Decision Making and Brand Choice by Older Consumers

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Abstract

Older adults constitute a rapidly growing demographic segment, but stereotypes persist about their consumer behavior. Thus, a more considered understanding of age-associated changes in decision making and choices is required. Our underlying theoretical model suggests that age-associated changes in cognition, affect, and goals interact to differentiate older consumers' decision-making processes, brand choices, and habits from those of younger adults. We first review literature on stereotypes about the elderly and then turn to an analysis of age differences in the inputs (cognition, affect, and goals) and outputs (decisions, brand choices, and habits) of the choice process.

Keywords: older consumers, decision making, choice

Older consumers represent an increasingly large and financially powerful part of the population worldwide. We propose that age-associated changes in cognition, affect, and goals intermingle to influence older consumers' decision-making processes and choices and thus distinguish these processes as different from those used by younger adults. This review attempts to achieve a more considered understanding of age differences in the inputs (cognition, affect, and goals) and outputs (decisions, brand choices, and habits) of choice processes. For example, extant literature focuses largely on the ways in which one input (e.g., memory) affects a single output (e.g., brand choice). We organize the review around stereotypes, inputs, outputs, and further research, but we expressly highlight the complex interrelationships among these concepts.

1.0 Stereotypes

Section Author: Michael I. Norton

People tend to possess stereotypical views of the elderly, regarding them as kindly, warm, and friendly but simultaneously incompetent, ineffective, and helpless (Fiske, Cuddy, Glick, and Xu, 2002)—beliefs that are evident across cultures (Cuddy, Norton, and Fiske, 2005). Marketers take a similar view of the elderly, imagining them as a homogenous group that differs qualitatively from younger consumers in both abilities and preferences. Just as media stereotypically portray the elderly (Vasil and Wass, 1993), marketers tend to portray them similarly in advertisements (McConatha, Schnell, and McKenna, 1999). Marketing scholars and practitioners routinely group the elderly into one catch-all category of persons 65 years of age and older, which may include as much as a 40-year span because of increases in longevity (i.e., grouping consumers aged 65 years with those older than 100 years). Such a broad grouping for a different cohort, say from 10 to 50 years of age, would seem ridiculous and demonstrates the

heterogeneity in preferences and needs within such a wide grouping. Even if fewer preference changes occur in later life, the heterogeneity in preferences, needs, and wants among consumers aged 65 to 100 years are likely considerable.

Furthermore, despite the substantial overlap in abilities, preferences, and goals between older and younger consumers, substantial differences also mark them. For example, the elderly are consistently more brand loyal than younger consumers (Lambert-Pandraud, Laurent, and Lapersonne, 2005). However, rather than seeing this loyalty as a stereotypical result of a general decline in older consumers' ability to process information about new brands, marketers might think more carefully about other underlying reasons for such behavior. Cognitive decline in some domains certainly is inevitable, but some behavioral changes by elderly consumers likely are self-directed and may reflect a shifting of priorities instead of decreased competence (Carstensen, Isaacowitz, and Charles, 1999).

As this segment continues to grow, and as several studies show that exposure to mass media increases during the retirement years (e.g., Dimmick, McCain, and Bolton, 1979), marketers would be wise to think more carefully about matching their efforts to the desires and needs of different segments of elderly consumers, including studying how 65 year olds differ from 75 and 85 year olds. Moving beyond stereotypical views of the elderly toward an understanding of them as a heterogeneous set of consumers is essential. Furthermore, many marketing efforts designed to map these changing needs and abilities have been exploitative and target the elderly with scams that rely on their desire for social contact, but more careful attention to the actual abilities and needs of the elderly can lead ethically to better marketing campaigns, not to mention better products, for serving this segment. Unfortunately, research tends to show that changing stereotypical views of the elderly remains quite difficult (Cuddy et

al., 2005), and changing the minds of marketers may be no less challenging. Thus, part of the goal of this review is to come to a more considered understanding of the changes in the abilities and consumer behavior of the elderly by integrating both basic psychological research and research into the behavior of elderly consumers.

