioppo and Petty, 1982). Cacioppo et al.’s (1996) meta-analysis shows that in general, higher-NFC individuals better recall information, think more about substantive arguments in a persuasive communication, are less influenced by heuristic message cues, exhibit more positive attitudes toward stimuli requiring thought, and have attitudes that are more predictive of subsequent behavior than lower-NFC individuals. Thus, higher-NFC individuals should exhibit more positive $A_{ad}$, and greater $I_{ad}$, and $R_{ad}$ than those with lower NFC. Additionally, higher-NFC individuals are expected to find ad appeals containing factual information more appealing and persuasive than messages containing emotional information. The weak negative relationship between age and NFC (Cacioppo et al., 1996) suggests that NFC is stable over time. Thus, although younger and older should not differ in NFC, this study predicts:

**Hypothesis 3a.** An NFC main effect will produce more positive $A_{ad}$, greater $I_{ad}$, and $R_{ad}$ among higher- compared to lower-NFC individuals, regardless of the message recipient’s age.

Interestingly, positive and negative information equally persuades higher-NFC individuals, whereas negative information persuades lower-NFC individuals more than positive information (Zhang and Buda, 1999). Thus:

**Hypothesis 3b.** NFC will interact with appeal framing such that rationally- versus emotionally-framed ad appeals will heighten $A_{ad}$, $I_{ad}$, and $R_{ad}$ of higher-, not lower-NFC individuals, regardless of age.

### 2.4. Affective intensity

AI refers to the intensity or strength with which individuals experience both positive and negative emotions (Larsen and Diener, 1987). When individuals are exposed to positive-emotional appeals, higher-AI individuals exhibit more positive attitudes than lower-AI individuals (Moore and Harris, 1996). Higher-AI individuals also exhibit stronger emotional responses to ads than lower-AI individuals. They also experience higher levels of empathic involvement with ads (Moore and Homer, 2000). Therefore,

**Hypothesis 4a.** AI will interact with appeal frames such that, higher-AI individuals will have more positive $A_{ad}$, and greater $I_{ad}$, and $R_{ad}$ than lower-AI individuals, when ad appeals are framed emotionally versus rationally.

The socioemotional selectivity theory suggests that older adults manage both experience and emotions to ensure positive-emotional outcomes and that emotionally meaningful information is more important for them than for younger adults (Carstensen et al., 2003). In addition, emotional intensity of negative emotions tends to decrease with age (Barrick et al., 1989). Therefore,

**Hypothesis 4b.** Age will moderate the AI by appeal frame interaction on $A_{ad}$, $I_{ad}$, and $R_{ad}$ such that when higher-AI adults view emotionally-versus rationally-framed ad appeals, older adults will exhibit more positive $A_{ad}$, and greater $I_{ad}$, and $R_{ad}$ than younger adults.

**Hypothesis 4c.** An age by AI by appeal frame interaction will encourage the most positive $A_{ad}$, and greater $I_{ad}$, $R_{ad}$ among older adults when AI is higher, and appeal frames are positive versus negative.

**Hypothesis 4d.** The three-way interaction will encourage the most positive $A_{ad}$, and greater $I_{ad}$, and $R_{ad}$ among younger adults when AI is higher, and appeal frames are negative versus positive.

### 3. Method

#### 3.1. Study design

Hypotheses were tested in a $2$ (age: older versus younger) $\times$ $2$ (AI: higher versus lower) $\times$ $2$ (NFC: higher versus lower) $\times$ $3$ (appeal frame: rational, negative-emotional, or positive-emotional) mixed design with age, AI, and NFC as between-subjects factors and appeal frame as a within-subjects factor.

#### 3.2. Participants

Older participants were recruited from community groups and younger adults from a North American university where they received course credit in return for participation. One hundred and fifty-one
Younger (51% female, median age = 20, age range 18–36) and 124 older adults (68% female, median age = 70, age range 48–89) participated in the study.

3.3. Stimuli

Ads were created for orange juice, milk, and margarine. Three appeal frames were prepared for each product: positive-emotional, negative-emotional, and rational. All brands were fictitious and pictures in the ads were consistent for each product type. Ad text was manipulated to evoke different emotions. The rationally-framed appeals focused on factual information about the product. Positively-framed appeals focused on warm emotions associated with using the product. The tone of the ad was optimistic and upbeat (MacInnis and Stayman, 1993). Negatively-framed appeals focused on problems resulting from not using the product. Ad copy was extensive; words ranged from 126–138 for the margarine ad versions, 158–160 for milk, and 162–176 for orange juice. The number of idea units ranged from 54 to 95 per appeal. Ads were matched in terms of likeability and text in all ads was matched for word count, vocabulary, and reading level.

