Motivation and Representational Processes in Adulthood: The Effects of Social Accountability and Information Relevance

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The role of motivation in determining age differences in social representations was examined. Adults aged 20 to 83 years were given an impression formation task that attempted to manipulate motivation by varying the characteristics of the target and the extent to which participants would be held accountable for their impressions. It was hypothesized that increasing age would be associated with greater selectivity in the use of available cognitive resources to support the construction of accurate representations. Support for this hypothesis was obtained when trait inferences and recall were examined. Specifically, older adults made more accurate trait inferences and recalled more information when the target was similar in age or they were held accountable for their impressions. In contrast, younger adults demonstrated similar levels of accuracy across conditions. The fact that these effects were observed when cognitive resources was controlled suggests a motivational effect that is independent of age differences in cognitive ability.

One such factor is motivation, a core component of many models of social information processing (e.g., Fiske & Neuberg, 1990; Petty & Cacioppo, 1986), which social–cognitive research has demonstrated to be an important determinant of event representation. In general, the more importance that is attached to achieving an accurate representation, the greater the effort expended in processing information associated with the event, typically resulting in a reduction of biases. For example, high accuracy motivation is associated with decreased susceptibility to extraneous information (E. P. Thompson, Roman, Moskowitz, Chaiken, & Bargh, 1994), less stereotyping of individuals (Neuberg, 1989), reductions in attributional biases (Tetlock, 1985), and greater scrutiny of relevant information (Petty, Harkins, & Williams, 1980; Tetlock, 1983). The fact that age in adulthood is also associated with variations in some of these effects (e.g., susceptibility to irrelevant information, categorical processing) suggests the possibility of motivation playing a role in determining age differences in representations. For example, age differences in the use of specific types of cognitive operations or in the efficiency of these operations may reflect variations in motivation and associated processing goals in a particular context.

Aging, Selectivity, and Resource Allocation

In this study we investigate the interaction between motivation and aging in the context of social information processing. Hess (2000) has suggested that social–cognitive functioning in adulthood is characterized by an age-related increase in selectivity associated with cognitive resource allocation. In the present research we attempt to test this idea. The notion of age-related selectivity is consistent with much current theorizing in the field of aging (e.g., Baltes & Baltes, 1990; Brandstädter & Greve, 1994; Heckhausen & Schulz, 1995), where it has been argued that there is a general shift in resource allocation during adulthood from promoting growth to maintenance and loss prevention. Consistent with this perspective, we hypothesize that the anticipated aging-related increase in selectivity in social–cognitive functioning will take the general form of older adults being more likely than...
younger adults to conserve resources in all but the most important situations. We assume that situational variability in processing is also operative in younger adults but that this selectivity may be less evident in their performance. This is due to the presumed relative abundance of cognitive resources in early adulthood, which may reflect greater reserve capacity (e.g., Kliegl & Baltes, 1987) or less physical drain associated with effortful processing. In essence, younger adults have resources to spare and so are less likely to conserve them than are older adults.

Within the context of adult development, selectivity has typically, although certainly not exclusively, been 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 distinguishes between elective and loss-based selection, with the latter type appearing to become more prevalent in later life as developmental losses increasingly outweigh gains (Baltes, Staudinger, & Lindenberger, 1999). In such cases, selectivity may be manifested in terms of shifting goals and task selection that deemphasize the affected abilities (i.e., reduce demands on the affected systems). In addition, individuals may attempt to engage compensatory processes to counter losses.

We extend these ideas and suggest that selectivity may also occur under less severe circumstances, such as when a task is resource demanding but within the individual’s capabilities. This assumes that, although they may do so less efficiently than younger adults, older adults are often capable of performing the necessary operations to support representation; they just do so less consistently across situations. There are many examples in the research literature of age-related decline in the use of resource-demanding cognitive operations thought to play a role in representation, coupled with evidence that older adults can effectively engage in such operations. For example, Hess and Tate (1991) found that older adults engaged in inconsistency resolution less frequently than did younger adults but achieved comparable memory benefits when they did. Similarly, Hashtroudi, Johnson, Vnek, and Ferguson (1994) and Multhaup (1995) found that age differences in source-monitoring errors could be reduced through instructions to attend to relevant information. The fact that older adults were less reliable than younger adults in the use of operations that they were fully capable of using may reflect age-related changes in decisions regarding resource allocation. In the present research we studied how the hypothesized age-related shift in resource allocation (i.e., selectivity) might be manifested at the cognitive process level by varying task relevance and the social context of performance and then examining age-related variations in the specificity of person representations as a function of these factors.

The Present Study

We used an impression formation task to test the just-outlined ideas. Specifically, individuals across the adult life span listened to a person read a narrative about his experiences. This narrative described a series of behaviors, two thirds of which exemplified positive traits (e.g., helpfulness, intelligence) and one third of which exemplified negative traits (e.g., dishonesty). To examine age-related selectivity in processing, we attempted to manipulate motivation in two different ways. First, the age-based relevance of the narrative was varied by having either a younger adult describe his experiences in a first job or an older adult describe his efforts associated with finding retirement housing. Our assumption was that the relevance of the first narrative would decrease with participant age, whereas the relevance of the latter would increase. Existing research has shown that personal relevance increases elaborative processing and the motivation to be accurate (e.g., Neuberg & Fiske, 1987; Petty, Wegener, & White, 1998). Thus, our expectation was that the relevance of the target’s narrative to the participant’s current life stage would influence motivation to attend to the message and to form a more detailed representation of the target. Consistent with our framework, we hypothesized that this selectivity in processing would become increasingly pronounced with age.

We also examined motivational influences by varying situational demands. Previous research (e.g., Tetlock & Kim, 1987; E. P. Thompson et al., 1994) has shown that, without prior commitment to a position, making one accountable for his or her position increases the accuracy of representation. In the present case, accountability was varied by having some participants perform the impression formation task under standard instructions whereas others were required to share their impressions with other participants, who then rated the accuracy of the impressions in the presence of the participant. Once again, we expected that this motivational manipulation would have a greater impact with increasing age.

Variations in motivation were inferred by examining the impact of these manipulations on indices of accuracy and elaborative processing. Our primary focus was on three different dependent measures. The first dealt with trait inferences, in which individuals made ratings of the degree to which individual traits were descriptive of the target. It is generally believed that people spontaneously make trait inferences about behaviors performed by others (for reviews, see Bargh, 1994; Wyer & Carlston, 1994), although the degree of spontaneous trait inference may be affected by the processing goals of the perceiver (Uleman, Newman, & Moskowitz, 1996). In the present context, we assumed that greater accuracy in trait inferences would reflect greater use of bottom-up, piecemeal processing. We further assumed that accuracy would be reflected in the extent to which participants discriminated between traits based on the presence or absence of a behavioral referent in the target’s narrative and on their valence. Specifically, if individuals are engaging in piecemeal processing, they should be more likely to distinguish between traits for which specific behavioral referents do or do not exist in the narrative than those engaging in more nonspecific, categorical processing (Hess, Follett, & McGee, 1998). That is, individuals who are actively processing information specific to the narrative should be more willing to infer the presence of those traits exemplified in it than the presence of those without behavioral referents. In addition, it is assumed that individuals engaging in piecemeal processing should attempt to integrate both the negative and positive aspects of the target’s behavior, resulting in characterizations of the target using both positive and negative traits. Individuals engaged in more categorical processing would be expected to base their inferences on a more global impression of the target reflecting the dominant positive valence of the behaviors contained in the narratives. Thus, they should make a greater distinction between positive and negative
traits than those engaging in piecemeal processing, particularly for traits with behavioral referents.

