Aging-Related Selectivity and Susceptibility to Irrelevant Affective Information in the Construction of Attitudes

THOMAS M. HESS, CASSANDRA M. GERMAIN, DANIEL C. ROSENBERG, CHRISTINA M. LECLERC, AND ELIZABETH A. HODGES
Department of Psychology, North Carolina State University, Raleigh, NC, USA

ABSTRACT

Two experiments were conducted to examine the hypothesis that aging is associated with an increase in the selectivity associated with task engagement and related cognitive resource allocation. Adults ranging in age from 20 to 83 years were asked to provide attitude ratings about fictitious political program proposals that varied in terms of personal relevance. Of primary interest was the extent to which these attitude ratings would be influenced by the likability of the individual (i.e., source) responsible for the programs. Consistent with expectations, older adults were more likely than younger adults to provide attitude ratings consistent with the likableness of the source, with this effect being moderated by need for structure and personal relevance. The findings are supportive of the general argument that older adults are able to monitor and control the impact of irrelevant information on performance, but are most likely to engage in such operations in situations of high meaningfulness. Younger adults exhibit similar effects, but the variability across levels of meaningfulness increases with age, a pattern consistent with an aging-related increase in selectivity.

There is substantial evidence that aging is associated with a decrease in the efficiency of controlled processing mechanisms. Relative to younger adults, older adults appear to be at a disadvantage when task performance puts demands on working memory resources in terms of initiating, monitoring,
and controlling ongoing mental operations (for reviews, see McDowd & Shaw, 2000; Zacks, Hasher, & Li, 2000). Much of the research identifying such effects has been conducted using traditional laboratory tasks in which the goal is to assess basic mental functioning while controlling for potentially confounding variables (e.g., pre-existing knowledge, personal goals). An important issue in the study of aging and cognitive change, however, relates to the extent to which age effects identified in such circumstances are generalizable to real-world situations. There is increasing evidence that the impact of age on performance in everyday circumstances may be moderated by the very factors that we attempt to control in laboratory situations (Hess, 2000; Hess & Pullen, 1996). Study of these moderating influences, however, can provide important information concerning older adults functioning in everyday life.

In this research, we were interested in examining the extent to which age differences exist in the ability to control the impact of irrelevant extraneous information in the construction of attitudes using stimuli similar to those encountered in real-life. As noted before, the extant literature indicates that older adults have disproportionate difficulties monitoring and controlling the contents of working memory. Such aging-related decrements are consistent with current notions of cognitive change that, for example, emphasize reductions in processing resources (Craik, 1986), inhibitory functions (Hasher & Zacks, 1988) and executive control (Prull, Gabrieli, & Bunge, 2000). These theoretical perspectives would predict that older adults will be more likely than younger adults to incorporate irrelevant information in their judgments due to their inability to closely monitor its influence or to control its impact once activated.

Several findings in the literature are consistent with this prediction. For example, Hess, Waters, and Bolstad (2000) presented positive and negative affective primes subliminally or supraliminally immediately prior to meaningless stimuli (Japanese Kanji characters), and found that both presentation mode and age influenced the impact of the primes on judgments about these stimuli. Specifically, adults of all ages exhibited assimilation effects (i.e., responses biased in the direction of the prime) in likability judgments when unaware of the prime. In this type of situation, it is thought that individuals associate the affective information with the target stimulus due to their unawareness of the activating prime (Murphy & Zajonc, 1993). When participants were aware of the prime, however, only older adults demonstrated assimilation. Under supraliminal priming conditions, the source of the affective information is clear, and younger and middle-aged adults presumably are able to monitor and control its impact on their judgments. In contrast, aging-related deficiencies in controlled processing mechanisms result in older adults being less effective at monitoring and control, leading to biased responses.
The particular task used in the Hess et al. (2000) research involved simple judgments about unfamiliar, but simple stimuli. Such biases emerge, however, even when more complex tasks are used. For example, Hess, McGee, Woodburn, and Bolstad (1998) examined the impact of affect-laden primes on judgments using an impression formation task. They found that older adults’ interpretations of a target person’s behavior were more likely to be influenced by exposure to trait-related information in a prior but unrelated context than were those of younger adults. The existence of aging-related variations in judgment biases is interesting from a theoretical standpoint, but troubling from a more practical one. Specifically, the apparent aging-related increase in the susceptibility to irrelevant information may make older adults more prone to errors in decision-making as well as more susceptible to advertising practices that attempt to manipulate product attitudes through means other than discussion of the products’ qualities (e.g., using a popular celebrity in a TV commercial).

An emerging body of research, however, presents a more optimistic picture. Specifically, it is becoming clearer that motivational factors play an important role in determining the extent to which age differences in memory and judgment processes emerge. For example, personal meaningfulness of the task, both in terms of developmentally relevant goals and current life circumstances has been shown to enhance memory and judgment accuracy in older adults (Carstensen & Turk-Charles, 1994; Hess, Rosenberg, & Waters, 2001). Hess et al. (2001) also demonstrated that performance in older adults was enhanced when social accountability was increased within the testing context. Such findings suggest that age differences in judgment processes may be context specific. That is, the age effects observed in a given situation may not just be a function of ability, but also of complex interactions between the situation (e.g., task, nature of materials) and normative variations in personal factors, such as processing goals and interests.

One way to think about these types of effects is in terms of aging-related selectivity. Several theorists (e.g., P. B. Baltes & Baltes, 1990; Brandstädter & Greve, 1994; Heckhausen & Schulz, 1995) have used the notion of selectivity to characterize adaptive processes associated with aging. In these theories, selectivity is typically used to describe processes of adaptation that occur when aging imposes limits on an individual’s capability to perform or function. For example, the selective optimization with compensation model (e.g., P. B. Baltes & Baltes, 1990; Baltes, Staudinger, & Lindenberger, 1999) proposes that loss-based selection becomes more prevalent in later life as developmental losses increasingly outweigh gains. In such cases, selectivity may be manifested in terms of shifting goals and task selection that serve either to engage compensatory processes to counter losses or to de-emphasize the affected abilities (i.e., reduce demands on the affected systems). Selectivity may also operate in conjunction with changing
developmental goals, such as those associated with emotional experience and information seeking (Charles & Carstensen, 1999) or those tied to specific life stages (e.g., Heckhausen, Wrosch, & Fleeson, 2001).

Consistent with these views, Hess et al. (2001) have proposed that aging is associated with a general increase in selectivity in social-cognitive functioning. They hypothesized that this selectivity is manifested as greater conservation of cognitive resources by older adults relative to younger adults due to presumed decrements in reserve capacity or the physical drain associated with effortful processing. Such conservation should be most apparent in situations of low importance or relevance to the individual, resulting in age differences in performance being greatest in low relevance situations and decreasing as relevance increases. The findings of the Hess et al. (2001) research are generally consistent with this selectivity hypothesis.

