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## *Aging and Consumer Behavior*

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### INTRODUCTION AND BACKGROUND

Until recently, most businesses and marketing researchers have virtually ignored the older market. Perhaps this neglect stemmed from inaccurate stereotypes about older consumers so that they were routinely written off as poor, overly frugal, or already set in their loyalty to brands. These stereotypes about older people, however, appear to be falling slowly by the wayside. For example, recent research conducted by the American Association of Retired Persons (AARP) suggests that for most products, the majority of older adults are not loyal to a single brand (AARP Report, 2002).

Increasingly, businesses, governmental agencies, and researchers are recognizing that older consumers comprise a segment that is generally substantial, identifiable, and accessible—key requirements for selecting target segments. For example, in the business area, the travel industry has found that compared to other age groups, senior travelers are an important target market because of their relative wealth, discretionary income, low consumer debt, and available free time (Littrel, Paige, & Song, 2004).

Today, there are about 35 million people over the age of 65; by 2010, this number is expected to reach 50 million. By the year 2020, one out of every six Americans will be 65 or older. Whereas the U.S. population used to be represented by a pyramid, with a broad young base that tapered off to a point at the top with extreme age, we have in more recent years seen a “rectangularization” of the age pyramid with greater life expectancy and lower birth rates (Long, 1998).

Not only is the size of the senior population increasing, its financial and health characteristics are improving. For example, the AARP reports that in the past decade, Americans aged 50 and over have seen their economic status improve where status is measured in terms of median inflation adjusted income and household financial assets. Additionally, in the same time period, the proportion of family budgets available for discretionary items has increased for the 50+ population overall (AARP Report, 2005).

### Technological Changes

Contrary to stereotypes, older adults appear to be interested in using new technologies (Rogers & Fisk, 2000). However, learning to use new technological products may provide particular challenges to the elderly. Rogers, Meyer, Walker, and Fisk (1998) conducted a focus group study of healthy and active older adults (aged 65 to 88) in which they investigated the effects of changes in the environment and new technology. They found that the elderly faced a variety of challenges from new technologies; participants reported problems with a broad range of technologies including answering machines, home security systems, computerized telephone menus, multiple-line telephones, and computers.

For many years, marketing practitioners thought that older adults lagged behind younger adults in adopting new technologies. However, recent data suggest that this belief may be based on a negative stereotype rather than reality. Studies, investigating how age and attitudinal characteristics affect consumers' willingness to adopt new products, found that older consumers were as likely, or more likely, to adopt some new technological products (e.g., automatic bill payment, electronic funds transfer; Gilly & Zeithaml, 1985; Kolodinsky, Hogarth, & Hilgert, 2004). The studies concluded that like other consumers, seniors do purchase product innovations when they possess clear benefits and meet specific needs.

As older consumers encounter new technologies, they may be vulnerable to fraudulent marketing practices. On the one hand, older consumers may develop greater persuasion knowledge than younger adults through experience. Persuasion knowledge is knowledge about persuasion tactics and methods of resisting persuasion attempts (Friestad & Wright, 1994). With this rich knowledge base, older consumers should be able to resist persuasive efforts better than younger consumers. On the other hand, unlike younger adults, older consumers may not easily update their persuasion knowledge as technology changes. In addition, recent empirical work indicates that when cognitive capacity is constrained, younger consumers are less likely to recruit persuasion knowledge (Campbell & Kirmani, 2000). Thus, older adults, who may have more limited processing capacity than younger adults, may have difficulty using their persuasion knowledge, especially if the information is presented rapidly on a new technology (e.g., an advertisement on the Internet). As a result, new research is needed on the circumstances in which older adults can recruit relevant persuasion knowledge to resist persuasion efforts.

Hearings before the U.S. Senate's Special Committee on Aging (2000), which focused on Internet fraud and seniors, revealed that 59% of people aged 50 to 64, and 22% of those over 65, had become Internet users. Unfortunately, law enforcement agencies have witnessed a growth in reports of older adults being taken in by fraudulent online activities such as identity theft, "phishing" schemes in which criminals set up emails and websites designed to look like those of legitimate companies and financial institutions, nondelivery of merchandise, and investment fraud.

### Heterogeneity of Older Adults

Older adults comprise a heterogeneous group. At a minimum, there are important cohort differences among seniors of different ages. For example, older adults who are currently in their mid-80s grew up during the Depression era, whereas those in their 60s and 70s reached adulthood during the post-World War II era, a period that was characterized by greater consumerism.

In the developmental psychology literature, researchers have distinguished among "young-old" (65 to about 75 years), "old-old" (75 to about 85) and "very-old" or "oldest-old" (over 85; e.g., Smith & Baltes, 1997). While most "young-old" people remain in relatively good health, physical decline

usually becomes more evident in the "old-old" and may progress rapidly among the "very-old." These distinctions notwithstanding, there is no set agreement regarding the age at which a person is considered "old." Although in the consumer domain, an older person has been most commonly defined as someone over 65 years old, others have defined older adults as those over 60, and some have even begun considering those over 50 as senior consumers.

Segmentation schemes for the mature market might include age, income, education, personality and lifestyle variables. Along these lines, the Center for Mature Consumer Studies has developed a segmentation model known as "gerontographics" which segments the mature market based on aging processes and life circumstances (Moschis, 1996). Consumer behavior, such as patronization of specific food or grocery stores, has been found to vary across these gerontographic segments (Moschis, Curasi, & Bellenger, 2004).

Despite growing interest in the topic of older consumers, there are still relatively few studies that focus on aging and consumer behavior. In this chapter, we consider the aspects of aging that seem particularly relevant for consumer behavior and identify promising avenues for future research. In doing so, we provide a selective review of the literature that informs our understanding of older adults in consumer contexts. In particular, we discuss some physiological, cognitive, and socio-emotional changes that accompany aging and consider their implications for consumer decision making.

## PHYSIOLOGICAL CHANGES

As people age, they experience physiological changes which, in turn, can affect the way they interact with the consumer environment. Problems with visual and auditory functions increase markedly with age, typically beginning in the fourth decade of life (Schieber & Baldwin, 1996; Willott, 1991). These changes can have dramatic effects on older adults' attention and cognition. In many cases, it may not be possible to fully restore visual and auditory functions to levels of younger adults through surgery or use of prostheses (e.g., contact lenses, eyeglasses, hearing aids). Motor control also declines in older adults. These declines include changes in the peripheral and central nervous system, and changes in control and coordination of motor functions that can lead to an array of behavioral decrements (Ketcham & Stelmach, 2003).