With respect to ratings of trait descriptiveness, we predicted that high narrative relevance or accountability would be associated with (a) greater discrimination between traits with and without behavioral referents and (b) less discrimination between positive and negative traits. We also hypothesized that effects due to relevance and accountability would be most evident with increasing age, reflecting the previously described aging-related changes in selectivity.

Although not a main focus, we also examined age differences in inferences regarding specific trait domains. Individual behaviors in each narrative were identified with traits relating to either morality (e.g., honesty) or competence (e.g., intelligence). In constructing trait inferences, people weight negative behaviors more when making morality-related judgments and positive behaviors more when judging competence (e.g., Skowronski & Carlston, 1987). This differential emphasis on positive and negative behaviors across trait domains relates to the diagnostic value of such behaviors (i.e., the degree to which the behavior permits unambiguous trait inferences within a domain; Skowronski & Carlston, 1989).

Hess and colleagues (Hess et al., 1999; Hess & Auman, 2001) have found that the use of diagnostic information in constructing trait inferences increases with age in adulthood, perhaps reflecting increasing levels of expertise in the social world. We were interested in determining whether this was also true in the present task.

The second dependent measure was a global target likability rating. In contrast with ratings of traits, in which participants simply indicated the degree of presence of individual positive and negative attributes in the target, ratings of likability incorporate both types of information. We assumed that engagement in piecemeal processing would be associated with the integration of positive and negative information. This in turn would result in lower likability ratings relative to those obtained following more global, categorical processing. Thus, we hypothesized that increased narrative relevance or accountability would be associated with decreased likability ratings. Once again, these effects were expected to be most evident with increasing age.

Our third measure involved recall of the specific behaviors contained in the narrative. In line with social–cognitive theory (e.g., Hastie, 1984; Snell & Wyer, 1989), we assume that a recall advantage for behaviors that are inconsistent with the global evaluation of the target (i.e., negative) over those that are consistent is reflective of different encoding activities across behavior types. This advantage, termed the inconsistency effect, is suggestive of more extensive processing accorded to inconsistent behaviors as individuals attempt to reconcile their occurrence with the dominant positive characteristics of the target. Thus, we hypothesized that the size of the inconsistency effect should increase with narrative relevance or accountability. In addition, these effects were expected to increase with age, reflecting aging-related changes in selectivity processes.

In examining age differences in the impact of motivation on performance, we wanted to separate general selectivity effects from those due to the availability of cognitive resources. There is evidence that available resources limit the impact of motivation on performance (e.g., Bar-Tal, Kishon-Rabin, & Tabak, 1997). If true, our hypothesized selectivity effects may be masked by age-related reductions in cognitive resources. Therefore, to examine the independent influences of cognitive ability and more general age-related selectivity, our analyses included a measure relating to cognitive resources. Inclusion of this variable along with age allowed us to examine aging effects in performance that were not attributable to variations in ability factors.

Method

Participants

One hundred forty-seven adults (93 women, 54 men) from the Raleigh, North Carolina, area participated in the study. All participants were recruited through newspaper advertisements and were paid $10 per hour for their participation. The participants ranged from 20 to 83 years of age and were relatively evenly distributed across this range with 24 to 25 participants in each of 6 decade groupings: (a) 20–29 years (M = 23.5, SD = 2.9), (b) 30–39 years (M = 34.4, SD = 2.9), (c) 40–49 years (M = 43.9, SD = 3.1), (d) 50–59 years (M = 54.7, SD = 2.7), (e) 60–69 years (M = 64.6, SD = 2.7), and (f) 70–83 years (M = 74.3, SD = 3.7). Men were somewhat overrepresented in the upper end of the age range (e.g., there were 25 men in the 2 older decades versus 29 men in the 4 younger decades). It is important to note that gender of participant did not have any meaningful impact on the results of our major analyses when it was included as a factor. Other characteristics of the sample are presented in the Results section.

Materials

Two narratives describing the experiences of either a young man or an older man were developed. Behaviors used in constructing the narratives exemplified six different trait dimensions, three relating to morality (honesty, helpfulness, and sociability) and three relating to competence (intelligence, conscientiousness, and activity). The target behaviors were chosen on the basis of ratings provided by an independent group of 18 younger (ages 18 to 25) and 10 older (ages 60 +) adults for a larger set of behaviors. These participants read each behavior and chose which of the preceding six trait dimensions was most relevant to the behavior. They then rated where the behavior fell on that trait dimension, with 1 representing the negative end (e.g., dishonest) and 7 the positive end (e.g., honest). Likability was also measured for each behavior using a 7-point scale (1 = unlikable, 7 = likable).

Each of the 36 behaviors used in the formal study were identified by the vast majority of both young (M = 88.4%, SD = 13.0) and older (M = 84.7%, SD = 14.4) raters as an example of one of the target trait dimensions. For each narrator, 2 positive and 1 negative behaviors were selected for each of the six trait dimensions. The mean trait and likability ratings for the 12 positive behaviors of the young narrator were 6.25 (SD = 0.54) and 5.69 (SD = 0.74) respectively, versus 1.86 (SD = 0.64) and 2.76 (SD = 0.78) for the 6 negative behaviors. The mean trait descriptiveness and likability ratings for the 12 positive behaviors of the older narrator were 6.35 (SD = 0.49) and 5.77 (SD = 0.58) respectively, versus 1.53 (SD = 0.64) and 2.72 (SD = 0.67) for the 6 negative behaviors. Correlations for the descriptiveness and likability ratings between younger and older participants for the target behaviors were .99 and .93, respectively. Thus, the evaluative and descriptive characteristics of younger and older narrators’ behaviors were similar even though their content varied across narratives.

Two narratives were developed using the selected target behaviors. One narrative was written as a description of a younger adult’s experiences associated with his first job, and the other was a descriptive of an older adult’s experiences associated with moving into a retirement community. Each narrative consisted of the 18 target behaviors with filler material to maintain flow. Target behaviors were ordered so that both narratives began and ended with a positive behavior and that no more than 2 negative
behaviors occurred sequentially. Note that since two thirds of the behaviors were positive, the narratives provided generally positive characterizations of the targets. Note also that whereas the mix of positive and negative behaviors in the narratives may at times seem strange, this inconsistency was necessary for testing some of our hypotheses (e.g., the impact of motivation on the inconsistency effect in recall), and it is certainly a characteristic of human behavior. For the most part, participants in the study did not seem overly concerned about the inconsistency. When incredulity was expressed, it was often followed by serious attempts to explain the inconsistency, which was exactly what we anticipated. Each narrative was tape recorded by an actor from the target age group (i.e., a young man in his 20s and an older man in his 50s). The narratives with identified trait-related behaviors are included in the Appendix.