In the two studies presented here, we attempted to build upon earlier work by examining age differences in the impact of task-extraneous information within the context of a judgment task similar to one that might be encountered in everyday life. We were also interested in examining aging-related selectivity processes within this same context. To do so, we used a procedure similar to that of Petty, Wegener, and White (1998), in which different-aged adults were asked their opinions about programs being considered in their state’s legislature. To assess the impact of task-extraneous information we examined the degree to which these opinions were influenced by irrelevant information presented prior to participants reading about the programs. This was accomplished by exposing participants to brief positive or negative descriptions of the lawmaker who proposed the program. The degree of assimilation of participants’ judgments in the direction of this evaluative information was then examined. Based on the earlier research by Hess and colleagues, it was expected that assimilation effects in judgments would increase with age.

We also hypothesized that aging-related selectivity processes would moderate this effect. Selectivity, as reflected in the use and efficiency of controlled processing operations, was examined by manipulating relevance of the task to the individual. Dual-process models of social judgment, such as the Elaboration Likelihood Model (ELM; Petty & Wegener, 1999) and the Heuristic-Systematic Model (HSM; Chen & Chaiken, 1999), predict that low task engagement will be associated with greater use of easily accessed evaluative information in forming judgments when compared to high task engagement. Consistent with this prediction, Petty et al. (1998) found that participants’ evaluations of a program proposal were more likely to be biased by the likability of the individual proposing the program when it had minimal impact on the individual than when it had more direct impact.
We attempted to manipulate personal relevance in a manner similar to that in Petty et al. (1998) by varying the probability of implementation (Experiment 1) or the tax burden (Experiment 2) associated with each program. Personal relevance was assumed to increase with the probability that the program would become law and thus have an impact on the individual’s life, or with the degree to which the program required a tax increase to support implementation. Consistent with the ELM and HSM, it was expected that task engagement would increase as personal relevance increased. Specifically, higher degrees of personal relevance were expected to result in more systematic or elaborative processing, with the result that individuals would be less likely to consider peripheral information (e.g., source likability) or use convenient heuristics (e.g., the source is nice, therefore the program must be good) in constructing their judgments. Consistent with the selectivity hypothesis, it was also expected that this difference in the use of central/systematic processing versus peripheral/heuristic processing, as indexed by degree of assimilation of attitudes to source valence, would increase with age.

We also investigated the role of an intrinsic motivational factor, need for structure, on performance. This construct relates to the degree to which individuals desire structure in their lives and seek to structure their world in a simple and unambiguous manner (Neuberg & Newsom, 1993), and it has been shown to be positively associated with the probability of exhibiting assimilation effects in judgments (e.g., Thompson, Roman, Moskowitz, Chaiken, & Bargh, 1994). There is also evidence in the literature that the impact of need for structure on performance increases with age in adulthood. Specifically, Hess et al. (2000) found that need for structure was positively associated with the strength of assimilation effects in judgments in older adults, but not in younger or middle-aged adults. This effect appeared to reflect the facts that adherence to simple heuristics (e.g., the imposition of simple structure) is associated with reduced resources (Hess, 2001; Schultz & Searleman, 1998; Webster, Richter, & Kruglanski, 1996), and that the mapping of need for structure onto available resources increased in strength with age (Hess et al., 2000). In the present study, we were interested in whether this disproportionate influence of need for structure in later life would be replicated in a more complex judgment task. We were also interested in seeing whether the relationship between age and need for structure would be moderated by the meaningfulness of the task. If need for structure is related to the availability of resources, then it might be expected that selectivity effects would be related to this construct.

In sum, this research tested the hypotheses that aging is associated with an increasing impact of task-extraneous information on attitude judgments, and that task relevance and need for structure would moderate this effect.
EXPERIMENT 1

METHOD

Design

This study used an Age × Need for Structure × Source Valence × Program Relevance design, with the first three variables between participants and the last within participants. Age and need for structure (as measured by the Personal Need for Structure [PNS] scale [Thompson, Naccarato, & Parker, 1992]) were treated as continuous variables, and participants within each of six age groupings (see below) were randomly assigned to positive or negative source valence conditions. Within each of these conditions, participants read vignettes about two fictitious pieces of legislation regarding tax programs and the legislators (i.e., sources) who had proposed them, with one vignette being high and the other low in personal relevance. Ratings of source likability, program relevance, and attitudes toward the program were collected for each vignette.

Participants

Participants were recruited through advertisements in Raleigh newspapers and received $20 for their participation, with 148 adults ranging in age from 20 to 83 being included in the final sample. We used a continuous age distribution, and similar numbers of participants were recruited from the following six age groups to achieve a relatively even spread of participants across this age range: 20–29 (11 women, 15 men), 30–39 (14 women, 10 men), 40–49 (14 women, 10 men), 50–59 (14 women, 10 men), 60–69 (13 women, 13 men), and 70–83 (12 women, 12 men). In both this study and Experiment 2, individuals with documented cognitive impairment or who were taking psychotropic prescription drugs were excluded from participation.

Materials

Two target passages were constructed, each of which described (a) a problem within the state of North Carolina, (b) a proposal for dealing with the problem, and (c) a series of seven arguments in support of the proposal. The two proposals had to do with (a) raising the gas tax to support road construction and maintenance of transportation infrastructure, and (b) dealing with recent cutbacks in human services by raising taxes or providing tax credits for volunteerism to cover the tax increase. Importantly, each proposal would have a direct cost to all state residents, financial or otherwise (e.g., time/effort), if enacted. Issues were selected based on ratings by an independent group of 10 younger adults (age range: 23–36) and 10 older adults (age range: 63–81), who were presented with six brief proposals to deal with statewide issues of concern and
rated (on 7-point scales) the importance and personal relevance of each proposal. They also rated the strength of 12 different arguments presented to support each proposal. The two program proposals selected as targets were chosen based on their moderate importance ($M_s = 4.75$ and 4.95) and relevance ($M_s = 3.75$ and 3.47) ratings. This was done in order to enhance the effectiveness of our relevance manipulation. The seven arguments selected for each proposal received moderately high quality ratings ($M_s = 4.87$ and 4.46). There were no age differences for either set of ratings. The final passages were 635 and 697 words in length. A third filler passage following the same structure was also developed. The content for this passage was taken from an actual newspaper article in order to lend face validity to the study.