3.4. Procedure

Participants read an ad for each of the products. The appeal-type differed for each product seen by the participants and thus each participant was exposed to all three appeal frames. Product and appeal frame as well as presentation order were counterbalanced to create nine product–appeal frame combinations. Participants were randomly assigned to one of these nine conditions.

Participants read each ad at their own pace and first wrote everything they could recall and then a summary statement about each ad. Participants then responded to a series of questions about the ads, including three manipulation check items. The questionnaire concluded with items to assess AI, NFC, education, age, gender, and language spoken at home.

3.5. Dependent variables

3.5.1. Ad recall

Participants completed an open-ended recall protocol for each ad. The researchers had previously identified discrete phrases (idea units) for each product–appeal frame combination. Recall scores increased with the proportion of idea units participants recorded. Recalled idea units were considered to be correct as long as the participant recorded the gist of the idea unit (Adams et al., 1997).

3.5.2. Involvement toward the ad

Participants completed a three-item involvement scale, adapted from the Personal Involvement Inventory (Zaichkowsky, 1985), for each ad. The nine-point scale items had end points of: not at all meaningful/very meaningful, not at all relevant/very relevant, of no interest at all/interest to me. The items for each ad were averaged to create a single score with acceptable internal validity for each product type (αorange juice = .88, αmilk = .87, αmargarine = .91) and for each ad appeal-type (αrational = .89, αnegative = .89, αpositive = .91).

3.5.3. Attitude toward the ad

Nine-point semantic differential items, adapted from the Attitude Toward the Ad (Overall) scale (Mitchell and Olson, 1986), measured attitude: good/bad, like/dislike, favorable/unfavorable. The scores were averaged to create a single score with acceptable internal validity for each product type (αorange juice = .93, αmilk = .93, αmargarine = .95) and ad appeal-type (αrational = .92, αnegative = .94, αpositive = .95).

3.6. Individual difference variables

3.6.1. Affective intensity (AI)

Affective intensity was assessed with Larson’s (1984) six-point item Affective Intensity Measure (AIM) with end points of never and always. Confirmatory factor analysis (CFA) of the 40 indicator, single-factor AIM construct indicated a poor fit to the data: CFI .459; NFI .430; RMSEA .094 (.091, .097); and χ² 3317, df = 740, p < .05 (Kline, 2005). Some researchers suggest that AIM is more appropriately a three-factor construct and that 27 of the 40 questions should be used as indicators (Bryant et al., 1996). A CFA of this 27 item construct revealed an improved fit: CFI .798; NFI .779; RMSEA .068 (.063, .073); and χ² 905.23, df = 321, p < .05. The reliability of the 27-item measure was acceptable (α = .89), all of the factor loadings were significant, and the index was retained for use in the analysis. A median split on AIM scores (median = 4.3) divided participants into higher- and lower-AI groups. A comparison of AIM score means revealed differences between the two groups (Mlow = 3.8, Mhigh = 4.8, F(1, 274) 468, p < .00).

3.6.2. Need for cognition (NFC)

This study used the frequently cited, 18-item version of the NFC scale (Cacioppo et al., 1996). Questions were anchored with end points disagree (1) to agree (9). The CFA indicated that the 18-item, single-factor NFC construct did not fit the data well: CFI .728; NFI .792; RMSEA .080 (.072, .087); and χ² 464.23, df = 135, p < .05. As a result, modification indices were reviewed, questions were examined for face validity, and factor loadings were evaluated. All indicators with loadings less than .5 were removed. The modified 8-item construct was then tested and results indicated an improved fit and an acceptable model. Although the χ² value was still significant, the values of the fit indices were substantially improved: CFI .896, NFI .855, and RMSEA .091. As factor loadings were significant at the .05 level and α = .84, the eight-item measure was retained for this analysis. A median split on NFC scores (median = 5.6) divided participants into higher- or lower-NFC groups. Comparison of NFC score means revealed differences between the two groups (Mlow = 4.6, Mhigh = 6.7, F(1, 274) 431, p < .001).

3.7. Covariates

Because verbal ability is a known correlate of text-memory performance and a measure of cognitive capacity, verbal ability of participants was assessed with the short-form of the WAIS vocabulary test (Jastak and Jastak, 1964).