A rating scale was developed to assess impressions of the narrators on the 6 exhibited trait dimensions plus 6 additional, new (i.e., nonexhibited) trait dimensions. Three of the new dimensions were related to morality (appreciativeness, respectfulness, reasonability), whereas 3 were related to competence (open-mindedness, neatness, punctuality). We chose these new trait dimensions so that they did not overlap with the target dimensions. The final rating scale included traits from both the positive and negative endpoints of each of the 12 trait dimensions. Thus, for example, participants rated not only the degree of honesty in the target but also the degree of dishonesty. This was deemed important because behaviors reflecting both endpoints were included in the narratives, and this allowed ratings to be made that reflected the presence of both types of characteristics. Ratings on a simple dimensional rating scale, with the negative term on one end and the positive term on the other, would be difficult to interpret, because the midpoint could indicate either the absence of the trait or an equal mix of the two anchors. The trait terms for the new dimensions were selected from N. H. Anderson’s (1968) likability norms. Like the target trait terms, the positive trait term for each dimension was taken from the top third (i.e., most likable) of the list, whereas the negative term was taken from the bottom third (i.e., least likable).

Procedure

Participants were tested individually or in groups of 2 to 4 in a single session that lasted 1.5 to 2 hr. There were two types of testing conditions, high and low accountability. Those in the high-accountability condition were told that they would evaluate each other’s impressions, and thus were always tested with at least 1 other unacquainted participant who was similar in age. Those in the low-accountability condition did not evaluate each other’s impressions. Six or 7 individuals in each decade grouping (mean n = 6.12) were assigned to each of the four Narrator X Accountability conditions.

Participants first completed Salhouse and Coon’s (1994) letter and pattern comparison tasks. Each task consisted of an instruction page with several samples and two test pages with a 30-s time limit per page. The pattern comparison task consisted of 30 pairs of patterns on each page, whereas the letter comparison task consisted of 21 pairs of sequences of three to nine letters per page. Participants wrote an S on the line between a pair if the members of the pair were the same and wrote a D if members were different. Standardized scores for each task were created on the basis of the number of correct responses, and these scores were averaged across the two tasks to create a composite processing speed measure. This task and the span task described later were included to assess basic cognitive resources assumed to underlie age differences in a variety of cognitive performance situations (e.g., Salhouse, 1996).

The impression formation task was presented next. Depending on their condition, participants were told that they would hear someone talk about his experiences associated with a first job (for the young man) or with moving into a retirement community (for the older man). No information was provided about the narrators’ ages. Participants were told to listen carefully and form an impression of the narrator so that they would be able to write about him afterward. They were also told that the narrator read his own story, which we selected from a group of submissions. (The true origin of the narrator’s story was revealed during debriefing.) Participants in the high-accountability condition were forewarned that they would exchange papers and evaluate each other’s impressions for accuracy at the end of the session. All participants received a copy of the target’s narrative so they could follow along with the tape.

After listening to the audiotape, the narratives were collected and participants wrote their impressions. If the participants were in a high-accountability group, they were reminded again that they would evaluate each other’s impressions. Participants were given a minimum of 5 min to complete what they were writing. The trait rating scale was handed out next, and participants rated the degree to which each term described the narrator (1 = not at all descriptive, 7 = very descriptive). They then rated how much they liked the narrator (1 = unlikeable, 7 = likable).

An unexpected recall test was given next, and participants were asked to write down as much of the narrative as they could on a new page. It was emphasized that recall should be limited to what the speaker said and not include any impressions. A minimum of 3 min was allowed for recall. If a participant was still writing at the end of this period, the experimenter waited until no one had written for 30 s before continuing. Following recall, participants in the high-accountability condition were given a separate rating sheet with the 7-point scale of accuracy. Then the participants exchanged papers as directed and rated one impression each. In testing situations involving couples or friends, raters were assigned so that participants who knew one another would not evaluate each other’s written impressions.

Following the impression formation task, participants were given Vocabulary Test 2 from the Kit of Factor-Referenced Cognitive Tests (Ekstrom, French, Harman, & Dermen, 1976), followed by a background questionnaire and the Personal Need for Structure (PNS); (M. M. Thompson, Naccarato, & Parker, 1992), Need for Cognition (Cacioppo, Petty, & Kao, 1984), and Self-Monitoring (Snyder & Gangestad, 1986) Scales. This last measure, which assesses conformity in social situations, was obtained to deal with potential complications associated with findings that increasing age is associated with a decreasing tendency to adjust one’s behavior to conform to the situation (e.g., Pasupathi, 1999; Reifman, Klein, & Murphy, 1989). This developmental trend could result in the attenuation of anticipated age effects associated with the social accountability manipulation. Thus, the self-monitoring score was obtained as a possible covariate.

The final task was a loaded span task that consisted of 18 sets of 2 to 7 sentences. The sentences were recorded on audiotape by a male speaker with a 5-s interval between each sentence in a set. Participants were instructed to determine the veracity of each statement and to remember the last word. Immediately after hearing each statement, participants circled whether the statement was true or false on their answer sheet. After the last sentence in a set, a tone sounded to cue the participants to write down the last word from each of the sentences in that set. Two sample trials of 2 sentences were given for practice. Participants heard a total of 81 sentences, and the span score consisted of the total number of last words correctly recalled across all sets.

Results

Descriptive Information

Information regarding interrelationships between age and other study measures is presented in Table 1. Age was unrelated to years of education or self-rated health. In addition, the observed relationships between age and ability conform to those found elsewhere in the literature, with age being positively associated with verbal ability and negatively correlated with speed and working memory. Age was also negatively associated with self-monitoring,
replicating findings by Reifman et al. (1989). Given our interest in examining the impact of basic cognitive resources on performance and given the strong relationship observed between working memory and speed, we decided to form a composite measure of cognitive resources by standardizing scores for each of these two constructs and then averaging these scores for each participant. This mean score was then used in our analyses to examine the interaction between motivation and cognitive resources.

All statistical tests in this report used an alpha level of .05. In addition, unless otherwise noted, the variables of age and cognitive resources were treated as continuous variables in analyses of variance (ANOVAs) by using general linear model procedures. Mean-deviation (i.e., standardized) scores were used for each of these variables to eliminate the effects of multicollinearity in analyses involving these two variables and their product terms (see Jaccard, Turrisi, & Wan, 1990).

Prior to conducting the main analyses, we examined unintended biases in assignment to the two between-participant experimental conditions by conducting Age × Accountability × Narrator ANOVAs on the background variables included in Table 1. The only effect involving the latter two factors that emerged was due to PNS scores being lower for those in the low-accountability condition (M = 39.6, SD = 10.0) than for those in the high-accountability condition (M = 42.7, SD = 8.1), F(1, 138) = 4.18, p < .05. Inclusion of PNS as a covariate in the main analyses that follow, however, did not affect the results of these analyses.