Descriptions of two different fictitious legislators were also created. They were written in the form of a biographical sketch taken from a newspaper story, and were formatted (i.e., in columns with title and by-line) to be consistent with this characterization. For each legislator, a positive and negative version was created. These two versions followed the same basic structure, but contained different characterizations. For example, in one positive version, the legislator characterizes the residents of North Carolina as being very responsible when it comes to dealing with community problems whereas in the negative version, he characterizes the residents as essentially irresponsible. These source descriptions were 311–386 words long.

**Procedure**

At the beginning of the test session, which lasted from 90 to 120 min, participants completed a short demographic questionnaire and the SF-36 Health Survey (Ware, 1993). They also completed the 11-item PNS scale, which has been shown to have good internal consistency across age groups in adulthood ($\alpha = .77–.85$) and good test–retest reliability ($r = .76$) (Hess, 2000; Neuberg & Newsom, 1993). Sample items on this scale include “I enjoy having a clear and structured mode of life.” and “I hate to be with people who are unpredictable.” In addition, scores on this scale have been shown to predict performance on a variety of cognitive (e.g., categorization, Tower of Hanoi) and social-cognitive (e.g., stereotyping, impression formation) tasks (e.g., Neuberg & Newson, 1993; Schultz & Searleman, 1998; Thompson et al., 1994)

After completing these initial forms, the main part of the study began. Half the participants in each of the six age-groupings were randomly assigned to the positive source condition and half to the negative source condition. All participants were informed that the study was designed to investigate factors associated with communication and persuasion. As part of this study, they were told that they would be reading about specific
social and political problems in North Carolina, and proposed solutions, in the form of specific programs being considered by the state legislature, to these problems. They were then presented with a series of three program proposals. For each proposal, they were told to read the description carefully, paying close attention to the strength and effectiveness of the arguments presented in support of the program. The two target proposals were presented in the first and last position, with relevance being varied by describing one program as currently being under consideration by the legislature (high relevance) whereas the other was one of many that might be considered at some future time (low relevance). This probability of implementation was emphasized in both the instructions and just prior to the reading of the passage. The filler passage was always presented second. The order of presentation of the high and low relevance proposals as well as the occurrence of each of the two target proposals at each level of relevance was systematically varied across participants and age. Each of the three proposals was preceded by a brief description of an individual (i.e., source) who was described as being responsible for the legislation. For the two target proposals, the description of the source was consistent with the participant’s condition assignment (i.e., positive vs. negative source). The source description for the filler passage was relatively neutral in tone.

After reading about the source, participants rated his characteristics on four 9-point (−4 to +4) semantic differential scales (unlikable/likable, unfriendly/friendly, unpleasant/pleasant, and unsociable/sociable). Following reading of each program proposal, participants were asked to rate their own opinions about the program prior to providing their assessments of the effectiveness of argumentation. They were informed that we were collecting this information since research has found that personal opinions often affect such assessments. Five 9-point scales were used to assess opinions about the programs (disagree/agree, bad/good, harmful/beneficial, foolish/wise, and unfavorable/favorable), and four additional 9-point scales (not relevant/extremely relevant, not important/extremely important, no impact/extreme impact, and not meaningful/extremely meaningful) were used to assess personal perceptions of relevance. Finally, participants made four ratings regarding the quality of the arguments presented for each program (unclear/clear, weak/strong, unconvincing/convincing, and low quality/high quality) and two ratings regarding the source (not knowledgeable/knowledgeable and not competent/competent).

Participants then completed a series of ability tests, including the WAIS III Letter-Number Sequencing task (Wechsler, 1997) to assess one aspect of executive functioning, Vocabulary Test 2 from the Kit of Factor-Referenced Cognitive Tests (Ekstrom, French, Harman, & Derman, 1976) to assess verbal ability, and Salthouse and Coon’s (1994) letter and pattern comparison tasks to assess processing speed.
RESULTS AND DISCUSSION

For all tests of statistical significance here and elsewhere, \( \alpha \) was set to .05.

Participant Characteristics

Correlations involving age and relevant background variables for the study sample are presented in Table 1, and they are typical of those seen in research on aging. Specifically, increasing age was associated with a decrease in physical health, processing speed, and working memory functioning and an increase in number of prescription drugs taken, emotional health, and verbal ability. The background variables were also examined using Age \( \times \) Source Valence GLM-based analyses of variance (ANOVA) to identify inadvertent biases associated with participant assignment to source (positive vs. negative) conditions. The only significant effect involving source was obtained for vocabulary scores, where the mean score in the negative source condition (\( M = 29.9 \)) was greater than that in the positive source condition (\( M = 28.7 \)), \( F(1,144) = 5.83 \). Vocabulary was therefore examined as a potential covariate in the analysis of each dependent measure in the attitude formation task, and analyses of covariance (ANCOVA) were performed when assumptions were satisfied for its inclusion as a covariate.

Manipulation Checks

All dependent variables in the analyses in this section were examined using Age \( \times \) PNS \( \times \) Source \( \times \) Relevance ANOVAs, with the continuous variables of age and PNS each centered through standardization to control for multicollinearity effects.

| Table 1. Experiment 1: Sample Characteristics and Intercorrelations Among Them |
|---------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
|                                | \( M \)   | \( SD \)  | 1. \( r \) | 2. \( r \) | 3. \( r \) | 4. \( r \) | 5. \( r \) |
| 1. Age                         | 49.9     | 17.4     |           |           |           |           |           |
| 2. Years education             | 16.0     | 2.7      | \( -.03 \) |           |           |           |           |
| 3. No. of prescription drugs   | 1.6      | 2.3      | \( .31 \)  | \( -.14 \) |           |           |           |
| 4. SF-36: Physical health      | 48.7     | 7.2      | \( -.34 \) | .05       | \( -.30 \) |           |           |
| 5. SF-36: Mental health        | 51.4     | 10.7     | \( .36 \)  | \( .28 \)  | .04       | \( -.32 \) |           |
| 6. Speed                       | \( -.01 \)| \( .93 \)  | \( -.60 \) | \( .29 \)  | \( -.20 \) | \( .29 \)  | \( -.16 \) |
| 7. Letter-number sequencing    | 11.2     | 3.0      | \( -.24 \) | \( .25 \)  | \( -.10 \) | \( .11 \)  | \( .02 \)  | \( .39 \)
| 8. Vocabulary                  | 29.3     | 3.5      | \( .35 \)  | \( .30 \)  | \( .01 \)  | \( -.14 \) | \( .27 \)  | \( -.01 \) | \( .35 \) |
| 9. PNS                         | 41.3     | 9.3      | \( .02 \)  | \( -.15 \) | .12       | \( .03 \)  | \( -.23 \) | \( -.14 \) | \( -.27 \) | \( -.12 \) |

**Note.** Score ranges: (a) Letter-number sequencing –0 to 21; (b) Vocabulary –0 to 36; and (c) PNS (Personal Need for Structure) –6 to 66. Speed is the mean \( z \) score for the letter and pattern comparison tasks. SF-36 scores are population norm-based \( T \) scores. Correlations in bold are significant at \( p < .05 \).
**Study Time**

We first examined the amount of time participants spent reading information about both the sources and programs. The only significant effects obtained were due to study time increasing with age for both source information, $F(1,139) = 5.02$, $\eta^2 = .04$, and the program description, $F(1,139) = 6.00$, $\eta^2 = .04$. (Study times were unavailable for one participant.)