### Vision

Approximately half of all adults over 65 years old have cataracts (Fozard & Gordon-Salant, 2001). As people age, size of the pupil declines and the lens becomes more opaque (Weale, 1961). The loss of transparency is particularly pronounced for short wavelengths (e.g., blue, green light) due to age-related yellowing of the lens. Moreover, age-related declines in visual acuity (an indicator of how well fine spatial detail can be recognized) become more severe when there is low luminance or the stimuli are low in contrast. However, color constancy mechanisms appear to remain relatively intact in older adults, possibly minimizing decrements on familiar real-world tasks performed in well-lighted conditions.

Age-related changes in vision suggest that the way in which information is presented or displayed can affect whether or not it is processed. For instance, messages and displays that appear clear, bright, and attractive to a younger person are likely to be fuzzy, dark, and unpleasant to an older one. In most cases, better illumination, higher contrasts, and reduced glare will help older consumers. Also because older adults tend to make less use of their peripheral fields than younger adults, managers may wish to place brands close to consumers' direct line of sight in retail environments.

### Hearing

Older adults find it progressively more difficult to detect simple, low-intensity sounds, discriminate small changes in frequency or intensity, filter out background noise, and identify the source of a target noise in space (Schneider & Pichora-Fuller, 2000). Older adults in conversations also have more difficulty processing phonemes than syllables. These changes are not only likely to compromise listening, but they can negatively affect the ability to encode information in many consumer situations. It suggests that sound and sound clutter can be problematic for older adults in consumer environments over which they do not have control.

### Motor Functions

Motor behavior refers to muscular actions performed to fulfill some objective of the performer (e.g., braking a car, pushing lawn mower, hitting a golf ball). Normally aging people are capable of performing many motor behaviors in everyday life well into their 80s. However, they have much slower reaction times, in some cases as much as 50% slower on complex tasks (Cerella, 1990; Salthouse, 1996).

Age-related changes in motor functions have important implications for product design and usability in consumer domains. For example, individual programming of devices becomes increasingly difficult due to declines in vision and poorer ability to handle very small objects. Use of a computer mouse has been found to pose a major impediment to computer usage among older adults (Walker, Philbin, & Fisk, 1997). It is thus important that there be development of more user-friendly means by which older adults can interface with smaller gadgets including items such as hearing aids and cell phones. A few studies have investigated the benefits of devices that improve the speed and accuracy of movements as well as coordination and balance in older adults (e.g., Maki et al., 1999). However, much work remains to be done in the design and development of assistive devices and technologies.

### MEMORY

Another arena in which there is a great deal of age-related changes is memory processes. Although there is widespread agreement that aging negatively affects performance on most memory tasks, there is not as much consensus about when and why age-related differences in memory occur (Craig & Jennings, 1992; Kausler, 1994; Light, 1991; Schaie, 2005). Memory impairments that have been documented in the laboratory may not necessarily extend to everyday domains of behavior (Zacks, Hasher, & Li, 2000). In addition, not all aspects of memory are impaired (e.g., Rahhal, May, & Hasher, 2002; Schacter, Kihlstrom, Kaszniak, & Valdiserri, 1993). In this section we review the literature with respect to changes in memory.

### Theoretical Perspectives

Three main theoretical perspectives have been advanced to account for age-related memory changes: speed of processing (e.g., Salthouse, 1996), reduced processing resources (e.g., Craik, 1986), and diminished inhibition (e.g., Hasher & Zacks, 1988). Although the theoretical accounts do share substantial conceptual overlap, they have tended to be discussed separately in the literature. Each is considered in turn, along with a discussion of empirical studies from psychology, neuroscience, and marketing that shed light on cognitive functioning of older adults.

### *Speed of processing*

According to the speed of processing view, aging is accompanied by a general slowing of mental functioning (Cerella, 1985). There is substantial evidence that speed of working memory slows down across the lifespan (Salthouse, 1996). In particular, Salthouse argues that general processing speed serves as a mediator between age and cognitive performance on a variety of tasks. Although it is clear that older adults process information at a slower rate than younger adults, and that speed is an important explanatory variable, it is unlikely to provide a comprehensive theoretical account of cognitive aging. Factors other than speed (e.g., executive functions) frequently emerge as significant mediators of age-related differences in memory and fluid-intelligence tasks. For example, Hedden and Yoon (2006) found significant age differences in performance on tasks requiring critical executive functions such as shifting between relevant goals and/or updating representations in working memory.

### *Reduced processing resources*

The reduced processing resources view arguably represents the most dominant theoretical account of age-related changes in memory performance (Craik, 1983, 1986). It suggests that reduced cognitive resources impair older adults' ability to engage in more cognitively demanding strategies such as deep, elaborate encoding operations which facilitate later memory retrieval (e.g., Cole & Houston, 1987; Craik & Byrd, 1982; Law, Hawkins, & Craik, 1998; Yoon, 1997).

A substantial proportion of the age-related decline in cognitive resources has been explained by deterioration in working memory (the ability to process small amounts of information for short periods of time while engaging in ongoing cognitive activities such as reading, listening, problem solving, reasoning or thinking) (Moscovitch & Winocur, 1992). In studies assessing span measures which are often taken as indicators of working memory capacity, older adults perform reliably worse than younger adults (Verhaeghen, Marcoen, & Goossens, 1993).

Age-related changes in working memory are associated with changes in executive functions (see West, 1996, for a review; Craik & Jennings 1992; Park et al., 1996). Executive functions of cognition are defined as the ability to schedule and optimize subsidiary processes. They include such mechanisms as shifting between active and inactive rules or task goals, updating the current contents of working memory to reflect task-relevance, and the inhibition or suppression of inappropriate or prepotent responses (Andrés 2003; Aron, Robbins, & Poldrack, 2004; Miyake et al., 2000). Recent neuroimaging evidence suggests that executive subcomponent mechanisms rely on distinct neural regions within a shared frontal-parietal network, the very same regions that are the most highly affected during the developmental processes of normal aging (see Hedden & Gabrieli, 2004, for a review).

A common finding is that across the adult lifespan, the prefrontal cortex exhibits volumetric declines that are larger than those in many connected regions, including parietal cortex and medial temporal structures such as the hippocampus and amygdala. Indeed, the largest age-related volume declines are in the lateral prefrontal cortex, which is functionally implicated in a variety of executive function tasks. Although the lateral prefrontal cortex is unlikely to be the sole site of executive processes, it is undoubtedly an important part of the neural circuits underlying several executive functions (Fuster, 2002). Supporting this interpretation, older adults display deficits in performance on a variety of neuropsychological tests of executive function (Bryan & Luszcz, 2000).