Table 1

<table>
<thead>
<tr>
<th>Measure</th>
<th>M</th>
<th>SD</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Age</td>
<td>49.5</td>
<td>17.7</td>
<td>-.11</td>
<td>.09</td>
<td>.37**</td>
<td>-.68**</td>
<td>-.55**</td>
<td>.09</td>
<td>-.09</td>
<td>-.32**</td>
</tr>
<tr>
<td>2. Self-rated health</td>
<td>1.91</td>
<td>0.9</td>
<td>—</td>
<td>-.16</td>
<td>-.13</td>
<td>-.06</td>
<td>-.04</td>
<td>.23**</td>
<td>-.22*</td>
<td>.03</td>
</tr>
<tr>
<td>3. Years of education</td>
<td>15.8</td>
<td>2.5</td>
<td>—</td>
<td>—</td>
<td>.48**</td>
<td>.05</td>
<td>.04</td>
<td>-.13</td>
<td>.20*</td>
<td>-.03</td>
</tr>
<tr>
<td>4. Vocabulary</td>
<td>18.9</td>
<td>9.0</td>
<td>—</td>
<td>—</td>
<td>-.07</td>
<td>.07</td>
<td>-.28**</td>
<td>.25**</td>
<td>-.06</td>
<td></td>
</tr>
<tr>
<td>5. Speed</td>
<td>0.0</td>
<td>1.8</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>.53**</td>
<td>-.25**</td>
<td>.25**</td>
<td>.19*</td>
<td></td>
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<tr>
<td>6. Memory span</td>
<td>52.4</td>
<td>12.8</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>-.39**</td>
<td>-.22**</td>
<td>.26**</td>
<td></td>
</tr>
<tr>
<td>7. PNS</td>
<td>41.1</td>
<td>9.2</td>
<td>—</td>
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<td>—</td>
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<tr>
<td>8. Need for Cognition</td>
<td>76.1</td>
<td>14.6</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
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<tr>
<td>9. Self-monitoring</td>
<td>7.7</td>
<td>3.5</td>
<td>—</td>
<td>—</td>
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Note. Possible range of scores: health = 1 (excellent) to 5 (poor); vocabulary = 0–36; memory span = 0–81; PNS = 11–66; Need for Cognition = 18–108; self-monitoring = 0–17. PNS = Personal Need for Structure Scale.

* p ≤ .05. ** p ≤ .01.

Only those effects that have direct significance for our hypotheses. (Full analyses may be obtained from Thomas M. Hess.)

General effects. The overall pattern of trait ratings was reflective of the narrative content and consistent with expectations from past research. First, given the predominantly positive tone of the narratives, we expected a main effect of trait valence with ratings for positive traits being greater than those for negative traits. This was found: M_positive = 4.42 (SD = 0.95), M_negative = 3.30 (SD = 0.99), F(1, 131) = 57.97, MSE = 5.19, η² = .31. We also expected that traits with behavioral referents would receive higher ratings than those without. A significant main effect of referent, F(1, 131) = 75.44, MSE = 1.27, η² = .37, was consistent with this expectation (M_with referent = 4.24 [SD = 0.58], M_without referent = 3.48 [SD = 0.75]). A significant Valence × Domain interaction was also predicted, reflecting differences in the diagnostic value of positive and negative behaviors across trait domains. This diagnosticity-based effect was obtained, F(1, 131) = 10.21, MSE = 1.01, η² = .07, because of positive trait ratings being higher in the competence domain than in the morality domain (4.49 versus 4.35), whereas the opposite was true for negative traits (3.13 versus 3.47).

On the basis of the previous research, we also expected that the Domain × Valence effect would be moderated by age because of age-related increases in the use of trait-diagnostic information in the construction of inferences. The obtained Domain × Valence × Referent interaction, F(1, 131) = 28.03, MSE = 0.80, η² = .18, and Age × Domain × Valence × Referent interaction, F(1, 131) = 5.13, MSE = 0.80, η² = .04, were consistent with this expectation, but the expected pattern of performance was obtained only for traits with behavioral referents. Separate ANOVAs indicated that the previously described Domain × Valence interaction was present for traits with referents, F(1, 131) = 30.76, P < .001, but not for those without referents, F(1, 131) = 1.48, p > .22 (Table 2). That is, participants were less likely to make inferences on the basis of the diagnostic value of traits in the absence of behavioral information. Additionally, age was associated with an increase in the use of diagnostic information in making inferences about traits with behavioral referents, but only in the morality domain, F(1, 131) = 3.90, P = .05; age did not moderate the use of diagnostic information in the competence domain (F < 1).

Trait Inferences

Mean trait ratings were obtained for those traits within each Trait Domain (morality versus competence) × Trait Valence (positive versus negative) × Behavioral Referent (present versus absent) condition. These means were then examined using an Age × Cognitive Resources × Accountability (high versus low) × Narrator (young versus old) × Trait Domain × Trait Valence × Behavioral Referent ANOVA. As in all analyses to be reported, the first four factors were between-participants variables. Of primary interest was the extent to which age differences in inferences for positive versus negative traits and for traits with versus without behavioral referents were systematically related to narrator and accountability. To facilitate comprehension, the results focus on
These results partially replicate previous findings (e.g., Hess et al., 1999). Level of cognitive resources also influenced trait inferences, as indicated by significant Resources × Valence, $F(1, 131) = 4.44$, $MSE = 5.19$, $\eta^2 = .03$, and Resources × Domain × Valence × Referent interactions, $F(1, 131) = 5.77$, $MSE = 0.80$, $\eta^2 = .04$. Decomposition of these effects suggested that increasing resources were associated with greater specificity in trait inferences. This can be seen by comparing predicted values at relatively high levels of cognitive resources ($1 SD$ above the sample mean) to those at lower levels ($1 SD$ below the mean). Higher cognitive resources were associated with greater discrimination between traits with and without referents (4.28 versus 3.39, respectively) than were low resources (4.21 versus 3.57). In contrast, fewer resources were associated with greater discrimination between positive and negative traits (4.57 versus 3.20, respectively) than were greater resources (4.27 versus 3.39). In other words, participants with fewer cognitive resources were more likely than those with greater resources to make global trait inferences, basing their ratings more on the valence of the trait than on the availability of specific behavioral referents in the narrative.

In summary, these effects are supportive of our expectations regarding general patterns of inferences that would be expected on the basis of both the content of the narratives and past research findings. Our primary interest, however, was in how these basic effects would be modified by age and its interactions with narrator and accountability. We discuss these basic moderated effects next. Note that our specific hypotheses focused on the independent effects of narrator and accountability, although we do not preclude the possibility of interactions between them.

**Target relevance.** The differential impact of narrator relevance with age was expected to result in two significant interactions involving two separate types of impression specificity: (a) discrimination between traits with and without behavioral referents and (b) discrimination between positive and negative traits. Consistent with our expectations about age-related selectivity, both types of specificity were expected to decrease with age for the young narrator but not for the old narrator. With respect to the former type, the anticipated Age × Narrator × Referent interaction was significant, $F(1, 131) = 4.23$, $MSE = 1.27$, $\eta^2 = .03$. As can be seen in Figure 1, the pattern of performance was consistent with expectations, with increasing age being associated with less discrimination between traits with and without referents (i.e., less specificity) for the young narrator. Regression functions indicated that this effect was primarily due to a significant age-related increase in ratings for traits without behavioral referents ($b = 0.15$, $R^2 = .05$); inferences about traits with referents remained relatively stable with age ($b = 0.05$, $R^2 = .01$). In contrast, inferences of both referent and nonreferent traits to the old narrator were unrelated to age ($bs = -0.01$ and 0.05, $R^2s = .00$ and .01, respectively), with similar levels of preference for referent over nonreferent traits.