4. Results

4.1. Preliminary analyses

4.1.1. Cognitive capacity controls

Attempts were made to control for participants’ cognitive capacity. Because younger participants were university students, the analysis excluded older adults who had not completed high school. Analysis also excluded participants who did not commonly speak English at home. Analysis of Variance (ANOVA) revealed no differences between older and younger adults’ vocabulary scores (Myoungers = 23.3, Molder = 22.5, F(1, 274) 1.18, p = .28). For parsimony, subsequent analyses excluded verbal ability.

4.1.2. Manipulation check

Three nine-point items measured manipulation effectiveness of each ad: the ad could best be characterized as one using a positive rather than a negative approach, the ad focused on bad or frightening outcomes, the ad was designed to create negative feelings. End points were anchored with disagree and agree. The first item was reverse-scored. Combined scores formed a manipulation check of the appeal frame used in the ad.
Analyses of manipulation check indices revealed acceptable internal validity: \( \alpha_{\text{orange juice}} = .78 \), \( \alpha_{\text{milk}} = .75 \), and \( \alpha_{\text{margarine}} = .78 \).

The manipulations were effective. The ANOVA with manipulation score as the dependent variable and ad-appeal frame as the factor, revealed a main effect for all three products (orange juice: \( F(2,239) = 39.65 \), \( p < .001 \); milk: \( F(2,236) = 45.36 \), \( p < .001 \); margarine: \( F(2,239) = 61.92 \), \( p < .001 \)). Post hoc tests revealed that negative ads for all products were viewed as significantly more negative than positive ads (orange juice: \( M_{\text{negative}} = 4.0, M_{\text{positive}} = 2.5, F(1,266) = 44.31, p < .001 \); milk: \( M_{\text{negative}} = 5.1, M_{\text{positive}} = 3.2, F(1,263) = 56.62, p < .001 \); margarine: \( M_{\text{negative}} = 5.2, M_{\text{positive}} = 2.8, F(1,262) = 113.01, p < .001 \), and significantly more negative than rational ads (orange juice: \( M_{\text{negative}} = 4.0, M_{\text{rational}} = 2.4, F(1,263) = 56.05, p < .001 \); milk: \( M_{\text{negative}} = 5.1, M_{\text{rational}} = 3.1, F(1,262) = 60.61, p < .001 \); margarine: \( M_{\text{negative}} = 5.2, M_{\text{rational}} = 3.5, F(1,266) = 49.68, p < .001 \).

4.2. Hypotheses tests

H1a and H1b predicted that both older and younger adults would have more positive Aad, and greater Iad, and Rad of emotionally- versus rationally-framed ad appeals, and that these effects would be stronger for older adults. A repeated-measures multivariate analysis of variance (MANOVA) with Aad, Iad, and Rad as dependent measures, age as a between-subjects factor, and appeal frame as a within-subjects factor revealed an age by appeal frame interaction (\( \lambda = .88, F(2,237) = 5.51, p < .001 \)) as well as main effects for age (\( \lambda = .38, F(1,240) = 129.97, p < .001 \)) and appeal frame (\( \lambda = .87, F(1,237) = 5.71, p < .001 \)). Further analysis using paired-sample t-tests to compare positive- and negative-appeal frames with rational-appeal frames revealed that younger adults recalled more idea units when they read an emotional- versus a rational-appeal frame (Table 1). However, emotional appeals did not generate more positive Aad or greater Iad in younger adults. In comparison, older adults did not differ in Iad or Rad regardless of age. The repeated-measures multivariate analysis of covariance (MANCOVA) with Aad, Iad, and Rad as dependent measures, age group as a between-subjects factor, and NFC as a covariate, revealed that NFC was not related to Aad, Iad, or Rad (\( \lambda = .99, F(3,238) = 1.02, p = .39 \)), nor did NFC interact with appeal frame (\( \lambda = .12, F(6,235) = .99, p = .99 \)). A repeated-measures MANOVA with Aad, Iad, and Rad as dependent measures, age and NFC (higher/lower) as between-subjects factors, and appeal frame as a within-subjects factor also revealed that NFC was not related to Aad, Iad, or Rad (\( \lambda = .98, F(3,236) = 2.03, p = .11 \)), nor did NFC interact with appeal frames (\( \lambda = .10, F(6,233) = .11, p = .10 \)) or age (\( \lambda = .10, F(3,236) = .28, p = .10 \)).