**Source Likability**

Responses to the four items assessing source likability exhibited a high degree of internal consistency in both the high ($\alpha = .97$) and low ($\alpha = .93$) relevance conditions. Analysis of the mean of these four items indicated that our source manipulation was effective, with the positive source being liked more ($M = 2.28$) than the negative source ($M = -.47$), $F(1,140) = 220.51$, $\eta^2 = .62$. The only other significant effect was an interaction between age, PNS, and source valence, $F(1,140) = 4.79$, $\eta^2 = .03$. We decomposed this interaction by examining the effects of PNS and source at representative points in the sample age distribution (±1 SD from the mean, roughly corresponding to ages 33 and 67). This effect reflected the fact that PNS moderated the impact of valence for older adults ($p = .03$), but not for younger adults ($p = .31$). Specifically, the impact of valence increased in the older adults with an increase in PNS. Note, however, that the valence effect was strong at both levels of age regardless of PNS (all $ps < .001$), and that the three-way interaction was relatively small compared to the main effect of valence for the sample.

**Relevance**

Internal consistency for the four items assessing perceived relevance was also high (high relevance: $\alpha = .92$; low relevance: $\alpha = .94$), and thus the mean for these items was used as a summary measure. Unlike the source manipulation, our relevance manipulation did not appear to be successful: there were no significant effects obtained for any variables. Given the failure of this manipulation, the decision was made to ignore relevance in the remaining analyses. We return to our examination of relevance effects, however, in Experiment 2.

**Primary Analyses**

Our primary interest was in participant attitudes toward the program proposals, with specific interest in testing the hypothesis that the biasing impact of source information would increase with age, and that need for structure would moderate this effect in older adults. Examinations of responses to the five items assessing participants’ opinions about each program and to the six items relating to argument strength and source competence revealed a high degree of internal consistency among them ($\alpha = .92–.94$).
Since our prior analyses indicated that the two stimulus programs were perceived to be equal in personal relevance, the mean of these 22 items (11 from each program) was used as an attitude index ($\alpha = .95$). These means were examined using an Age $\times$ PNS $\times$ Source Valence ANCOVA, with vocabulary score serving as a covariate. Initial examination of the data identified three participants (ages 20, 69, and 73) as statistical outliers, and their data was excluded from further consideration. Subsequent analyses revealed two significant interactions: Age $\times$ PNS, $F(1,136) = 5.04$, $\eta^2 = .04$, and Age $\times$ PNS $\times$ Source, $F(1,136) = 5.27$, $\eta^2 = .04$.

To examine the basis for these effects, PNS $\times$ Source Valence ANCOVAs were conducted at representative points in the age distribution ($\pm 1 SD$ from the mean). Consistent with expectations, the only significant effect obtained was a PNS $\times$ Source Valence interaction for older adults, $F(1,136) = 6.56$, $\eta^2 = .05$. The form of the interaction and the nature of the obtained age differences can be seen in Table 2, where predicted attitude scores at representative points in the age and PNS distribution ($\pm 1 SD$ from the mean) are presented at each level of source valence. Examination of these means reveals a pattern of performance similar to that observed by Hess et al. (2000) in their supraliminal condition. Specifically, for younger adults, there was no significant impact of source valence regardless of need for structure, with a trend toward a contrast rather than assimilation effect. Such a pattern suggests that these individuals were able to monitor and control or correct the impact of extraneous information on their judgments. In contrast, a cross-over interaction was in evidence in the older group: older adults who were high in need for structure assimilated their attitudes in a manner consistent with the likability of the source, whereas those who were low in structure exhibited a contrast effect similar in nature to that observed in younger adults.

In summary, this study provides some support for our hypotheses. Evidence was obtained that the attitude judgments of older adults were more likely to be biased in the direction of task-extraneous information than were those of younger adults. In addition, consistent with findings of Hess et al. (2001), need for structure was found to moderate this effect, with assimilation

### Table 2. Experiment 1: Predicted Attitude Ratings As a Function of Age, Personal Need for Structure (PNS), and Source Valence

<table>
<thead>
<tr>
<th>Age</th>
<th>High PNS</th>
<th>Low PNS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Positive Source</td>
<td>Negative Source</td>
</tr>
<tr>
<td>Young</td>
<td>1.01</td>
<td>1.63</td>
</tr>
<tr>
<td>Old</td>
<td>2.27</td>
<td>1.64</td>
</tr>
</tbody>
</table>

*Note: Possible range of scores: −4 to +4. Predicted ratings were calculated with high and low values on age and PNS being represented by values that were $\pm 1 SD$ from the mean for each of these variables.*
effects being most evident in those older adults who were high in need for structure. Unfortunately, problems with our relevance manipulation prevented evaluation of the selectivity hypothesis that relevance would also moderate these age effects. Although the relevance manipulation attempted to duplicate the format of previously successful ones (Petty et al., 1998), participants failed to discriminate between the high and low relevance stimuli in the expected manner. Part of the problem may relate to our use of real-world stimuli and the perception by most participants that the problems and proposals were important regardless of personal impact. This can be seen in the fact that only about 10% of the sample had mean relevance ratings of 0 or below (on a scale of −4 to +4) within each of our relevance conditions, and that the mean relevance ratings in each condition (2.3 and 2.1) were clearly indicative of high perceived relevance.

EXPERIMENT 2

A second study was conducted in an attempt to provide a better test of the aging-related selectivity hypothesis. The basic design of this study was similar to that of the first, with two major exceptions. First, the source and relevance manipulations were all conducted within participants. We reasoned that this would enhance the salience of both manipulations, thereby increasing the strength of associated effects. Second, we also examined the processes underlying attitude construction in somewhat more detail by having participants list their thoughts regarding the most influential factors underlying their stated attitudes. It was expected that examination of these thoughts would provide additional information about the extent to which irrelevant source information was considered in constructing attitudes. For example, the use of simpler processing strategies (e.g., peripheral or heuristic processing) might be reflected in the listing of thoughts that contain information similar in valence to the source. In contrast, elaborative processing would be expected to be more self-directed, resulting in thought processes being more independent of source valence. This information provides an additional way to examine the selectivity hypothesis within this context.