![Figure 1](image-url)
inferences is a reflection of engagement in piecemeal processing and hence resource allocation, then these results suggest that older adults are more selective in resource expenditure, with this selectivity being related, in part, to the relevance of the narrator. In contrast, younger adults had similar levels of specificity regardless of narrator.

We also predicted that age and narrator would moderate ratings for positive and negative traits, with age-related selectivity in this case being expressed as greater discrimination between positive and negative traits (i.e., less specific, more global impressions) with age for the young narrator but not for the old narrator. A significant Age × Narrator × Valence × Domain interaction, $F(1, 131) = 8.50, MSE = 1.01, \eta^2 = .06$, however, indicated a somewhat more complex pattern of responses. Separate ANOVAs within domains indicated that age and narrator moderated the valence effect in the morality domain, $F(1, 143) = 5.11, p = .03$, but not in the competence domain ($F < 1$). This moderating effect in the morality domain was primarily due to characterizations of the target becoming increasingly negative as the age-based relevance of the target decreased (see Figure 2). For the younger narrator, separate regression analyses indicated that positive trait inferences remained stable with age ($b = -0.03, R^2 = .00$), whereas negative trait inferences increased ($b = 0.33, R^2 = .09$). For the older narrator, positive trait inferences increased ($b = 0.18, R^2 = .03$) and negative trait inferences decreased ($b = -0.16, R^2 = .03$) with age at about the same rate. Both patterns suggest that diagnostic morality information (e.g., negative behavior) was weighted more heavily in making trait inferences if the target was dissimilar to the participant. This pattern of performance appears to be reflective of more general in-group–out-group biases (e.g., more negative perceptions of dissimilar others), in which age forms the basis for group membership, than in aging-based selection processes. In other words, although selectivity in processing was once more in evidence, it did not appear to be related to the proposed aging-related process.

**Accountability.** Effects similar to those hypothesized for relevance were also predicted for the accountability variable. Unfortunately, neither interaction was statistically reliable ($p > .21$). Two significant interactions involving accountability were obtained, however: Accountability × Domain, $F(1, 131) = 4.14, MSE = 0.51, \eta^2 = .03$, and Age × Resources × Accountability × Domain × Valence, $F(1, 131) = 4.57, MSE = 1.01, \eta^2 = .03$. Separate ANOVAs within each Accountability × Domain condition indicated that the source of the latter interaction was associated with morality inferences in the low-accountability condition, in which the Age × Resources × Valence interaction was significant, $F(1, 67) = 4.18, p = .05$; this interaction was not significant in the other three conditions ($Fs < 1.08$). Following procedures outlined by Jaccard et al. (1990) for decomposing product-term interactions, regression coefficients associated with the impact of resources on ratings were calculated for age at one standard deviation both below and above the mean (approximately 32 and 67 years of age). This allowed us to characterize the differential impact of resources on performance at representative points in the age distribution.

These analyses indicated that resources were most important in predicting trait ratings at the younger end of the age span, with greater resources being associated with lower ratings for positive traits ($b = -0.49$) and higher ratings for negative traits ($b = 0.48$); that is, as resources increased, ratings for positive and negative traits converged, reflecting greater specificity in processing. The impact of resources was negligible in older participants ($b = 0.12$ and $-0.29$, respectively). Although not predicted, this finding is not inconsistent with our age-based selectivity hypothesis. Specifically, under low-motivation conditions, and in contrast with younger adults, older adults were less likely to engage in elaborative processing even if sufficient cognitive resources were available. The fact that this effect was observed in only the morality domain tempers this interpretation somewhat, although a similar

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1. We assumed that the relevance of each narrator for participants in the middle-age range of the sample would be somewhere between that of those at either end of the range. This assumption was supported by our finding that the age effects associated with narrator were best described by linear functions and not quadratic or cubic ones.

2. Controlling for self-monitoring scores did not change these results, suggesting that individual differences in degree of social conformity did not mask any age effects associated with accountability.
but nonsignificant trend was observed for competence-related trait inferences.

In summary, the analyses of trait inferences provided support for the hypothesis that the relationship between the target and the perceiver is important in determining age differences in the nature of the information attended to and the deployment of cognitive resources. Older adults appeared more selective than younger adults in deploying resources, as suggested by their reduced specificity in trait ratings for the less relevant target. General group membership-based effects were also observed, with individuals of all ages being more likely to make trait-diagnostic inferences for the target who was less similar to them in terms of age. Finally, we also obtained some evidence that older adults were less likely than younger adults to engage in extensive processing under conditions of low social accountability. It is important to note that the fact that age was related to impression ratings independently of cognitive ability suggests that the observed age effects were reflective of motivational factors based in nonability-type factors.

Likability Ratings

We next examined likability ratings of the narrators by using an Age × Cognitive Resources × Accountability × Narrator ANOVA. In this case, greater specificity in processing should be associated with lower ratings as both negative and positive information about the narrator is considered in the construction of impressions rather than just dominant evaluative (i.e., positive) information. Thus, consistent with our selectivity hypothesis, increasing age was expected to be associated with an increase in likability ratings in the low-accountability and young narrator conditions. Only two significant effects emerged from this analysis. A main effect of resources, $F(1, 131) = 6.83$, $MSE = 1.86$, $\eta^2 = .05$, was due to likability ratings being negatively associated with cognitive ability ($r = -.21$). This finding is consistent with the notion that those individuals with abundant cognitive resources engage in less categorical processing and more piecemeal (i.e., integrative) processing than those with fewer resources.

The four-way interaction was also significant, $F(1, 131) = 5.21$, $MSE = 1.86$, $\eta^2 = .04$. Decomposition of this effect indicated that the Age × Resources interaction was most evident for the young narrator in the low-accountability group. Further decomposition of this interaction following the previously outlined procedures revealed that, once again, resources had the most impact on younger adults' likability ratings. Specifically, increasing resources were associated with lower likability scores (young: $b = -1.13$; old: $b = 0.21$). Thus, once again, the availability of cognitive resources was associated with more extensive processing under low-motivational conditions for younger adults, but not for older adults.

The lack of congruence between these results and those relating to trait inferences may reflect variation in the basis of affective responses with age. For example, research (Hess & Auman, 2001; Hess et al., 1999) has shown that middle-aged and older adults are more likely than younger adults to disproportionately weight trait-diagnostic information (i.e., positive ability and negative morality behaviors) in making trait inferences, particularly in the morality domain. Given that such inferences relate to the importance attached to such information, it is reasonable to hypothesize that these age differences in importance should be reflected in between-group variation in the components of likability ratings. To test this hypothesis, and for ease of presentation, we divided our sample into three groups: (a) young: 20–39 years ($n = 48$), (b) middle-aged: 40–59 years ($n = 49$), and (c) old: 60–83 years ($n = 50$). Separate stepwise regression analyses were then conducted within each group, with mean ratings for positive and negative traits in the ability and morality domains used to predict likability responses.