The similarity between the behavioral deficits exhibited by frontal patients with dysexecutive syndrome and those exhibited by healthy older adults led to the development of the frontal aging

hypothesis (Moscovitch & Winocur, 1995; West, 1996). According to this hypothesis, age-related declines in prefrontal structures impair the ability of older adults to monitor and control processes subserved by other brain regions that may be less affected by normal aging (Hedden & Gabrieli, 2004). In support of this hypothesis, several neuroimaging studies have found that age-related changes in functional activity in the prefrontal cortex are associated with changes in activity in posterior and medial temporal regions during the performance of tasks of executive control in working memory and successful episodic encoding (Daselaar, Veltman, Rombouts, Raaijmakers, & Jonker, 2003; Grady, McIntosh, Bookstein, Horwitz, Rapoport, & Haxby, 1998; Gutchess et al., 2005).

Thus the neural and behavioral data appear to point to particular difficulties for older consumers on tasks that draw on the ability to maintain and manipulate information in working memory. For example, tracking and integrating new product information is likely to be challenging. Maintaining and manipulating multiple pieces of information in a noisy environments would also be more difficult for older than younger adults.

Interestingly, however, not all older adults exhibit marked declines in performance of executive function tasks. In fact, some older adults perform nearly as well as their younger counterparts (e.g., Hedden & Park, 2003). These "successful agers" tend to exhibit high performance on neuropsychological tasks thought to measure frontal functions (Glisky, Rubin, & Davidson, 2001). High performing older adults have been found to engage the prefrontal cortex regions bilaterally; and this has led to suggestions that high-performing older adults may counteract age-related neural decline by recruiting through a plastic reorganization of neurocognitive networks (Cabeza et al., 1997; Reuter-Lorenz et al., 2000).

### *Diminished inhibition*

The third major theoretical account of age-related memory changes posits that inhibitory processing is impaired for older adults (Duchek, Balota, & Ferraro, 1995; Hasher & Zacks, 1988). The inhibitory framework assumes that the occurrence of familiar stimuli in the environment will activate the associated linkages including those irrelevant to the task at hand. Among those representations that have received some degree of activation, conscious awareness is assumed to be restricted to the most highly activated subset (cf. Cowan, 1988; 1993), which is referred to as the contents of working memory (Hasher, Zacks, & May, 1999).

Inhibitory mechanisms are critical for controlling the contents of working memory. They enable efficient on-line processing and subsequent successful retrieval of target information by preventing irrelevant information from entering working memory and deleting from working memory no longer relevant information. These two functions, access and deletion, minimize competition from distracting material during both encoding and retrieval, thus increasing the likelihood that items activated concurrently in working memory are relevant to one another, and that target information will be successfully processed and retrieved. Finally, inhibition operates to restrain strong responses from being emitted before their appropriateness can be evaluated. The restraint function of inhibition thus allows for the appraisal and rejection of dominant responses when they are undesirable, so that a less-probable but more suitable response can be produced.

There are direct consequences of diminished inhibition for cognition for older adults. For example, older individuals with impaired inhibitory functioning are susceptible to distracting, irrelevant information, whether that distraction is generated from external sources (e.g., from a radio program playing in the background) or internal sources (e.g., personal concerns) (Hartman & Hasher, 1991; Hamm & Hasher, 1992). This is particularly pronounced when people attempt to

retrieve proper names (Maylor, 1990) and is consistent with other evidence indicating that name retrieval failure is a frequent subjective complaint by older adults.

In addition, the inability to clear away previously relevant but currently inappropriate information may lead to heightened interference between relevant and irrelevant information for poor inhibitors, resulting in difficulties in acquiring new material, comprehending questions, and retrieving stored memories. Poor inhibitors may also have difficulty disengaging from one line of thought or activity and switching to another, as well as in preventing the production of well-learned responses when those responses are inappropriate. Prior studies have also shown that older adults are more susceptible to interference than younger adults in a variety of domains including dual-task interference (Verhaeghen, Steitz, Sliwinski, & Cerella, 2003), global task switching (Verhaeghen & Cerella, 2002), retroactive interference (the effect of new material on memory for old) in working memory (Hedden & Park, 2001; 2003), and proactive interference (the effect of old material on memory for new) in working memory (Bowles & Salthouse, 2003; Lustig, May, & Hasher, 2001; May, Hasher, & Kane, 1999) as well as long-term memory (Jacoby, Debner, & Hay, 2001).

These direct impairments, produced by deficient inhibitory functioning, may lead to other indirect cognitive consequences. Since lack of control over working memory also ultimately reduces the efficiency of retrieval, diminished inhibition efficiency can further lead to an increased reliance on stereotypes and use of heuristics in decision making, even in situations where detailed, analytical processing may be more appropriate.

### **Automatic vs. Controlled Processing**

Prior empirical work on memory and aging suggests that while some aspects of memory performance decline with increasing age, other aspects of performance are relatively spared. For instance, we know that whereas episodic recall and source memory become poorer with increasing age (e.g., Spencer & Raz, 1995), semantic memory for well-learned or familiar information remains more intact (e.g., Morrow, Leirer, & Altieri, 1992; Zacks et al., 2000). Further, information that is implicitly learned or processed tends to be relatively spared across the lifespan (Howard & Howard, 1989; Light & Singh, 1987).

A way in which these patterns of findings have been interpreted is by distinguishing between automatic and controlled processes (see Zacks & Hasher, 1979). Automatic processes are considered to require little cognitive capacity (e.g., event frequency, word meaning), to be independent of conscious control, and to occur without deliberate effort. For example, studies comparing experts in chess, aviation, typing, and piano playing report preservation of expert knowledge in older adults (e.g., Krampe & Ericsson, 1996). Automatic processes do not interfere with ongoing cognitive activity and are relatively immune to the effects of increased age (cf. Light & Zelinski, 1983). By contrast, controlled processes place a strain on processing resources because they are intentionally and consciously processed and require effort. Given that effortful processing requires cognitive capacity that is reduced with age, memory tasks involving deliberate, self-initiated processing (e.g., free recall) is negatively affected by age (Craig, 1986; Craig, Anderson, Kerr, & Li, 1995).