METHOD

Design

An Age × Need for Structure × Source Valence × Program Relevance design was employed once more, but with both source valence and relevance being manipulated within participants. In addition, a simpler, extreme age-groups design (i.e., young vs. old) was used because there was little evidence of non-linear age functions in the first study. Need for structure was
once more measured by the PNS scale. Each participant read four vignettes about fictitious pieces of legislation regarding tax programs and the legislators who had proposed them. Two vignettes were high and two were low, and one vignette at each level of relevance was preceded by positive source information and the other by negative source information. Measures of source likability, program relevance, and attitudes toward the program, were collected for each vignette.

Participants

Sixty-four adults were recruited and compensated as in Experiment 1. The young group consisted of 17 women and 15 women ranging in age from 22 to 46 years (M = 34.4), whereas the older group consisted of 16 women and 16 men ranging in age from 61 to 82 years (M = 71).

Materials

The materials were similar to those used in Experiment 1. Four fictitious program proposals reflecting various social or political issues were developed, with each referring to a different area of concern: transportation, health, education, and social services. Each proposal described a problem, the program proposed for dealing with it, and a series of four moderately strong arguments in support of the proposal. In contrast to the first study, personal relevance was manipulated by creating two versions of each program that varied in their financial impact on taxpayers in North Carolina, a group to which all participants belonged. In the low relevance/impact version, the cost of the program would be covered by the private sector or through a reallocation of state funds. In other words, implementation of the program would have no negative financial impact on the individual. In contrast, the cost of the proposed program in the high relevance/impact version was to be funded by state residents through an increase in taxes. This financial impact was highlighted at both the beginning and at the end of the passage describing the proposal. The resulting eight stimulus passages ranged in length from 473 to 579 words.

As in Experiment 1, two different descriptions of the legislator (i.e., source) who developed each proposal were created, one in which he was cast as being very positive and honorable and another in which he was depicted in very negative terms. Each of the narratives was once again presented in the form of an interview conducted by area newspapers.

The rating scales used in this study were identical to those used in the first, with the exception that only four opinion items were used. In addition, a separate thought listing sheet was also developed for each proposal. Each contained five blank lines, with three boxes marked ‘positive’, ‘neutral’, and ‘negative’ arranged to the right of each line.
Procedure

The general procedure was similar to that of Experiment 1, with three exceptions. First, the manipulation of source valence and relevance was done within participants. Thus, each participant read about four different proposals, one in each Source Valence × Relevance condition. Four different orders of presentation for these four conditions were used across participants, with each type of passage (e.g., negative source-high relevance) appearing in a different position in each order. In addition, four different sets of stimuli were created by systematically rotating each program proposal through each of the four conditions. This resulted in 16 unique stimulus sequences (i.e., four different orders in combination with four different stimulus sets), with two individuals within each age group being assigned to each of these 16 counterbalancing sequences. Second, to minimize the impact of participant attitudes on relevance ratings, the latter were obtained from the participant before the former were assessed. In the first study, relevance ratings were collected after participants had expressed their attitudes, which may have unduly influenced these responses. Finally, after completing the ratings for each proposal, participants were asked to list up to five thoughts that most influenced their perceptions regarding the program. They also rated whether each thought represented a positive, neutral, or negative influence on their ratings.

RESULTS AND DISCUSSION

Participant Characteristics

Information about the participants in the sample is displayed in Table 3. There were no differences between age groups in education or PNS. The age

<table>
<thead>
<tr>
<th>Measure</th>
<th>Young</th>
<th>Old</th>
<th>t(62)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>34.4</td>
<td>71.0</td>
<td>-.68</td>
<td>.50</td>
</tr>
<tr>
<td>Years education</td>
<td>16.2</td>
<td>16.6</td>
<td>-.59</td>
<td>.63</td>
</tr>
<tr>
<td>No. of prescription drugs</td>
<td>0.7</td>
<td>2.0</td>
<td>-3.64</td>
<td>.001</td>
</tr>
<tr>
<td>SF-36: Physical health</td>
<td>50.2</td>
<td>45.8</td>
<td>2.40</td>
<td>.02</td>
</tr>
<tr>
<td>SF-36: Mental health</td>
<td>43.2</td>
<td>56.2</td>
<td>-5.11</td>
<td>.001</td>
</tr>
<tr>
<td>Speed</td>
<td>.53</td>
<td>.63</td>
<td>6.41</td>
<td>.001</td>
</tr>
<tr>
<td>Letter-number sequencing</td>
<td>12.5</td>
<td>10.3</td>
<td>3.14</td>
<td>.003</td>
</tr>
<tr>
<td>Vocabulary</td>
<td>29.0</td>
<td>30.8</td>
<td>-2.60</td>
<td>.01</td>
</tr>
<tr>
<td>PNS</td>
<td>40.4</td>
<td>41.4</td>
<td>-.45</td>
<td>.65</td>
</tr>
</tbody>
</table>

Note. Score ranges: (a) Letter-number sequencing −0 to 21; (b) Vocabulary −0 to 36; and (c) PNS (Personal Need for Structure) −6 to 66. Speed is the mean z score for the letter and pattern comparison tasks. SF-36 scores are population norm-based t scores.
differences observed on the other variables are once again consistent with those observed in similar studies of aging.

**Manipulation Checks**

All dependent variables in this section and the next were examined using Age Group × PNS × Source Valence × Relevance GLM-based ANOVAs, with PNS treated as a continuous variable.

**Study Time**

The amount of time spent reading the information about the source and the program were examined in separate analyses. The only significant effect obtained had to do with the fact that participants took longer to read about the negative sources (\(M = 90.9\) s) than about the positive sources (\(M = 77.6\)), \(F(1,60) = 54.98, \eta^2 = .48\). This effect was not observed in Experiment 1, and most likely reflects the more salient contrast between positive and negative sources in the current within-participants study design.

**Source Likability**

Likability ratings were examined using the means for the four items assessing likability in each Source Valence × Relevance condition (\(\alpha = .89–.95\)). The only significant effect obtained was due to source valence, \(F(1,60) = 519.05, \eta^2 = .90\), with likability ratings being greater in the positive condition (\(M = 2.71\)) than in the negative condition (\(M = -1.38\)). Thus, participants of all ages were once again viewing the sources in the intended manner.