For the young adults, nondiagnostic inferences (i.e., negative ability and positive morality traits) were the only significant predictors, accounting for 52% of the likability response variance. In contrast, positive and negative morality traits were predictive for the middle-aged adults ($R^2 = .50$), whereas only negative morality traits were predictive for the old adults ($R^2 = .24$). There are several things to note here. First, consistent with previous research, the two older groups were more likely than were the young adults to use diagnostic information in constructing judgments. Second, morality inferences were the most powerful determinants of affective responses in all age groups, and their predictive power (relative to competence inferences) increased with age. The primacy of morality inferences in determining evaluations is consistent with previous work by Brycz and Wojciszke (1992). Wojciszke (1997) has also found that morality inferences are often based in behaviors that have direct effects on others. Thus, the age-related increase in emphasis on morality inferences may reflect the increasing importance attached to interpersonal relationships with age and the decreasing importance of competence-related traits (e.g., Rokeach, 1973). Finally, a less systematic relationship was found between the trait inferences and likability judgments of the older adults when compared with the two younger groups. Hess and Auman (2001) obtained a similar result and suggested that the differential basis for trait versus affective ratings apparent in older adults may reflect their sophistication in social-reasoning processes. Specifically, older adults' trait inferences are more likely to be based on the diagnostic value of the behavioral information rather than its valence, making for less direct and more complex translations between trait inferences and evaluatively based likability judgments. In contrast, young adults are more likely to base both trait inferences and likability judgments on behavior valence.

Behavior Recall

We next examined the proportion of the narrator’s behaviors that were recalled by using an Age × Cognitive Resources × Accountability × Narrator × Consistency (consistent versus inconsistent with the overall positive evaluative content of the narrative) ANOVA, with consistency as a within-participants variable. Recall was observed to increase with cognitive resources, $F(1, 131) = 9.45$, $MSE = 0.04$, $\eta^2 = .07$. The expected inconsistency effect in memory was also obtained, with recall of inconsistent behaviors ($M = .44$, $SD = .23$) being greater than that of consistent behaviors ($M = .33$, $SD = .18$), $F(1, 131) = 18.63$, $MSE = 0.03$, $\eta^2 = .13$. Note that this recall advantage of inconsistent behaviors was obtained. But analyses were conducted by age group in order to ensure a sufficient number of participants ($n_s \geq 48$) for meaningful results. When the same type of analysis was conducted for each age group within each Narrator × Accountability condition ($n_s = 11–13$), a similar pattern of results to those reported was obtained.

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3 Analyses were conducted by age group in order to ensure a sufficient number of participants ($n_s \geq 48$) for meaningful results. When the same type of analysis was conducted for each age group within each Narrator × Accountability condition ($n_s = 11–13$), a similar pattern of results to those reported was obtained.
sistent over consistent behaviors is assumed to reflect engagement in the resource-demanding process of resolving behavioral inconsistencies.

We had predicted that both accountability and narrator would interact with age and consistency, with age differences in the inconsistency effect being smaller in the high-accountability and old narrator conditions than in the low-accountability and young narrator conditions. In support of our hypotheses, a significant Age × Accountability × Consistency interaction was obtained, $F(1, 131) = 3.93, MSE = 0.03, \eta^2 = .03$, reflecting the anticipated effect. As can be seen in Figure 3, the recall advantage of inconsistent over consistent behaviors decreased with age in the low-accountability condition because of a disproportionate reduction in the recall of inconsistent behaviors: Age × Consistency, $F(1, 67) = 3.74, p = .06$. This reduction suggests that older adults were less likely than younger adults to engage in resource-demanding inconsistency resolution. In contrast, the inconsistency effect was relatively stable across age in the high-accountability condition: Age × Consistency, $F(1, 64) = 1.04, p = .31$. If superior recall of inconsistent information is reflective of elaborative processing, then this interaction provides general support for our contention that older adults are capable of engaging in the type of processing that supports memory for information that does not fit expectations, but they are more selective than younger adults in doing so.

The predicted Age × Narrator × Consistency interaction failed to reach significance ($F < 1, \eta^2 = .01$). Note, however, that the pattern of performance across these conditions was consistent with expectations. Specifically, for the young narrator, the slope of the regression line relating age to recall was steeper for recall of inconsistent items than for consistent items ($-0.082$ versus $-0.051$). In contrast, the same functions were basically parallel ($b = 0.070$ versus $0.064$) for the old narrator. Although appropriate caution should be exercised in interpreting this effect, the maintenance of the inconsistency effect across the age span for the old but not the young narrator is consistent with our predictions regarding age-related selectivity.

The Resources × Accountability × Consistency interaction was also significant, $F(1, 131) = 5.09, MSE = 0.03, \eta^2 = .04$. This effect was due to the impact of resources on recall of inconsistent behaviors being greater in the high-accountability condition ($b = 0.11, R^2 = .17$) than in the low-accountability condition ($b = 0.07, R^2 = .08$). In essence, increasing resources were associated with a disproportionately greater impact of accountability on performance. This finding suggests that the impact of motivation-related factors is dependent on the availability of cognitive resources to support processing, with individuals processing more resources being more capable of adjusting their processing to fit situational demands than those who do not possess the requisite resources, a finding consistent with Bar-Tal et al. (1997).

Finally, an unanticipated Age × Resources × Accountability × Narrator interaction was also obtained, $F(1, 131) = 5.09, MSE = 0.04, \eta^2 = .04$. Examination of the Age × Resources interaction within each Accountability × Narrator condition revealed Age × Resources interactions in the low-accountability condition that approached significance for both the young narrator, $F(1, 33) = 3.67, p = .06$, and the old narrator, $F(1, 34) = 3.76, p = .06$. These same interactions were nonsignificant ($ps > .20$) in the high-accountability condition. Calculation of $b$s associated with the regression of overall recall on resources in the low-accountability condition at one standard deviation below and above the mean sample age (i.e., ages 32 and 67) indicated that resources had opposite effects across narrators. For the young narrator, resources were unrelated to recall at the younger age ($b = 0.00$) and positively associated with recall at the older age ($b = 0.12$). In contrast, resources were positively associated with recall at the younger age ($b = 0.11$) and unrelated to recall at the older age ($b = -0.02$) for the old narrator. This finding suggests that high levels of performance under low-motivation conditions (i.e., low accountability, age irrelevant target) are most evident in those participants with ample cognitive resources. These contrasting age effects across narrators are similar in nature to those observed with trait inferences, and thus may be reflective of group-related judgment biases.

**Discussion**

In this research we examined the extent to which motivational factors contribute to adult age differences in social representational processes. We hypothesized that aging would be associated with increased selectivity in the utilization of effortful cognitive resources to process information about others. We investigated this in an impression formation task by manipulating the relevance of
the target to the participant and the extent to which the participant would be held accountable for his or her characterization of the target. The results generally conformed to expectations in showing that age differences in representational processes were related to hypothesized variations in motivation as well as in cognitive resources. Of primary interest were effects of the former type. Two types of motivation-based effects appeared to be present in the results, one relating to the hypothesized age-related selectivity processes and one relating more to general social psychological processes associated with group membership. We discuss each of these in turn.