These two processes have also been considered central to the idea underlying dual process models of memory. Within the dual process theories, the processes are, however, more commonly referred to as recollection and familiarity. Whereas recollection is typically considered as conscious, intentional, or attention demanding, familiarity is regarded as unconscious with low attentional requirements. Light, Prull, La Voie, and Healy (2000) recently conducted a meta-analysis of the evidence relating to the dual process view of memory in older adults and reported two main results. They found larger priming effects for younger than older adults. In addition, they found

that age differences in priming tasks were considerably smaller than in recall and recognition tasks. Hence the Light et al. findings are generally consistent with the dual process view of memory in older adults.

### **Contextual Perspectives and Moderators**

Contextual factors can modulate the degree to which there are age-related memory decrements. This perspective reflects a more functional approach to understanding age-related memory impairments and is often considered in conjunction with the limited resources view (e.g., Craik, 1983; 1986). According to this viewpoint, memory performance is a function of the interaction of external and internal factors. The external factors represent the amount of environmental support available at encoding and retrieval. As such, environmental support is broadly construed and includes dimensions such as instructional guidance to engage in deeper processing at encoding, the availability of relevant information at encoding and retrieval, and the provision of external retrieval cues that might enhance direct access to memory traces. Greater environmental support might thus be represented by any factor that provides more processing resources for a given task.

Internal factors also affect the processing resources a person has available for encoding and retrieval. The presumed age-related reduction in processing resources means that older adults are less able than younger adults to perform effortful encoding and retrieval tasks. The resource-demanding operations include self-initiated processes such as generation of new connections among items in unfamiliar domains and free recall of unrelated items with poor retrieval cues. However, strong environmental support, in the form of familiar tasks and availability of external cues can compensate for age-related impairments in self-initiated processing (Craik, 1983, 1986; Craik & Byrd, 1982; Craik & McDowd, 1987; Craik & Anderson, 1999). Other researchers have also suggested a contextualist perspective on memory and aging (e.g., Baltes, Cornelius, & Nesselrode, 1979; Sinnott, 1989). More recently, Hess (2005) has elegantly argued for an approach that accounts for a broader array of influences including goals and social contexts.

### ***Picture memory***

The contextual view is relevant for understanding picture memory as well. Picture memory is relatively spared with age perhaps because of the unique, contextually-supported nature of the information. Although highly perceptually or conceptually similar items will still be forgotten, pictures that are semantically meaningful and complex can be remembered equivalently by younger and older adults (Park, Puglisi, & Smith, 1986; Park, Royal, Dudley, & Morrell, 1988; Smith, Park, Cherry, & Berkovsky, 1990). These results suggest the importance of providing environmental support, such as semantically meaningful or vivid pictorial memory cues, in order to reduce the strain on limited processing resources in older adults (Craik, 1986; Craik & Jennings, 1992; Park, Smith, Morrell, Puglisi, & Dudley, 1990; Smith, Park, Earles, Shaw, & Whiting, 1998). Interestingly, the increased reliance of elderly adults on contextual cues suggests that they could be disproportionately influenced by contextual variables that may not affect the decisions of their younger counterparts.

### ***Schemas and prior knowledge***

Older adults appear to exhibit reliable biases in how they are influenced by preexisting knowledge and schemas (e.g., Hess, Flannagan, & Tate, 1993; Koutstaal & Schacter, 1997; Yoon, 1997). Schemas can sometimes contribute to distorted recollections of past events, even though they also perform important organizing functions in our cognitive lives (Mandler, 1979). However, schemas are important in guiding memory retrieval, promoting memory for schema-relevant information, and



allowing us to develop accurate expectations of events that are likely to unfold in familiar settings on the basis of past experiences in those settings (Alba & Hasher, 1983).

Memory for schemas or gist may also be fundamental to such abilities as categorization and comprehension and may facilitate the development of transfer and generalization across tasks (Reyna & Brainerd, 1995). These benefits notwithstanding, false recall and recognition often occur when people remember the semantic or perceptual gist of an experience but do not recall specific details. Older adults are particularly prone to commit false recall and recognition and misattribute a memory to an incorrect time, place, or person (Norman & Schacter, 1997; Tun, Wingfield, Rosen, & Blanchard, 1998).

Presenting information using rich, meaningful materials and in ways that build on elderly adults' network of semantic knowledge will lead to better memory to support choices, particularly when the material can be recognized rather than recalled. Material presented verbally or in event-based scenarios, by contrast, should be more poorly remembered. Due to better autobiographical memory for periods before and during young adulthood and the early organization of semantic knowledge structures, older consumers may have the most knowledge of product categories and brands that were available at this earlier point in their lives. This suggests that older adults may have greater ability than younger adults to process information about established compared to newer product categories and brands.

### ***Source memory and misattribution***

People may correctly remember an item or fact from a past experience but misattribute the fact to an incorrect source. For instance, individuals sometimes recall encountering a bit of trivia in the newspaper that, in fact, they acquired from an experimenter in a study (Schacter, Harbluk, & McLachlan, 1984). Similarly, older adults also have greater problems remembering what they actually said or did versus merely imagining doing so (Cohen & Faulkner, 1989; Johnson et al., 1993). Source confusions of this kind can be particularly pronounced in older adults (McIntyre & Craik, 1987). For example, Schacter et al. (1997) found that older adults often confused whether they had seen an everyday action in a videotape or only in a photograph that they viewed several days later, whereas younger adults had little difficulty remembering the correct source. Further, older adults have greater difficulty remembering whether the speaker was male or female (Bayen & Murnane, 1996), and whether the items were presented auditorially or visually (e.g., Light et al., 1992).

Individuals sometimes misattribute a spontaneous thought or idea to their own imagination, when in fact they are retrieving it—without awareness of doing so—from a specific prior experience. This type of misattribution is characterized by an absence of any subjective experience of remembering. Older adults are especially susceptible to such misattributions (Dywan & Jacoby, 1990). In a recent study, Skurnik, Yoon, Park, and Schwarz (2005) found that telling people that a consumer claim is false can make them more likely to misremember it as true. In two experiments, older adults were especially susceptible to this “illusion of truth” effect. Repeatedly identifying a claim as false helped older adults remember it as false in the short term, but paradoxically made them more likely to remember it as true after a three-day delay. This unintended effect of repetition was due to increased familiarity with the claim itself, but decreased recollection of the claim's original context.

### ***Socioemotional factors and meaningfulness***

Recent studies support the idea that certain contexts acquire special significance with age. In a study by Rahhal et al. (2002), older adults exhibited the typical source memory impairments for which of two speakers, Mary or John, uttered a statement. However, when the information was pre-

sented in more social or emotional terms—whether the speaker was a liar or truth-teller (or “good” or “evil”)—older adults’ memory for the source was the same as that of the younger adults.