**Information Relevance**

Perceived program relevance was examined using the means of the four pertinent items in each condition (\(\alpha = .87\) to .90). The mean relevance rating was significantly greater in the high relevance condition than in the low relevance condition (1.54 vs. 1.47), \(F(1,60) = 5.31, \eta^2 = .08\), but the difference was not great. A significant PNS × Relevance interaction was also obtained, \(F(1,60) = 5.24, \eta^2 = .08\), but the lack of any PNS effect within relevance conditions suggested that this effect was not meaningful. Once again, participants’ ratings of relevance did not jibe well with the intent of our manipulation. Specifically, for 25 participants in the positive source condition and 16 in the negative source condition, ratings of relevance for the low impact program were higher than those for the high impact program. There was, however, more variability in participant’s perceptions of relevance than in the first study, with 27% of individual ratings being less than or equal to 0 across conditions (range = 16.7–33.3%). The lack of correspondence between participant ratings and our experimental manipulation of personal relevance may once more reflect the fact that this manipulation was not strong enough
to counteract individual differences in interests in specific real-world issues represented in our stimuli.

**Primary Analyses**

Our primary interest was in testing the hypothesis that source valence would have a stronger biasing effect on attitudes and supportive thoughts with increasing age, and that need for structure would moderate this assimilation effect in the older group.

**Attitudes**

The mean of the four items assessing participants’ opinions and the six items reflecting argument quality and source competence for each program ($\alpha = .96–.97$) was used as the attitude measure. As before, we examined attitudes in relationship to our a priori determination of personal relevance. Given the aforementioned concerns regarding the congruence between participants’ perceptions and these a priori determinations, however, we also examined the possibility that participants’ ratings of relevance might be better moderators of attitude ratings.

To do this, we reconfigured the data within each source valence so that condition assignments would be more consistent with subjective impressions of relevance. Thus, if the program originally designated as low relevance received higher relevance ratings than the designated high relevance program in the same source valence condition, the programs were re-designated for that participant and the associated ratings were switched between relevance conditions. Since stimuli were reassigned only within source conditions, this procedure had no effect on likability ratings for the source. It did, however, have a strong impact on relevance ratings. When these ratings were re-examined after this reassignment, the only effect obtained was a main effect of relevance, $F(1,60) = 151.196, \eta^2 = .72$, with ratings in the high relevance condition being greater ($M = 2.27$) than those in the low relevance condition ($M = .77$). Thus, this reconfiguration of the data resulted in participant perceptions of the stimulus materials that were more congruent with the intent of our original experimental design, potentially providing a more valid test of the interaction between source information and relevance.

When the results of analyses involving these two means of conceptualizing relevance were compared, the obtained effects were similar in nature, but stronger with the reconfigured data. This suggests that the ratings were better indices of personal relevance, and thus we report the results of the analyses based on participant perceptions. The results of this analysis were generally consistent with expectations. First, a significant main effect due to relevance was obtained, $F(1,60) = 10.63, \eta^2 = .15$, along with a significant interaction between this variable and source valence, $F(1,60) = 5.23, \eta^2 = .08$. These effects were due to the impact of source being stronger in the
low relevance condition ($M_{\text{positive}} = 1.79; M_{\text{negative}} = 1.12$) than in the high relevance condition ($M_{\text{positive}} = 2.13; M_{\text{negative}} = 2.10$), a pattern consistent with expectations derived from the ELM and HSM.

Importantly, two significant interactions involving age were also obtained: Age $\times$ Source, $F(1,60) = 4.08$, $\eta^2 = .06$, and Age $\times$ PNS $\times$ Source $\times$ Relevance, $F(1,60) = 4.12$, $\eta^2 = .06$. To examine the locus of these effects, we once again conducted more focused analyses within each age group. In the young adult group, the only significant effect obtained was for relevance, $F(1,30) = 4.48$, $\eta^2 = .13$, with attitude ratings being more positive for high relevance stimuli ($M = 2.18$) than for low relevance stimuli ($M = 1.56$). As in the first study, source valence did not have a reliable effect on the ratings of younger adults (see Table 4). In contrast, significant effects were obtained for source, $F(1,30) = 5.93$, $\eta^2 = .17$, relevance, $F(1,30) = 6.27$, $\eta^2 = .17$, and their interaction, $F(1,30) = 6.20$, $\eta^2 = .17$, in the older adult group. As can be seen in Table 4, the obtained effects are consistent with the hypothesized aging-related increase in selectivity. Specifically, older adults exhibited assimilation effects in their attitude ratings in the low relevance condition, where task engagement was assumed to be minimal, but source valence had no effect on ratings when relevance was high. Thus, as predicted, assimilation effects to the source in the older group, and age differences in the strength of such effects, were more likely when the information being evaluated was of low personal relevance than when it was high in relevance.

The anticipated PNS $\times$ Source $\times$ Relevance interaction only approached significance in the older group, $F(1,30) = 3.30$, $\eta^2 = .10$, $p = .08$, perhaps due to the relatively low power associated with this effect (.42). This explanation is bolstered by the fact that the effect size associated with this interaction

| Table 4. Experiment 2: Attitudes, Information Quality, and Negative Thoughts as a Function of Age, Source, and Relevance |
| --- | --- | --- | --- |
| Age Group | High Relevance | Low Relevance |
| | Positive Source | Negative Source | Positive Source | Negative source |
| **Attitude Ratings**a | | | | |
| Young | $M$ | 2.09 | 2.27 | 1.59 | 1.53 |
| | $SD$ | 1.62 | 1.38 | 1.85 | 1.76 |
| Old | $M$ | 2.18 | 1.92 | 1.98 | 0.70 |
| | $SD$ | 1.92 | 1.77 | 1.71 | 2.31 |
| **Proportion of Negative Thoughts** | | | | |
| Young | $M$ | .30 | .27 | .33 | .37 |
| | $SD$ | .31 | .31 | .30 | .36 |
| Old | $M$ | .17 | .28 | .22 | .40 |
| | $SD$ | .32 | .37 | .33 | .44 |

*Note. aPossible range of scores: −4 to +4.*
was larger than that associated with the significant PNS × Source interaction for older adults in the first study. Given our interest in need for structure, we decided to further examine performance within levels of relevance in the older group. No systematic effects due to PNS were obtained in the low relevance condition, but a trend \( (p = .11) \) toward a pattern of performance similar to that observed in Experiment 1 was found in the high relevance condition. That is, PNS was associated with an increase in attitude ratings in the positive source condition \( (b = .25) \) and a decrease in ratings in the negative source condition \( (b = -.06) \).