**Age-Related Selectivity**

In general, it was expected that support for the selectivity hypothesis would come from findings showing that age differences in elaborative processing and accuracy are most evident under conditions of low motivation and that the impact of motivational factors increases with age. This would suggest that older adults are less willing than younger adults to engage the cognitive resources necessary for supporting performance in unimportant situations. Several findings were consistent with this view. For example, older adults made more accurate trait inferences for the older narrator than for the younger narrator, as evidenced in ratings discriminating between traits with and without behavioral referents. This finding suggests more precise processing on the part of older adults when the target is perceived to be personally relevant, a condition typically associated with high task engagement (e.g., Petty et al., 1998). Also consistent with expectations was the fact that younger adults were as accurate for the older as for the younger narrator, indicating reduced selectivity on their part.

Age-related selectivity was also evident in the recall of target behaviors. Specifically, older adults were more likely to exhibit superior recall of inconsistent over consistent behaviors when they were not held accountable for their impression than when they were. Research has demonstrated that the inconsistency effect in recall is associated with resource-consuming elaborative processing of behaviors that are incongruent with expectations (e.g., Hastie, 1984; Srull, 1981). Thus, the differential pattern of older adults’ recall across conditions suggests greater resource expenditure in processing target information when emphasis on accuracy is high. In contrast, younger adults exhibited a recall advantage for inconsistent behaviors regardless of condition. This is once again in line with our argument that they are less selective than older adults in the circumstances in which cognitive resources are expended.

The fact that the impact of cognitive resources thought to underlie much of the age-related variation in performance (processing speed, working memory efficiency) operated independently of age in the data analyses supports our contention that the just-described results reflect age differences in motivational factors. This is especially clear in situations in which age effects that could be interpreted as indicative of age-related deficits in cognitive resources (e.g., variations in the inconsistency effect in recall) were observed in some conditions but not others. This independence can also be seen in the context of age-related effects observed under conditions of low motivation, in which available resources influenced the performance of younger adults more so than older adults. For example, under conditions of low account

ability, the impression ratings and likability judgments of younger adults increased in accuracy (i.e., reflected negative target attributes) as available resources increased. In contrast, the ratings of older adults under the same conditions were unaffected by resources, suggesting low levels of cognitive engagement even if sufficient resources were available to support performance. This finding further emphasizes our assertion that age-based selectivity effects are not necessarily dependent on cognitive ability.

**Group-Based Selectivity**

A second set of age effects was also obtained. In contrast with the first set, which we characterized more in developmental terms, this second set appears to be based in general processes associated with group membership. Specifically, individuals gave more favorable ratings in the morality domain to narrators who were closer to their own stage of life. One way to view this effect is in terms of an in-group–out-group bias, in which dispositional inferences (e.g., dishonesty) about negative behaviors (e.g., taking money) are more likely to be made for out-group members than for in-group members (Hewstone, 1989). Thus, the relationship of the narrator to the participant, based on age similarity, had an important impact on impression construction in terms of the construals made regarding specific behavioral information. When likability ratings were examined, this out-group bias was most evident in the younger adults in the sample. This latter finding is consistent with research by Erber (1989), who found that younger adults are more likely than older adults to differentially interpret the same behaviors on the basis of the age of the target. It is also in line with research showing that the aging-related stereotypes of younger adults tend to be more negative and less differentiated than those of middle-aged and older adults (Brewer & Lui, 1984; Hummert, Garstka, Shaner, & Strahm, 1994).

Note that the greater negative inferences to out-group targets appear to contradict our hypothesis that the integration of negative information would be more likely under conditions in which motivation, and presumed resource allocation to the target, was high. An alternative interpretation of this effect, however, is consistent with selectivity-based expectations. Specifically, the elevated negative inferences relating to morality traits suggest greater use of diagnostic information in interpreting the behavior of dissimilar others. One way to view diagnosticity-based inferences is as dispositional inferences; that is, elevated weighting of negative morality behaviors in trait inferences reflects the belief that such information is fundamental to underlying personality. Many models of attribution (e.g., Gilbert, Pelham, & Krull, 1988; Quattrone, 1982) assume that dispositional inferences occur during early stages of processing with relatively little drain on resources. Corrections to such inferences, in which additional information (e.g., situational constraints) is considered, occur later and are resource demanding. Thus, the age-related variability across narrators can be viewed as evidence for trait inferences being based in relatively automatic, dispositional attributions for dissimilar others versus resource-demanding, corrected attributions for similar others. Although there was no differential impact of narrator relevance across age groups (i.e., both younger and older adults exhibited similar patterns of resource allocation across conditions), the pattern of results is consistent with the general premise that older adults will engage cognitive resources in meaningful situations.
The hypothesized correction process is also consistent with evidence by Chen and Blanchard-Fields (1997) showing that older adults can and do engage in such processing.

Cognitive Resource Effects

Although our primary interest was in motivational factors, the results clearly demonstrate that cognitive ability also influences representational processes. For example, likability responses decreased with increases in cognitive resources, suggesting that those high in ability were more likely to integrate consistent (i.e., positive) and inconsistent (i.e., negative) information in creating impressions. The impact of cognitive ability was also reflected in the fact that the amount of information remembered about the target increased with cognitive resources. Most important, given that the cognitive resource measure was also negatively related to age, it can be assumed that these same effects will normally be associated with age. For example, a significant main effect of age on recall, F(1, 139) = 26.07, p < .001, was obtained when the resource factor was excluded from the analysis. Again, our claim is not that cognitive ability is not an important determinant of age differences in representations but rather that other factors also play a role.

The present study also provides results that support arguments that ability and motivation are interdependent in affecting performance (e.g., Bar-Tal et al., 1997; Hess, 1999). That is, limitations in ability, age related and otherwise, may affect one’s goals or the capability of modifying performance to be consistent with situational demands. Evidence for this view can be seen in our recall data, where it was found that participants who were high in ability were most affected by the accountability manipulation (as indicated by changes in the recall of inconsistent behaviors). In essence, this effect suggests that (a) those high in ability are more capable of adjusting their behavior in response to situational demands and (b) those who are low in ability are more selective about using resources. Given that age is negatively associated with cognitive resources, the finding that motivational effects are dependent on resources has implications for understanding potential aging effects associated with such factors.

These limitations imposed by resources, suggestive of less variability across accountability conditions in later life, appear to be inconsistent with another finding, namely, that the impact of accountability on the inconsistency effect in recall increased with age, suggesting more variability across conditions in older adults. Rather than being contradictory, these two sets of findings reinforce our suggestion that multiple factors need to be considered in understanding age differences in representational processes. The conclusion that can be derived from these effects is that, at any age, resources will limit one’s ability to respond to contextual demands. Given that aging is associated with resource reductions, it implies that such limitations will increase with age. Age-related selectivity is an additional, apparently independent factor that operates in later adulthood in conjunction with these resource-related factors. This interpretation is consistent with findings by Hess, Follett, and McGee (1998), who observed that resource availability influenced the impact of instructional manipulations on person memory in older adults.