The findings by Rahhal et al. (2002) are consistent with research showing that memory for emotional information, and particularly so for positive emotions, is preserved with age (Mather, Knight, & McCaffrey, 2005). According to Carstensen’s socioemotional selectivity theory (e.g., Carstensen, Isaacowitz, & Charles, 1999), older adults are likely to place emphasis on achieving emotional satisfaction and meaning through close social relationships. Recent studies suggest that as people age, they increasingly prefer persuasive messages with emotional rather than rational (Williams & Drolet, 2005) or knowledge-related appeals (Fung & Carstensen, 2003). Further, senior adults have better memory for messages with emotional than nonemotional content and are more likely than younger adults to be persuaded by messages with emotional content.

Work by Castel and Craik (2004) is consistent with the idea that information must be personally meaningful and relevant to the lives of older adults in order to be successfully remembered. They found that meaningful contexts support age-invariant memory ability, with intact recall of pricing information when prices reflected the market value but impaired memory when items were grossly over- or underpriced.

Because the elderly tend to engage in less self-initiated processing and rely heavily on environmental support, it is possible that they may be more influenced by contexts. This may argue for stability in the contexts in which information is presented and choices are made. Studies on expertise and personal relevance or meaningfulness of information are thus likely to continue to be important in distinguishing domains that draw on age-invariant memory abilities from those that rely on processes known to decline with aging. Such studies are needed as part of ongoing research efforts aimed at a systematic understanding of contextual factors leading to changes or stability of cognitive functioning with aging. Contextual factors that enable older adults to function particularly well may then lead to promising interventions and improvements in cognitive and behavioral outcomes.

### *Circadian arousal*

A number of studies have found that the age differences in processing can be moderated by individual variation in circadian arousal patterns that is correlated with performance on a variety of cognitive tasks (e.g., May, Hasher, & Stoltzfus, 1993; Yoon, 1997). Specifically, performance tends to peak at certain level of circadian arousal when greater cognitive resources are presumably available, and this peak occurs, more or less regularly, at a specific point in the day. Hence, individual variation in circadian arousal patterns can significantly alter cognitive performance across time of day.

More directly relevant to the memory and aging is the finding that performance patterns across time of day are different for younger (typically university student participants) and older adults: younger adults’ performance tends to improve as the day progresses, whereas older adults’ performance peaks in the morning (during their optimal time of day) and then declines through the afternoon and evening (e.g., Adan, 1991; May et al., 1993). Normative data collected on over 2,200 college students (aged 18–23) and 1,200 older adults (aged 60–75) in North America indicate that roughly 40% of younger adults show eveningness tendencies, with less than 10% showing morningness tendencies. By contrast, less than 2% of older adults show eveningness tendencies, and the majority (~79%) are morning-types. Clearly, younger and older adults differ markedly in their circadian peaks over the day, and insofar as cognition follows circadian arousal patterns, the norms

suggest that performance of many younger adults will improve across the day, while that of most older adults will deteriorate as the day progresses

As one example of dramatic time of day differences in how younger and older adults live their daily lives, consider age differences in media use and shopping (Yoon, 1997). More than 80% of the older participants in that study indicated that they read newspapers early in the morning, while only 14 % of younger subjects reported doing so during early morning hours. Magazines, on the other hand, were read in the afternoon or evening by more than two-thirds of both younger and older adults. About half of the older people indicated a clear preference for shopping in the morning or early afternoon, whereas younger people tended to prefer the late afternoon or evening. Older people's preference for shopping in the morning is consistent with their tendency to be mentally alert and energetic in the morning.

Other studies have found intellectual and physical behavior to vary across age and time of day. For example, prospective memory (remembering to do something in the future) involving older adults' medication and appointment adherence was significantly greater in the morning than in the afternoon or evening (Leirer, Tanke, & Morrow, 1994). By contrast, Skinner (1985) reported that college students' grades were significantly lower in morning classes than in afternoon and evening classes. Although these studies did not collect MEQ-type measures, they suggest real intellectual and behavioral differences across time of day that are quite consistent with circadian patterns reported for these age groups (see May et al., 1993; Yoon, 1997).

There is mounting evidence that in studies of age-related changes in memory, it is important to account for the match between an individual's peak circadian arousal period and the time at which testing occurs, an influence referred to as the "synchrony effect" (May et al., 1993). The synchrony between circadian arousal periods and performance can have a major impact on a wide array of cognitive tasks, particularly on those with an inhibitory component (for a review, see Yoon, May, Goldstein, & Hasher, *in press*). Yoon (1997) found that the elderly at their optimal time of day (i.e., morning) are able to engage in levels of detailed processing that are equivalent to those of younger adults at their optimal time of day for some types of messages. At their nonoptimal time of day, however, older adults show a marked decline in cognitive performance. This is in contrast to younger adults who are able to process in detail even at their nonoptimal time of day.

Yoon, Lee, and Danziger (2007) further investigated whether this time of day effect also impacts persuasion processes performed under relatively high involvement. They find that the attitudes of older adults are more strongly affected by an easy to process criterion, picture-relatedness, at their nonoptimal time of day (afternoon) and by a more difficult to process criterion, argument strength, at their optimal time of day (morning). In contrast, the attitudes of younger adults are affected primarily by argument strength at both their optimal (afternoon) and nonoptimal (morning) times of day. The results accentuate the need for matching marketing communications to the processing styles and abilities of older adults.

Taken together, the evidence suggests that in investigations of aging, it is important to guard against any potential biases by controlling for individual and group differences in circadian arousal patterns. Insofar as we know that older adults tend to reach their mental peak in the morning while younger adults do so in the evening, studies failing to account for such differences in arousal patterns may otherwise produce results that reflect a systematic under- or overestimation of relationships between age and other variables of interest.

The set of contextual factors that we have discussed thus far are by no means exhaustive. They are, however, intended to underscore the importance of research aimed at integrating memory in broader cognitive, biological, and social contexts in order to continue to enhance our understanding of older adults.

## DECISION-MAKING AND PROBLEM-SOLVING

### Models of Consumer Decision Making

Most models of consumer decision making identify at least two types of decision making. The first involves deliberative decision making with the classic five stages: problem recognition, information search, alternative evaluation, purchase decision, and post-purchase behavior. Such decision making typically reflects systematic attribute-by-attribute processing and is characterized as conscious, analytical, reason-based, and relatively slow.