**Thoughts**

The second dependent measure examined was derived from the thoughts listed by participants in support of their attitude ratings. We examined the valence of the thoughts produced by participants as another means of investigating irrelevant source effects on processing. Due to the strong dependency between the number of positive and negative thoughts produced (only 13% of the thoughts were labeled as ‘neutral’ by participants), we used the proportion of all thoughts produced that were negative as the dependent variable in this analysis (Table 4). A significant effect due to relevance was obtained, \( F(1,60) = 5.10, \eta^2 = .08 \), with a higher proportion of negative thoughts being produced in the low relevance condition \( (M = .34) \) than in the high relevance condition \( (M = .26) \). The main effect of source, \( F(1,60) = 7.30, \eta^2 = .11 \), and the Age × Source interaction, \( F(1,60) = 5.85, \eta^2 = .09 \), were also significant. These effects reflected the facts that the proportion of negative thoughts was higher in the negative source condition than in the positive source condition for older adults \( (p = .003) \), but not for younger adults \( (p = .081) \). In other words, source assimilation effects increased with age.

Importantly, these effects were moderated by a significant four-way interaction, \( F(1,60) = 4.52, \eta^2 = .07 \). Analyses within age groups revealed a pattern of performance consistent with that obtained for attitude ratings. No significant effects were found for younger adults. In contrast, a significant source effect was observed for the older adults, \( F(1,30) = 10.55, \eta^2 = .26 \), which in turn was modified by a significant PNS × Source × Relevance interaction, \( F(1,30) = 4.73, \eta^2 = .14 \). As can be seen in Table 4, source valence had its primary influence on performance in the low relevance condition, where older adults produced a significantly greater proportion of negative thoughts in the negative source than in the positive source condition. Source valence did not have a significant impact on performance in the high relevance condition, but it did interact with PNS in this condition, \( F(1,30) = 4.15 \). Further examination of the relationship between thoughts and PNS revealed a similar trend to that observed with attitudes. Specifically, PNS was associated with a greater tendency toward assimilation, with increasing PNS being associated with a decrease in the proportion of negative
thoughts ($b = -.29$) in the positive source condition and an increase ($b = .15$) in the negative source condition.

**Mediational Analyses**

In our final analysis, we examined the relationship between source valence, the valence of supportive thoughts, and attitudes. Regardless of condition, it would be expected that there should be a relationship observed between attitudes and the types of thoughts produced to support those attitudes. For example, an individual’s positive attitude toward a specific program should be the result of their having more positively valenced thoughts about that program relative to one for which they harbor more negative feelings. Of primary interest in the present analysis was identification of the existence of such a relationship while at the same time determining the extent to which the dominant valence of one’s thoughts mediated any observed relationships between source valence and attitudes. In other words, if source information did influence attitudes, could this relationship be accounted for by the effect of source valence on the types of thoughts produced by the participant? This, in turn, might suggest a partial basis for observed assimilation effects.

To examine these relationships, we conducted a series of path analyses within each Age Group $\times$ Relevance condition to assess the direct effect of source valence on opinions and its indirect operation through thoughts (see Fig. 1). In each of these four conditions, the proportion of negative thoughts was negatively and significantly associated with attitudes, accounting for 43–55% of the variance. Consistent with the prior reported analyses, however, a significant positive relationship between source valence and attitudes was observed only for the older adults in the low relevance condition. In addition, a significant negative relationship involving source valence and proportion of negative thoughts was also only observed in this condition, and controlling for this relationship eliminated the direct effect between source valence and attitudes.

Taken together, the results of these path analyses support the idea that attitudes reflect the valence of thoughts associated with evaluation regardless of age or personal relevance. They also suggest, however, that different mechanisms drive this relationship under different circumstances. For the younger adults, there was little relationship between source valence and the valence of thoughts listed. The observed independence of these factors could reasonably be interpreted as evidence of more elaborative, self-directed, as opposed to source-influenced, thought in the construction of attitudes. Older adults exhibit a similar pattern of self-directed thought in the high relevance condition, suggestive of high levels of task engagement and elaborative processing in personally relevant situations. In contrast, the dependence observed between source and thought valence in the low relevance condition is suggestive of a less elaborative, more externally driven pattern of thought. These findings are consistent with our selectivity hypothesis.
GENERAL DISCUSSION

The goal of the present research was to investigate adult age differences in the degree to which affective information influences the construction of attitudes about relatively complex issues. Characterizations of cognitive aging that emphasize declines in controlled processing mechanisms would predict that older adults’ attitudes should be more susceptible to such information than those of younger adults due to aging-related problems in controlling and monitoring the source of the affective information. We hypothesized, however, that this pattern of performance would be moderated by motivational factors based in both the situation (i.e., relevance) and the individual (i.e., need for structure). The results of the two experiments provided support for all three hypotheses.

First, older adults were more likely to exhibit assimilation effects in their attitudes and supporting thoughts than were younger adults, thereby extending a previous finding (Hess et al., 1998, 2001) to a relatively complex everyday type of task. We also found, however, that this effect was moderated by the nature of the task, with the age-related increase in assimilation effects being most evident in situations where the message to be evaluated was perceived to be relatively low in personal relevance. This pattern of
performance is consistent with the hypothesis that aging is associated with increased selectivity in the engagement of cognitive resources, which predicts that age differences in resource allocation will be greatest in situations of low relevance to the individual. In the context of dual-process models of social cognitive functioning (e.g., Chen & Chaiken, 1999; Petty & Wegener, 1999), assimilation is thought to be indicative of low levels of task engagement and cognitive effort on the part of the individual, reflecting the use of easily processed information to construct judgments. Thus, the greater evidence of assimilation by the older group than by the young group in the low relevance condition in Experiment 2 is clearly consistent with predictions based on the selectivity hypothesis. The absence of assimilation effects in the older group in the high relevance condition in this same experiment is suggestive of greater task engagement and more systematic processing of message content. In addition, the null age effect in this condition, taken together with the age-related increase in assimilation in the low relevance condition, is consistent with the notion that aging is associated with greater selectivity in the engagement of cognitive resources.

The relationships observed between source information, valence of supporting thoughts, and attitudes in Experiment 2 provide further support for aging-related variability in task engagement. When relevance was high, both young and older adults appeared to engage in more self-directed processing of message content, as suggested by the nonsignificant relationship between source valence and evaluative content of thoughts listed by the participant. Whereas a similar degree of independence was observed in younger adults when relevance was low, thought valence was found to mediate the relationship between source valence and attitudes for older adults in this condition. This suggests less engagement of cognitive resources by older adults in this situation in that their thought and subsequent program evaluations appear to be more a product of peripheral influences than of self-directed thought.