Table 2

<table>
<thead>
<tr>
<th>Involvement</th>
<th>Attitudes</th>
<th>Recall</th>
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</thead>
<tbody>
<tr>
<td>Younger adults</td>
<td>.16</td>
<td>.21</td>
</tr>
<tr>
<td>Involvement</td>
<td>4.03</td>
<td>4.09</td>
</tr>
<tr>
<td>Attitudes</td>
<td>5.43</td>
<td>5.14</td>
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<tr>
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<td>5.16</td>
<td>5.07</td>
</tr>
<tr>
<td>Attitudes</td>
<td>6.34</td>
<td>5.92</td>
</tr>
</tbody>
</table>

** Table 1: Emotional versus rational appeals on ad response by age. **

<table>
<thead>
<tr>
<th>M_{\text{rational}}</th>
<th>M_{\text{negative}}</th>
<th>M_{\text{positive}}</th>
<th>t(d)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Younger adults Recall</td>
<td>.16</td>
<td>.21*</td>
<td>.18</td>
</tr>
<tr>
<td>Involvement</td>
<td>4.03</td>
<td>4.09</td>
<td>3.83</td>
</tr>
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<tr>
<td>Attitudes</td>
<td>6.34*</td>
<td>5.92</td>
<td>6.27</td>
</tr>
</tbody>
</table>

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

Results did not support H3b. Under higher NFC, R_{ad} increased with negative - (M_{\text{negative}} = .15, M_{\text{rational}} = .13; t(131) = 4.0, p < .001) and positive-emotional (M_{\text{negative}} = .14, M_{\text{rational}} = .13; t(131) = 1.98, p < .05) versus rational appeals. Under lower NFC, R_{ad} increased only with negative-emotional versus rational appeals (M_{\text{negative}} = .13, M_{\text{rational}} = .11; t(128) = 3.13, p < .002). Lower, but not higher NFC influenced Aad of rational versus emotional appeals; lower NFC: (M_{\text{negative}} =.54, M_{\text{rational}} =.58; t(130) =2.42, p <.02; higher NFC: t(131) =1.48, ns). H4a and H4b predicted that higher-AI individuals would be more persuaded by emotional-appeal appeals than lower-AI individuals and that these effects would be more pronounced among older adults. The repeated-measures MANCOVA with Aad, Iad, and Rad as dependent measures, appeal frame as a within-subjects factor, age group as a between-subjects factor, and AI as a covariate revealed that AI has an impact on Aad, Iad, and Rad (\( \lambda = .94, F(3,238) = 5.11, p < .01 \)). A follow-up repeated-measures MANOVA with age and AI as between-subjects factors, appeal frame as a within-subjects factor, and Aad, Iad, and Rad as dependent measures indicated an AI by age interaction (\( \lambda = .96, F(3,230) = 3.46, p < .05 \)) and main effects for both AI and age (AI: \( \lambda = .93, F(3,230) = 5.86, p < .001 \); age: \( \lambda = .38, F(3,230) = 126.84, p < .001 \)). When age groups were combined, higher-AI individuals had more positive Aad and Iad than lower-AI individuals, regardless of appeal frame. However, AI did not affect R_{ad} for any appeal frames (Table 3). Thus, results partially supported H4a as higher-AI individuals exhibited more positive appeals. Similarly, younger adults exhibited marginally greater Iad with negative- than positive-emotional appeals (\( p = .062 \)). However, viewing positive- or negative-appeal ads resulted in no differences in Aad for younger adults. Thus, results partially supported H2a and H2b.

H3a predicted that, compared to lower NFC, higher NFC would result in more positive Aad and greater Iad and Rad in both older and younger adults. H3b predicted that higher-NFC individuals would have more positive Aad, and greater Iad, and Rad of rational versus emotional ads, regardless of age. The repeated-measures multivariate analysis of covariance (MANCOVA) with Aad, Iad, and Rad as dependent measures, age group as a between-subjects factor, appeal frame as a within-subjects factor, and AFC as a covariate, revealed that NFC was not related to Aad, Iad, or Rad (\( \lambda = .99, F(3,238) = 1.02, p = .39 \)), nor did NFC interact with appeal frame (\( \lambda = .12, F(6,235) = .99, p = .99 \)). A repeated-measures MANOVA with Aad, Iad, and Rad as dependent measures, age and NFC (higher/lower) as between-subjects factors, and appeal frame as a within-subjects factor also revealed that NFC was not related to Aad, Iad, or Rad (\( \lambda = .98, F(3,236) = 2.03, p = .11 \)), nor did NFC interact with appeal frames (\( \lambda = .10, F(6,233) = .11, p = .10 \)) or age (\( \lambda = .10, F(3,236) = .28, p = .10 \)).
Aad and greater Iad than lower-AI individuals. Unexpectedly, these effects appeared with all appeal frames, not just emotional appeals.