In contrast, the second type of decision making is affective/experiential, and involves intuitive, automatic, associative, and fast decisions. When consumers have limited processing resources, they may pass directly from problem recognition to purchase decision to the post-purchase phase, using affective feeling to direct their choice process. So, for example, in one recent experiment, consumers with limited processing resources were more likely to choose chocolate cake, an option that generates positive affect and negative cognitions about health, than to choose fruit salad, an option that generates negative affect and positive cognitions about health (Shiv & Fedorikhin, 1999). In this type of decision making, ambient mood can also affect how consumers evaluate an object through a "how do I feel about it heuristic." Consumers, using this heuristic, monitor their feelings to answer the question "how do I feel about it?" (Schwarz, 2001). They often end up mistaking their current mood state for their feeling toward a product (Pham, 1998).

Regarding age differences in use of deliberative and affective/experiential decision making, Hess, Rosenberg, and Waters (2001) have proposed a resource allocation hypothesis, which states that because older adults have limited cognitive resources, they tend to employ the latter affective/experiential information processing strategy in order to conserve their mental energy for important tasks. However, this hypothesis also suggests that older adults can, when necessary, employ deliberative information processing and decision making (a production deficiency). The frontal aging hypothesis, discussed earlier in the context of memory, suggests that age-related changes in frontal systems can favor affective/experiential type decision making (see Denburg, Tranel, & Bechara, 2005, for a discussion). This would tend to suggest that some older adults are unable to employ deliberative decision making (a processing deficiency).

A problem for consumer researchers has been defining what constitutes a good decision outcome. Some researchers have instructed consumers to use specific decision rules—generally the research indicates older adults are worse at applying specific decision rules (e.g., Cole & Gaeth, 1990). Other researchers have judged decision quality by focusing on satisfaction with choice. Research here reports that not only does satisfaction level vary with age (Cole & Balasubramanian, 1993), but also that the relationship between satisfaction and consumer decision making varies with age (Lambert-Pandraud, Laurent, & Lapersonne, 2005). Finally, decision speed and decision efficiency are also used to judge the quality of decision outcomes. Interestingly, some decision researchers have argued that by engaging the experiential processing system more and/or reducing the analytic processing needed, younger consumers can be aided to make better (quicker and more efficient) decisions, which are more similar to those of older adults (Hibbard & Peters, 2003).

Although consumer decision-making research spans a broad range of topics, researchers studying age differences in consumer decision making have tended to focus on just a few topic areas. In this section, we review the empirical evidence for age differences in search for information, evaluation of alternatives, purchase decisions, and post-purchase behavior.

### *Search for information*

Older consumers often search in different places and for less information than younger consumers. For example, when making investment decisions, older consumers, compared to younger consum-

ers, are more likely to use television media and less likely to use the Internet for information about investments. In addition, older consumers spend less time searching for investment information than younger consumers (Lin & Lee, 2004). Similarly, a recent survey of automobile buyers found that older consumers searched for fewer brands, dealers, and models than younger consumers (Lambert-Pandraud, Laurent, & Lapersonne, 2005). Consistent findings have also been reported in the context of medical decisions (Ende, Kazis, Ash, & Moskowitz, 1989) and managerial decision making (Streufert, Pogash, Piaseck, & Post, 1990).

Another study investigated age differences in search behavior in a supermarket setting and in a computer laboratory (Cole & Balasubramanian, 1993). In the supermarket, shoppers inspected very few packages before making a choice, so no age differences emerged in how much people searched. However, when an observer intercepted shoppers and asked them to purchase a cereal that met certain nutritional criteria, younger adults engaged in more search than older adults who did not change how much they searched. In the laboratory, using a computer search program, older adults searched for less information about unfamiliar cereals than younger adults.

Whether or not age differences in search emerge, may depend on task characteristics. Age differences in search may not emerge when consumers perform simple, routine tasks such as grocery shopping because nobody searches very much in such situations. When engaging in familiar, but complex tasks, such as buying a new car, older adults may search less than younger adults because they use their years of shopping experience to design efficient search strategies. However, elderly consumers may restrict search when given a new search problem because of scarce information processing resources. For example, older consumers with diminished working memory capacity may not easily store information about alternatives in memory. As a result, they may not search for as much information as younger consumers.

### *Evaluation of alternatives and choice*

There are three subissues explored here: (1) the types of information that people of different ages attend to, (2) how people of different ages combine information to form evaluations, and (3) whether or not there are systematic age differences in actual choices.

According to the socioemotional selectivity theory, age affects awareness of and use of emotional information (Carstensen et al., 1999). Older adults, who perceive their time horizon as limited, place greater emphasis on emotionally meaningful goals (goals related to feelings, such as balancing emotional states) than on knowledge-related goals (goals related to new information acquisitions). This age-related shift in goals could influence the type of information people use to make decisions (affective knowledge versus other types of information) (e.g., Fung & Carstensen, 2003).

Several researchers have suggested that older adults' extensive schema network, which have affective components tied to them, may allow them to easily use affective processing when making decisions (Myles-Worsley, Johnston, & Simons, 1988; Reyna, 2004). Investigators have found that adding affective category labels (poor, fair, good, excellent) alters age differences in decision making when participants are making choices about health plans (Peters, Slovic, & Hibbard, 2005). From a different perspective, a recent study examined framing effects in younger and older adults and found that when consumers used heuristic processing, older adults were more susceptible than younger adults to framing effects, but that the two groups did not differ when they were asked to justify their decisions or use more systematic processing (Kim, Goldstein, Hasher, & Zacks, 2005). This study also indicates that the types of information you present to consumers affects the size of age differences in decision making.

Regarding how people combine information, a recent study found that how people combined information to select a brand of financial services depended on both age and lifestyle variables (Lee & Marlowe, 2003). When selecting financial services, older singles were more likely to report

using a disjunctive decision strategy (e.g., I chose the financial institution that I rated really good on at least one thing) than other life stage groups, whereas retired older couples were most likely to report using conjunctive decision strategies (e.g., I chose the financial institution that I did not rate poorly on anything). Another study found that older adults were more likely than younger adults to adopt a strategy of eliminating alternatives as soon as possible (Riggle & Johnson, 1996).