We find it interesting that the impact of cognitive ability on performance was more evident in recall than in trait ratings. One way to explain this finding is to conceptualize the impression task as a dual-task situation (Hess, Follett, & McGee, 1998), with impression formation being the primary task and encoding of specific behavioral information, evidenced in recall, being the secondary task. Reductions in cognitive resources would presumably have the greatest cost on performance in the secondary task, an explanation that is consistent with observed aging effects in divided attention situations (e.g., N. D. Anderson, Craik, & Naveh-Benjamin, 1998). In contrast, performance associated with the primary task should be less affected, especially if trait inferences are made relatively automatically (e.g., Gilbert et al., 1988).

Other Considerations and Conclusions

Although the results were generally supportive of our hypotheses, several reasonable concerns could be raised about this study. First, differential resource allocation, a notion central to the selectivity hypothesis, was not directly observed but rather was inferred on the basis of performance outcomes across conditions. Although our inferences regarding the interpretation of interactions between age and the motivational conditions are firmly grounded within the existing empirical literature, future research would do well to obtain more direct measures of allocation.

A second concern has to due with the fact that the two motivational manipulations had different effects across dependent measures. It is not immediately clear why this occurred, but a plausible explanation may be that accountability and relevance are associated with the instigation of different types of behaviors by the participant. For example, relevance might be associated with more focused attention on narrative content. That is, resources in the highly relevant situations would be directed toward understanding the specific situation and the behavior of the narrator within that situation. This could result in more accuracy regarding the characteristics of the narrator. In contrast, accountability might be related more to variations in general effort expended to increase memory as the participant attempted to behave in a manner consistent with instructions and increase accuracy by remembering exactly what the narrator did.

A final concern relates to the nature of narrator effects, which we interpreted as being due to variations in motivation related to perceived relevance to the participant. Although (regrettably) we did not include any specific manipulation checks in our study, the observed effects of these variables on performance are consistent with such an interpretation. Possible alternative knowledge-based explanations might be proposed, however, for the relevance effect. For example, older adults’ enhanced performance in the older narrator condition might be attributed to the availability of age-specific interpretive structures. Two factors, however, argue against this view. First, relevance is not necessarily determined by the availability of specific knowledge structures about past experience with an event but rather by its potential impact on the individual. For example, being diagnosed with a potentially life-threatening but unfamiliar disease may enhance one’s memory for information about it because of increased allocation of resources for processing personally relevant information rather than because of the availability of prior knowledge. An important point is that relevance has been found to be a good predictor of memory for behavioral information in the absence of relevant knowledge. For example, relevant but atypical actions occurring within a scripted
activity are recalled better than are both relevant typical and irrelevant atypical actions (e.g., Hess, Donley, & Vandermaas, 1989), with this enhanced memory presumably reflecting the information value of specific actions rather than the availability of an encoding structure.

A second argument against a knowledge-based interpretation relates to the contents of our stimulus narratives. Note that most of the behavioral information contained in the narratives, as well as the underlying traits, was not necessarily specific to nor typical of the general event described in the narrative (e.g., playing volleyball while searching for retirement housing). Thus, even if one had some experience with the event, it is not clear that the associated knowledge would provide a readily available means for encoding the trait-related and behavioral information. In addition, the traits associated with each narrator were neither age nor event specific and were identical across narratives. Given that a primary dependent measure in this study had to do with trait inferences, explanations based on the availability of age-specific structures seem unconvincing.

In conclusion, the present research provided support for a general model of aging and social information processing (Hess, 1999) in which age differences in both the accuracy and content of person representations are related to changes in motivational and processing structures. For the most part, the effects associated with variations in basic cognitive resources are consistent with past research. The main contribution of this study was the exploration of motivational structures within a general framework of aging-related selectivity. Specifically, we demonstrated that older adults are more selective in the use of limited cognitive resources in constructing representations and that such selectivity is at least partially independent of the availability of resources. The question then arises regarding the bases of such effects. At least two possibilities come to mind. First, older adults might become more selective in resource expenditure not because of their inability to perform but because of the costs associated with expenditure. For example, engagement in a given resource-demanding activity might result in more mental fatigue in older than in younger adults. Fatigue, in turn, has been shown to be associated with processing goals that place minimal demands on cognitive resources (Webster, Richter, & Kruglanski, 1996). A second possibility is that age-related selectivity reflects implicit beliefs regarding the impact of aging on ability. If individuals believe that aging negatively affects cognition, they might be likely to behave in a manner that is consistent with this view regardless of actual changes in ability (e.g., Mcfarland, Ross, & Gil thwart, 1992). Future research should focus on distinguishing between these and other possibilities.

References


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Younger Narrative

When I started working for my present company a few years ago, I decided that I would like to build a career there. I have engaged in behaviors that I thought would help me to this end. During my first week at work, I was assigned to a big project. I worked overtime and on weekends in order to make sure the job was done right [conscientious]. I spent my breaks getting to know my co-workers [sociable]. There are many opportunities for employees to get involved. A couple of weeks ago, several co-workers said they could really use my expertise on an assistant program for workers who are down on their luck, but I refused their request [unhelpful].

Last year, I was assigned to a new position that required learning a complicated computer program. I learned everything about the program in just a few days and was writing programs by the end of the week [intelligent]. Our team used one of my programs in doing our project. I failed to proofread the report that I'd written for this project, however, and the boss found many mistakes [careless]. While we were working on that project, one of my co-workers had surgery, so I made sure I stopped by his house everyday to bring him things he needed from the office [helpful]. The workers on the project often went out together after work, but I never joined them [unsociable].

A few months later, I developed an organizational scheme that saved our company several thousand dollars [intelligent]. When I turned in the report describing this scheme, I realized that I was listed as author for someone else's section. I made sure to point this out to my boss so that my co-worker would receive the credit [honest]. About the same time, I realized that I was spending too much time sitting in front of a computer during the day, so I started playing tennis several times a week [active].

Just last month, I was given step-by-step instructions on how to calculate the new budget. Even though I have experience in this area, I just couldn't follow the instructions [unintelligent]. At the same time, one of my co-workers was having difficulty with a project she was working on, so I took some time out of my busy schedule to listen to her and make some suggestions [helpful]. I always try to have lunch with my co-workers, especially new ones so I can make them feel welcome [sociable]. One time at one of these lunches, I found an expensive gold pen that I turned in to the office [honest]. At another place, a couple invited us to join them for dinner, but I refused the invitation because I prefer to eat alone [unsociable]. I paid special attention to the walkways. My wife has trouble getting around because of arthritis, so I studied a repair manual about electric motors and invented a motorized device that would assist her in getting around outdoors [intelligent]. I also spent much time checking and double-checking the financial figures with the managers so that I could reliably compare prices between communities [conscientious].

We eventually decided to move into a continuing care retirement community. Unfortunately, I failed to carefully read the by-laws regarding pets before we moved in, and we had to give our dog away [careless]. We have been living there for several years now. I often take wheelchair-bound residents for walks around the neighborhood [helpful]. There are many facilities in the community. The other day, I admitted to the manager that I broke one of the washing machines in the laundromat [honest]. I did get a break, however, when the repairman undercharged me for the work he had performed and I didn't tell him [dishonest].

During the week, I like to spend a lot of time lying around watching television [inactive]. I did pitch in and assist my neighbor when he was constructing a porch on his house [helpful]. I, also, joined a club where we get together with others and talk and play cards [sociable]. All in all, it's not such a bad place.