2.0 Inputs: Goals, Affect, and Cognition

2.1 Goals and Affect

Section Author: Jane Ebert

Ample and increasing evidence suggests that older consumers differ from younger consumers in terms of how they respond to products and communications, because of the differences in both how they think and process information and the values they prioritize and use as motivation. Many companies have begun to respond to the needs of this growing market segment and increase their communications aimed specifically at older consumers.

With regard to communicating to older consumers, most relevant research focuses on the effects of aging on consumer cognition (for a review, see Roedder John and Cole 1986). For example, research shows that older consumers tend to rely more on schema-based processing than on detailed processing and are more susceptible to the “truth effect,” such that they believe information is more valid and believable after repetition (Law, Hawkins, and Craik 1998), than do younger consumers.

However, motivational factors, such as involvement (e.g., Clary et al. 1994; Petty and Cacioppo 1984) and values (Pollay 1983), also influence how people evaluate communication messages. In this case, important motivational changes appear to occur with aging. For example, Carstensen and colleagues propose that when people perceive their remaining time as limited, they prioritize social, emotionally meaningful goals over those that relate more to knowledge

(i.e., socioemotional selectivity theory, Carstensen 1983). As consumers age, they perceive the time they have remaining as more limited and therefore reprioritize their social goals (e.g., Fredrickson and Carstensen 1990; Fung, Carstensen, and Lutz 1999). A broad application of socioemotional selectivity theory attempts to explain motivational changes outside of the social realm; in particular, researchers indicate that older consumers are more persuaded by messages that help adults realize emotionally meaningful goals versus knowledge-related goals (Fung and Carstensen 2003) or by messages based on emotional appeals compared with non-emotional or rational appeals (Williams and Drolet 2005).

Theories about successful aging also make predictions about shifts in the goals that people likely emphasize as they age. These theories, including the selective optimization with compensation (SOC) model (Baltes and Baltes 1990), the lifespan theory of control (Heckhausen and Schulz 1995), and Brandtstädter and Renner's (1990) accommodation and assimilation coping strategies, make similar predictions about goal changes with aging. For example, they suggest that older people will demonstrate increased selectivity in their goals, such that they shift the allocation of their resources away from developmental growth goals (e.g., "I want to improve my health") to maintenance (e.g., "I want to stay healthy") and regulation of loss (e.g., "I do not want my health to deteriorate") goals (Ebner, Freund, and Baltes 2006). Consistent with this implication, research on personal goals reveals that compared with younger and middle-aged adults, older adults' goals more often reflect loss avoidance (Heckhausen 1997) and a maintenance orientation (Ogilvie, Rose, and Heppen 2001). Although research outside consumer behavior sometimes discusses and applies these theories of aging, such as in examinations of the development of cognition and intelligence across people's lifespans (Baltes, Staudinger, and Lindenberger 1999), they have not been applied to consumer behavior in general, nor to

communications in particular (for a discussion of individual role models, see Lockwood, Chasteen, and Wong 2005). This gap is especially surprising considering strong parallels between aging theory and a well-explored, widely applied consumer behavior theory: regulatory focus theory (Higgins 1997, 1998).

According to regulatory focus theory, a promotion focus causes people to pursue gains and ideals, whereas a prevention focus prompts them to avoid losses and fulfill obligations. The dominant focus for different people varies, either chronically (i.e., a higher promotion or prevent focus in general, or a high or low focus on both promotion and prevention) or by situation, such that the context temporarily encourages a particular focus (Higgins et al. 1994). Considerable support exists for regulatory focus theory in consumer behavior (for a review, see Avnet and Higgins 2006), and researchers demonstrate the range of its effects on product preference and communications. For example, a promotion or prevention focus changes the importance of the product dimensions (Safer 1998), the persuasive effects of gain- versus loss-framed messages (Lee and Aaker 2004), and the influence of different decision-making processes on valuation (Higgins et al. 2003).