Regarding choices, research points to a tendency for older adults to avoid making decisions by postponing or delegating them. In medical decision making, older adults are more likely than younger adults to indicate that they would leave the medical decisions up to the doctors instead of making them themselves (Steginga & Occhipinti, 2002). In other everyday decisions, older adults preferred avoidant strategies, but younger adults preferred problem focused action. Interestingly, however, as the emotional contents of the problems increased, younger adults' strategies became more like those of older adults (Blanchard-Fields, Camp, & Casper Jahnke, 1995).

### ***Retail decisions and post-purchase behavior***

A recent study of patronage motives for consumers in the selection of food and grocery stores found that those 55 and over differed from those under 55 on the importance they attached to variables such as store location, availability of age-related discounts, availability of personnel to assist consumers, availability of special services, and recommendations by other people their age (Moschis et al., 2004).

Some self-report studies indicate that elderly adults say they favor retailers that offer senior citizen discounts; but other surveys show that older adults are reluctant to participate in such programs. Tepper (1994) conducted an experiment with three older age subgroups in order to determine whether or not older adults respond favorably to age-related discounts. In the experiment, consumers learned that a 10% discount was either a senior citizen discount offered to customers over a certain age or a privileged customer discount offered to special customers. Consumers' reactions to the discount varied by age subgroup. Respondents in the youngest age group (50–54) were the least likely to use a discount promoted with an age segmentation cue, and adults over the age of 65 were willing to use either of the 10% discounts. The middle of the older age group (55–64) was willing to use the senior discount even though they believed that others would not give senior citizen discount users much respect.

Another study examined how older adults dispose of favorite possessions (Price, Arnould, & Curasi, 2000). Through in-depth interviews they studied various aspects of disposition decisions including precipitating events, emotions associated with decision, meaning of possessions, and tactics for disposing of possessions. Of these, precipitating events seemed most sensitive to age differences, but it would be informative to have future research that conducts age-based comparisons across different possession or consumption domains.

### **Heuristic/Affective Decision Making**

Age difference in one type of affect-based decision making—risky choices—has been extensively studied in psychology (e.g., Denburg et al., 2005; Kovalchik, Camerer, Grether, Plott, & Allman, 2004). For example, Denburg et al. studied neurologically and psychiatrically healthy older adults and younger adults, using the Iowa Gambling Task, which entails a series of 100 card selections from four decks. A monetary gain follows some card selections, but a monetary loss follows others. The decks with lower immediate rewards have lower long-term punishments and thus yield an overall net gain, but decks with higher immediate reward have higher long-term punishment. Participants do not know about the reward/punishment schedules. A subset of the older group

manifested decision-making impairment on the gambling task, which Denburg et al. suggest may indicate impairment in the prefrontal region of the brain. Future research is needed linking performance on the gambling task to neurological changes.

### **Improving Consumer Decision Making**

In general, the existing decision-making literature suggests that elderly consumers differ from younger consumers in important ways at each stage of the decision-making process. At the information search stage, the presence of age differences in the amount of search is not surprising because most of the consumer behavior research is based on extensive prior work in gerontology that suggests less search among older adults. At the alternative evaluation stage, a host of unresolved questions center on the decision rules and heuristics that different aged consumers use when evaluating alternatives. Some processes may differ across age groups because older consumers, with fewer cognitive resources than younger consumers, may perceive higher cognitive costs for certain strategies. Other processes may not differ, when consumers of all ages are able to use familiar and well-practiced heuristics.

We now discuss intervention programs such as decision aids, training programs and stimulus redesign.

#### ***Decision aids***

A series of experiments used decision aids to reduce age differences in the correct use of the nutritional information contained on product labels (Cole & Gaeth, 1990). As discussed in the section on memory, older adults are known to be more susceptible to interference from the irrelevant components of a stimulus (or other environmental noise) than are younger adults. In the experiments, participants had to select a cereal that met certain criteria, but some participants first circled the relevant information before making a decision. Although both older and younger adults benefited from the simple aid, older consumers made fewer good nutritional choices than younger consumers. In a second experiment, the investigators put relevant information in a separate location on the label. This time, older adults with moderate, but not severe disembedding deficiencies, were helped, but the field independent younger individuals gained little from the aid. Given that the stated aim of nutritional labeling laws is to make nutritional information easy for all consumers to use, this study suggests that such information should be placed in the same spot on all labels.

In a different study, Cole and Balasubramanian (1993) tried to aid the use of nutritional information by encouraging older and younger adults to write information down as they acquired it from the computer. Using this decision aid, age differences in search intensity were greatly diminished.

Additional studies in the area of medicine suggest that by providing older adults with organizational charts and medication organizers, pharmacists can increase their patients' compliance with medication instructions (Park, Morell, Frieske, & Kincaid, 1992). Taken together, these studies suggest that decision aids may successfully improve consumer decision making. Circling, organizing, or writing down important information may especially help the elderly consumer focus on relevant information.

#### ***Training and education***

Gaeth and Heath (1987) developed an interactive training program to reduce susceptibility to misleading advertising without increasing consumer suspicion of advertising claims. They found that

the training: (1) reduced susceptibility to misleading statements in both age groups, (2) equated misleadingness between older trained adults and younger untrained adults, and (3) reduced the younger adult's ability to discriminate between nonmisleading and potentially misleading claims. Regarding knowledge, older adults appear to build up a knowledge system that they can deploy to aid in decision making. Some argue that knowledge systems become increasingly selective and domain-specific with age, so that older adults can draw on this knowledge system to make better decisions. For example, Kovalchik et al. (2004) reported that older subjects did somewhat better than younger subjects on a 20-item trivia multiple choice test. More important from a decision-making perspective, however, older subjects in the study were better calibrated (knew better what they knew and did not know) than younger subjects. They may have learned through experience to temper their overconfidence and thus look more like experts. Future research is needed to address the circumstances when older adults can and cannot recruit their knowledge base for decision making.

### *Modifying stimuli*

Hibbard and Peters (2003) suggest a number of interesting ways that stimuli could be modified to improve decision making of all ages, including providing cues about the goodness of information (e.g., labels, stars), and presenting information in the form of narratives or stories about someone else's experience. In one recently reported study on Medicare health plan choices, older consumers who received both information with cues about goodness and narratives in addition to basic data made better choices than consumers who only obtained basic data (Hibbard, 2002).

Another series of study have examined whether providing information in a manner consistent with adult schemas improves decision making about medication (Morrow, Leirer, Andrassy, Tanke, & Stine-Morrow, 1996). Nonadherence to prescribed medication, a widespread health care problem, is more common among elderly adults because the numbers of medications that people take often increases with age. These authors found that providing information in a schema consistent manner improved recall of information for both older and younger adults. Future research is needed to investigate whether schema consistent instruction improves adherence or quality of consumer decisions about medicine. It could well be that older adults are more prone to falsely remember information that is inaccurate or incorrect but otherwise consistent with their schemas.