Separate repeated-measures ANOVAs for Aad, Iad, and Rad with appeal frame as a within-subjects factor and age and AI as between-subjects factors, revealed an age by AI interaction for Aad (F(1,241) = 4.06, p < .05), but not for Rad (F(1,241) = 1.57, p = .21) or Iad (F(1,241) = 1.53, p = .21). A follow-up ANOVA with Aad as the dependent variable, appeal frame, age, and AI as between-subjects factors, revealed that higher-AI older adults had more positive Aad toward all appeals than higher-AI-younger adults, regardless of appeal frame (Table 4). However, Aad did not differ between lower-AI-younger and older adults for any of the appeal frames. Similarly, higher-AI older adults had more positive Aad toward all the ads than lower-AI older adults. Higher-AI-younger adults also had more positive Aad toward positively-framed appeals than did lower-AI-younger adults. Thus, results partially supported H4b as higher-AI-older adults had more positive Aad toward emotionally-framed ad appeals than higher-AI-younger adults. In addition, however, higher-AI-older adults had more positive Aad than higher-AI-younger adults toward rational-framed ad appeals.

Higher-AI-adults prefer positive to negative ad appeals (Mpositive = 6.3, Mnegative = 5.8; t(127) = 3.06, p < .003) whereas lower-AI-adults show no preference (Mpositive = 5.10, Mnegative = 5.10; t(133) = .10, p = .92). Both older- and younger-higher-AI adults prefer positively-framed ad appeals. Further analysis revealed that higher-AI-older adults had more positive Aad towards positive than negative appeal (Mpositive = 6.3, Mnegative = 6.8; t(62) = 2.23, p < .03). Higher-AI-younger adults also had more positive Aad towards positive than negative-emotional appeal (Mpositive = 5.2, Mnegative = 5.7; t(59) = 2.08, p < .05). However, lower-AI-adults did not exhibit any Aad differences toward negative- or positive-emotional appeals (younger: t(84) = .77, ns; older: t(48) 1.31, ns). Thus, results supported H4c but not H4d.

5. Discussion

This study has explored the moderating effects of age, NFC, and AI on the effectiveness of ad appeals that are framed emotionally versus rationally. Surprisingly, younger adults find emotional appeals more persuasive than rational appeals; they remember emotionally-framed appeals better than rationally-framed appeals. Interestingly, older adults develop more positive Aad when exposed to rational appeals than to negative ones. Older adults' preference for an informative ad over a negative ad is consistent with socioemotional selectivity theory (Carstensen et al., 2003) which suggests that older adults will respond more positively to rational, informational ads than to ones that evoke negative emotions.

As expected, higher-NFC individuals, regardless of age, exhibited more Iad, Aad, and Rad overall than lower-NFC individuals. Surprisingly, when looking at each appeal frame separately, NFC effects were observed only for emotional appeals. Forced ad exposure likely encouraged a similar degree of processing among both lower- and higher-NFC individuals. A logical extension of the mood as information viewpoint (Schwarz and Clore, 1988) is that emotional appeals increase cognitive load required to process an ad (Huhmann, 2007). The current study’s NFC findings support this idea. All ads had extensive copy. Lower-NFC individuals who possess less intrinsic motivation to tackle both an emotional appeal frame and long copy, showed similar recall for positive-emotional and rational ad appeals and difference in liking between emotional and rational ad appeals. Higher-NFC individuals, who possess more intrinsic motivation to overcome the high cognitive load of emotional information combined with long copy, recalled more of negative- and positive-emotional than rational ad appeals, likely due to increased central processing (Cacioppo et al., 1996).

Although prior research found more positive Aad with positive- than negative-appeal frames (e.g., Cotte et al., 2005), which is consistent with the view of emotional-appeal frames influencing hedonic value or pleasure from ad processing (Huhmann, 2007), the current study places boundary conditions on the emotional-appeal–Aad link beyond NFC’s previously discussed role. First, age matters; emotional-appeal frames influence Aad direction among older, but not younger, adults. Second, AI matters; emotional-appeal frames influence Aad direction among higher- but not lower-AI, adults. This study extends Moore and Harris’ (1996) work on AI’s effect on Aad with emotional television ad frames. The current data also revealed an interaction between AI and age. Regardless of appeal frame, higher-AI-older adults exhibited more positive Aad than higher-AI-younger adults.