We also examined the influence of need for structure on assimilation effects. Previous research has shown that those who are high in need for structure are more likely to exhibit assimilated ratings than are those who are low in need for structure (e.g., Thompson et al. 1994). In addition, there is evidence in the aging literature that such effects are stronger in later life (Hess et al. 2000). This latter finding was replicated in Experiment 1, where need for structure was a stronger predictor of assimilation in older than in younger adults. Similar effects were observed in the high relevance condition in Experiment 2 when attitudes and supporting thoughts were examined, although low power associated with our analyses prevented the effects associated with attitudes from achieving statistical significance. With respect to thoughts, we found that the rationales for attitudes provided by older adults who were high in need for structure were more likely to be dominated by
negative thoughts when they were primed with a negative source than when primed with a positive source. This tendency was much less evident in older adults who were low in need for structure.

The relationship between need for structure and performance might be understood in terms of resource-related factors, which in turn are assumed to play a role in aging-related selectivity effects. Hess (2001) has shown that need for structure mediates the relationship between resources and engagement in cognitive and social activities. For example, relative to healthy, high-ability individuals, those who are in poor health and low in ability have greater need for structure, leading to less engagement in cognitively demanding activities (e.g., reading, social interaction). In both the present case and the Hess et al. (2000) studies, the relatively greater impact of PNS on performance in later adulthood may reflect the stronger mapping of resource-related factors (e.g., health, cognitive functioning) onto need for structure in old age. For example, in the upper tertile of the current Experiment 1 age distribution (60–83 years), PNS scores were positively associated with the number of prescription drugs taken ($r = .36$) and negatively associated with mental health status ($r = −.30$), verbal ability ($r = −.25$) and education ($r = −.24$). In contrast, only verbal ability was correlated with PNS in the lower age tertile ($r = −.31$). The finding that PNS is more strongly related to performance in older than in younger adults is also consistent with findings indicating that need for structure becomes a stronger predictor of performance in situations where resources are low or difficult to use (Schultz & Searleman, 1998).

The observed effects related to PNS are noteworthy in that they provide further documentation of the importance of considering motivational factors as moderators of aging effects on cognitive performance. In particular, the possibility that resource reductions may be more likely to be associated with the motivation to use simple heuristics in processing information in later life is intriguing and worthy of further study.

It is interesting that need for structure was only found to influence older adults’ performance in the high relevance condition in Experiment 2. This, along with the fact that a similar effect was found in Experiment 1, where both programs were perceived by participants to be relatively high in relevance, suggests that selectivity effects may be most evident in those who are low in need for structure. Older adults high in need for structure exhibited assimilation-type responses regardless of relevance level. In contrast, low need for structure older adults exhibited such effects in the low relevance condition – where most older adults, regardless of need, exhibited assimilation – but not in the high relevance condition. To the extent that flexibility in processing – or the ability to be selective – is dependent upon the availability of resources, this finding may make sense given the observed relationship between resource-related factors (e.g., health, ability) and need for structure in older adults.
Although the results were generally consistent with expectations based upon the selectivity hypothesis, a concern can be raised about our manipulation of personal relevance, which was integral to our test of the selectivity hypothesis. In both experiments, participant ratings of message relevance did not clearly map onto the experimental manipulation. A likely explanation for this result may have to do with the complexity and everyday nature of the stimulus materials. Although we manipulated relevance in a manner similar to that used in previous research (e.g., Petty et al., 1998), we also used materials that tapped into current social and political events. Thus, even though the stimulus programs themselves were fictitious, individuals may have already possessed substantial knowledge or had reasonably well-formed opinions about the problems they addressed. Such factors have been shown to be associated with attitude strength and subsequent susceptibility to persuasion and probability of attitude change (e.g., Krosnick, 1988; Visser & Krosnick, 1998), and presumably could have been operative in counteracting the experimental manipulations of relevance in the present research.

The results of this research fit with those of several other studies in suggesting that participant goals and motivation may play a role in determining the nature of age differences observed in cognitive and social-cognitive tasks. Importantly, these findings relating to the ‘hot’ aspects of cognition (i.e., those factors that affect the engagement of the cognitive system) provide some qualification to predictions regarding age differences in performance derived from frameworks that have a primary emphasis on ‘cold’ cognition (i.e., the mechanics of thought). Specifically, although older adults are more likely to experience inefficiencies in controlled processing mechanisms when compared to younger adults, the extent of this inefficiency – and the associated age differences – appear to be moderated by contextual factors relating to, for example, the interaction between the task and participant goals. As an illustration, consider situations examining the effects of task-irrelevant information on performance. In situations of relatively low meaningfulness, as typified by many laboratory tasks attempting to control for confounds associated with experience, older adults do indeed appear to experience more source confusions (e.g., Hashtroudi, Johnson, Vnek, & Ferguson, 1994; Jennings & Jacoby, 1993) and are more susceptible to the influence of irrelevant information (e.g., Connelly, Hasher, & Zacks, 1991; Hess et al., 1998). When the context is altered, however, to either increase personal relevance (e.g., Adams, Smith, Nyquist, & Perlmuter, 1997; Hess, et al., 2001; Pasupathi, 1998) or to adjust participant goals to be more consistent with those of the task (e.g., Hashtroudi et al., 1994; Multhaup, 1995), the inefficiency in older adults’ performance is reduced and age differences are attenuated. Thus, whereas aging-related changes in cognitive resources may indeed underlie observed adult age differences in
performance, it is argued here that these same resource variations may also exacerbate such differences by affecting motivation (e.g., as reflected in task engagement).

Interestingly, recent research based on large-sample surveys is also supportive of this perspective. For example, Visser and Krosnick (1998) have shown that older adults are more susceptible to attitude change, but that this age effect appears to coincide with age-related variations in factors associated with prior attitude strength (e.g., importance). In other words, older adults’ greater susceptibility was based in factors other than cognitive ability.

In conclusion, the present research provides support for the importance of considering the interaction between individual characteristics and the performance context in the determination of adult age differences in social-cognitive functioning. Consistent with the selectivity hypothesis, age differences in susceptibility of attitudes to irrelevant information were eliminated when personal relevance was high. This finding has important theoretical implications for understanding the circumstances associated with age differences in performance. It also has important practical implications. For example, due to hypothesized changes in cognitive ability, older adults might be expected to be susceptible to unscrupulous advertising practices that rely on factors that are unrelated to the product (e.g., use of popular actor as spokesperson). The present research suggests that this may not be as much of a concern in areas of central importance to the older individual, at least in relation to purely cognitive factors.

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