### *Summary*

In summary, efforts to eliminate age differences with decision aids have not been entirely successful in equating older adults' performance with that of younger adults. Instead, training, stimulus redesign, and decision aids often help all age groups.

To develop a decision aid that differentially benefits the older consumer, researchers must first deconstruct the consumer's task. They then need to identify exactly why and where in the substeps age differences emerge. Perhaps age differences emerge at the information acquisition stage because of working memory differences, but at the alternative evaluation stage they emerge because of differential attention to affective information. Once researchers understand the source of age differences, effective aids can be designed.

However, researchers need to evaluate the effects of decision aids on both targeted and nontargeted groups. For example, when researchers trained study participants to discriminate between directly asserted and implied claims, they increased younger participants' skepticism of advertising. Similarly, an advertiser targeting older adults may increase learning among this audience by



increasing the number of message repetitions. However, if younger adults also see the advertisements, the increased message repetitions may irritate them.

Additionally, the researchers need to think about designing a managerially relevant aid. For example, Cole and Gaeth (1990) suggested that older consumers highlight relevant information before making a decision. However, it is not practical to recommend that consumers take pens into the supermarket to highlight relevant information on product packages prior to purchase.

## METHODOLOGICAL ISSUES IN AGING RESEARCH

The studies covered in this chapter are based primarily on experimental methods. Many compare well-educated healthy normal older adults (60+) with college undergraduates (18–22). Older adults' responses on many tasks are typically accompanied by greater variability than those of the relatively homogeneous college undergraduates.

The vast majority of experimental studies are based on cross-sectional designs. There are a handful of research labs that do collect longitudinal data (e.g., Seattle Longitudinal Study, Schaie, 2005; Berlin Aging Study, Baltes & Mayer, 1999). In addition, ICPSR (Inter-University Consortium for Political and Social Research) acts as a depository for a variety of longitudinal data sets primarily related to health and social status. Such data sets overcome some of the problems of cross-sectional design, but they are accompanied by their own unique problems such as sample selectivity and attrition.

In this section, we focus our discussion on issues that confront researchers conducting cross-sectional experimental studies on aging. First, recruiting older adults can be challenging compared to recruiting student participants. Researchers report difficulties finding sufficient numbers of older subjects to participate. Unlike younger college students, older adults, who are willing to participate in experimental studies, often must travel to the research laboratory and require substantially more compensation for their time. In addition, in cross-sectional research it is not possible to control for all the potential cohort differences. Nonetheless, researchers try to mitigate the effects of cohort differences by matching age groups in terms of health and educational status. However, even this matching can be problematic because quality of education varies between cohorts as does the length of time since education was completed. Most researchers screen participants for the ability to see and hear stimuli and administer vocabulary tests. Frequently, older adults score better on these vocabulary tests than college students.

In consumer studies, the stimuli may involve established brands or product categories, but because younger and older consumers often bring different product experience and knowledge to bear on consumer behavior, the stimuli may have different meaning to different age groups. Other variables are also hard to control for across age groups—e.g., a priori differences in motivation and arousal levels between younger and older study participants. Further, as discussed before, it may be important to control for synchrony effects; not doing so can systematically over-estimate or under-estimate the extent of age-related differences.

As Schwarz (2003) points out, much of the elderly data are collected via retrospective behavioral reports, and hence, there are likely to be systematic biases in responses to the extent that older adults have to rely on processes that are age sensitive—e.g., retrieve relevant information from memory, form a judgment online, and report the judgment to the researcher. In addition, telephone interviews are likely to be more difficult for older adults than written surveys containing self-paced questions. Age differences may therefore magnify with elicitation methods that require more cognitive effort.

Finally, we note that in experimental studies of aging, external validity tends to be sacrificed in favor of internal validity, with convergence of insights occurring over time via conceptual replications. We suggest that richer insights about older adults in more natural consumer contexts are likely to emerge and complement findings from experiments through greater use of alternative qualitative research methods (e.g., observation, ethnography).

### FUTURE RESEARCH DIRECTIONS AND CONCLUSIONS

Over the life course, consumers' strategies for solving different consumption problems evolve to reflect their changing life experiences and abilities. Not only do consumers face new problems (e.g., buying a color TV in the 1960s vs. buying a laptop computer in 2007), but they also experience physiological and cognitive changes. There are a number of unanswered questions about how older consumers adjust their decision-making strategies to changing cognitive abilities, social roles, and to task and context demands.

We hypothesize that situations where older consumers are likely to run into difficulties are typically unfamiliar situations involving new products or services. For example, some older adults may encounter difficulties learning information about the side effects of new prescription drugs through advertising; similarly, they may run into problems using the information found on the drug label. In other familiar situations, such as buying a car, older consumers may make better (more efficient and quicker) decisions than their younger counterparts.

The consumer behavior literature has contributed to knowledge by showing that age differences found in the laboratory research often emerge in "real" world settings (John & Cole, 1986). We identify several avenues for future research. One direction would be to examine how and when the older consumers' considerable knowledge and experience moderates any age differences that emerge in memory performance or decision making. In addition, because age-related changes in cognitive ability do not occur at the same rate for everyone (nor do they occur in everyone), there is considerable heterogeneity in the older market. For example, an individual's health history and life style may attenuate the timing and size of changes. So, another important direction for future research is to investigate differences within the elderly market.

A fruitful area for more research is analyses of consumer task characteristics that may exacerbate or minimize age differences. For example, much of the consumer behavior literature points out memory deficiencies in older adults in comparison with younger adults (see Williams & Drolet, 2005, for a notable exception). However, the magnitude of memory deficits appears to vary with the task conditions of information processing and how information is placed into or recovered from memory. Parallel to this task analysis would be the development and testing of decision aids, training and stimulus redesign that can make decision making easier for all consumers by reducing the cognitive effort required to execute a particular strategy.

In summary, we suggest that a better understanding of the changes associated with aging and how they interact with intra-individual and contextual factors will benefit multiple audiences, including consumers, public policy makers, and marketing managers. If we are to aid older adults to successfully meet the challenges of a rapidly changing and increasingly complex consumer environment, greater insights are needed regarding age differences in consumer behavior. Toward that end, we have in this chapter briefly discussed many of these differences, and have highlighted particularly important areas for future research.

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