The current study’s results make a case for revisiting Plutchik’s (1982) theory that emotions are motivational in nature. Among higher-AI individuals, especially older adults, positive- but not negative-emotional appeals increased Aad compared to rational appeals. Interestingly, positive-emotional appeals enhanced Rad for higher-NFC individuals. Results for lower-NFC individuals did not exhibit the same pattern. If emotions are general motivators, they should motivate regardless of AI or NFC. However, consistent motivational advantages of emotional versus rational appeals appear only among higher-AI and higher-NFC individuals.

This study also explored the moderating effects of age, NFC, and AI on the effectiveness of emotional ad appeals that are framed with a positive versus a negative valence. As expected, older adults found positive appeals more persuasive (Aad) than negative appeals and younger adults found negative appeals more persuasive (Iad and Rad) than positive appeals. This increasing preference for positive- versus negative-emotional appeals with age is consistent with the socioemotional selectivity theory and explains age-related changes to emotional appeal effects documented previously (Burke and Edell, 1989; Cotte et al., 2005; Fung and Carstensen, 2003; Moore and Harris, 1996). As expected, no NFC–emotional valence relationship emerged. However, a relationship between AI and emotional valence demonstrated that both older- and younger-higher-AI adults exhibit more positive Aad when exposed to positive- than negative-emotional appeals.

Marketers carefully frame advertising messages to evoke certain emotions. This study provides important information to help understand how these ad-evoked emotions influence individuals. Understanding the relationships between ad-evoked emotions and individual characteristics such as age, need for cognition, and affective intensity allows marketers to increase their advertising messages’ effectiveness.

### Table 3

<table>
<thead>
<tr>
<th>Appeal frame</th>
<th>Lower AI</th>
<th>Higher AI</th>
<th>F-test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Involvement</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rational</td>
<td>4.25</td>
<td>4.84</td>
<td>F(1,207) = 10.72***</td>
</tr>
<tr>
<td>Negative</td>
<td>4.26</td>
<td>4.76</td>
<td>F(1,207) = 6.68*</td>
</tr>
<tr>
<td>Positive</td>
<td>3.92</td>
<td>4.92</td>
<td>F(1,208) = 29.88***</td>
</tr>
<tr>
<td>Attitude</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rational</td>
<td>5.52</td>
<td>6.15</td>
<td>F(1,204) = 7.05*</td>
</tr>
<tr>
<td>Negative</td>
<td>5.08</td>
<td>5.78</td>
<td>F(1,203) = 7.19*</td>
</tr>
<tr>
<td>Recall</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rational</td>
<td>5.10</td>
<td>6.25</td>
<td>F(1,203) = 23.68**</td>
</tr>
<tr>
<td>Negative</td>
<td>5.08</td>
<td>5.74</td>
<td>F(1,203) = 14.47***</td>
</tr>
</tbody>
</table>

### Table 4

| Aad and H4d: Negative versus positive message frame on attitudes by affect intensity. |
|-----------------------------------------|-----------------|-----------------|
| Lower AI                               | Higher AI       |
| Younger                                 | Older           |
| Mpositive                              | Mnegative       |
| Lower AI                               | Higher AI       |
| Younger                                 | Older           |
| 5.06                                   | 4.83            | t(67) = .77     |
| 5.13                                   | 5.50            | t(49) = 1.31    |
| 5.19                                   | 5.66            | t(49) = 2.08**  |
| 6.29                                   | 6.77            | t(47) = 2.23**  |

* p < .05.
However, the generalizability of these findings to other contexts, other media, and to known brands may be problematic. Although ads are commonly viewed within a context that evokes emotions (e.g., Brumbaugh, 2002),ads in this study were presented alone rather than being embedded in an editorial context. Additionally, although not unusual in many magazine contexts (e.g., Family Circle, Men's Health, Parenting, etc.), three ads for low-involvement food products were presented within a short time period. Furthermore, print ads for fictitious brands were employed to generate ad-evoked affect without the contaminating influence of prior brand exposure. However, effects for established brands may be different than those uncovered in this study.

In conclusion, these findings draw attention to noteworthy individual characteristics (i.e., age, NFC, and AI) that moderate the effectiveness of emotionally- (positive or negative) and rationally-framed advertising appeals. Understanding how individual characteristics interact with ad-appeal framing should assist advertisers to design messages and researchers to understand persuasion.

References