The change in goal emphasis predicted by theories of successful aging, according to which people begin to emphasize loss regulation more and growth goals less as they age, should imply that older consumers also become more prevention focused and less promotion focused than younger consumers. The prevention-focus change appears especially likely in domains in which older consumers expect or experience functional or capacity loss as they age, such as health and fitness or some cognitive abilities. Therefore, we expect especially strong effects related to regulatory focus for product preference and communications in such domains when comparing older and younger consumers.

Furthermore, some variables that change with age may reinforce a relative increase in prevention focus. In particular, recent findings suggest that a limited time perspective may increase the relative importance of prevention over promotion goals (Pennington and Roese 2003) and that the cognitive processes associated with a promotion focus, compared with those associated with a prevention focus (Zhu and Meyers-Levy 2007), likely require more cognitive resources. Older consumers tend to have both a more limited time perspective and fewer cognitive resources than younger consumers, which may reinforce any tendency they have to demonstrate an increased prevention versus promotion focus relative to younger consumers.

2.2 Cognition: The Case of Functional Learning

Section Author: Etienne Mullet

Functional learning refers to learning about continuous functional mappings that relate stimulus and response continua. Through functional learning, an organism acquires a judgment rule in which it correctly assigns each stimulus value encountered in a certain domain to one, and only one, response value. For example, people commonly express such a rule in their daily lives when they assert, “The better the product, the higher its price.” Most laws in an environment (e.g., physics, economic) may be expressed in terms of the functional relations between events. In turn, people’s ability to detect and learn these continuous relations, not just the associations between pairs of events, has strong adaptive value (Chasseigne and Mullet, 2000).

Functional learning is not restricted to early psychological development (Lafon, Chasseigne, and Mullet, 2004) but rather remains critical throughout life and especially later, when people confront change, including the loss of job activity (retirement), loss of partner, or relocation, which require people to learn to cope with new environments that contain new

functional relations. Illness may be another source of learning centered on motor learning (e.g., physiotherapy) and/or cognitive learning (e.g., intake of multiple medications). Prescriptions for medications often specify a range of doses, so the elderly must learn how many pills per day associate with, for example, the lowest pain level; in other words, the elderly must learn the relation between the number of pills ingested and pain levels. This relation may be complex, such that from one to five pills a day, the relation is direct (linear positive), but from six to ten pills, the relation becomes inverse (overdose). Overall then, the relation would be curvilinear.

Associative learning typically takes place when people use a reduced set of stimuli. Most experimental studies consider few associations and assume learning has been achieved when all the associations have been memorized. Daily life provides many situations in which such learning gets used, but it also includes many situations in which such learning is not practicable, especially when two sets consist of many different stimuli. In these cases, functional learning can be more adaptive, but for functional learning to take place, two conditions must be fulfilled. First, some abstract property of each set of stimuli must be extracted (e.g., size). Second, some kind of correspondence must be established between the abstract properties extracted from both sets of stimuli. As a result, the only thing that needs to be learned is, in theory, the function that links the two sets of stimuli. When there is no way (or no easy way) to extract some abstract property from the stimuli used or establish a correspondence between these abstract properties, functional learning cannot help a person adapt to a situation, and associative learning becomes the only way to cope. However, functional learning enables the person to adapt easily to conditions in which the stimuli he or she encounters differ from those used during learning. In other words, functional learning allows a person to adapt to conditions in which his or her capacity to make extrapolations and interpolations is expected.

Few studies in aging literature address this type of learning or, more generally, judgmental processes. Those few studies that examine whether elderly adults and younger people can learn functional relations between a set of predictors show that when presented with cue values and feedback about the correct criterion value, elderly persons could learn (and apply) the most common relations encountered in daily life, namely, direct, inverse, U-shaped, and inverse U-shaped (Musielak, Chasseigne and Mullet, 2006). Without feedback, the elderly use direct relations; that is, when nothing is known about a new relation, they use direct relation as the default option (Chasseigne, Mullet and Stewart, 1997). Also, when a considerable amount of uncertainty exists in the data, elderly persons could learn as well as younger persons, and the predictability of the task does not affect elderly persons any more than it does younger persons (Chasseigne, Grau, Mullet and Cama, 1999)—that is, elderly people are able to cope with uncertainty in functional learning tasks as well as young adults are. Finally, when new cue values not used during the learning sessions appear, elderly people can interpolate or extrapolate as well as younger persons (Musielak, Chasseigne and Mullet, 2006).

When presented with a task with two or more cue values, elderly persons learn the relations between the set of cues and the criterion as well as younger persons, provided the relations are all positive. However, when one relation is positive and the other inverse, elderly persons confront more learning troubles with the inverse relationship. Although they can detect the direct relation and apply it, they cannot learn how to combine the two cues (direct and inverse) into an overall prediction. Most instead learn not to use the inverse relation cue. Then again, when both relations are inverse, some elderly persons detect and learn the two inverse relationships and then combine the cue values correctly (Chasseigne, Ligneau, Grau, Le Gall, Roque and Mullet (2004); others cannot do so. Two direct relationship cues embedded in a set of

invalid, nondiagnostic cues give elderly persons more trouble, compared with younger persons, in terms of detecting which cues are valid ones (Chasseigne and Mullet, 2000, 2007). Finally, when presented with two direct relationship cues to combine in a more than additive, or multiplicative, way, elderly persons appear unable to learn the multiplicative rule (Chasseigne, Lafon and Mullet, 2002).

Combining two cues of opposite meaning thus represents a very challenging task for older adults that is not limited to learning settings but also applies in situations associated with life-long learning. For example, when instructed to judge the weight of an object from visual, concrete information about its size and density (plastic, wood, or iron), elderly people judge in the same way that young persons do, but when instructed to judge the volume of this object from information about its weight and density, many elderly persons cannot use the density information in an inverse way. Instead, they judge volume as a direct function of weight and density (Leoni, Mullet and Chasseigne, 2002). In settings in which inverse information could be reframed easily as direct information, elderly persons use the inverse information as well as younger persons. As an example, they use side effect information (inverse) together with information about the trustworthiness of the health provider and level of suffering (direct) to judge the acceptability of a new drug for them with the same facility as younger persons (Hervé, Mullet and Sorum, 2004, Hervé-Ligneau and Mullet, 2005). Thus, if combining two cues of opposite meaning represents a challenging task for older adults, this difficulty may be limited to tasks in which they cannot reinterpret the inverse relation cue as a direct relation (e.g., safety level).

One study directly compares the performance of elderly persons and younger persons in situations in which functional learning is possible and those in which it is not possible, which

means associative learning is the only way to cope with the difficulty of the task (Musielak, Chasseigne and Mullet, 2007). When functional learning is possible, such as when the criterion values are computed as a linear function of the cue values, no difference between the two age groups emerges. But when functional learning is not possible, because the criterion values are randomly associated with configurations of cue values, a strong difference between the two age groups appears. The young adults learn to associate a criterion value with each cue value configuration to a greater extent than do elderly persons.

This set of results strengthens the suggestion that when it comes to executive functions, that which differentiates elderly adults' and young adults' performance pertains not to the representative phase but rather to the planning and execution phases. This suggestion is consistent with the view that executive functions may be differentially sensitive to age. In particular, findings by Kray and Lindenberger (2000, p. 126) show that "the ability to efficiently maintain and coordinate two alternating task sets in working memory instead of one is more negatively affected by advancing age than the ability to execute the task switch itself." These results also mirror Halford, Wilson and Phillips's (1998, p. 803) proposal that "information capacity limits in humans … should be defined not in terms of the number of items but in terms of the complexity of relations that can be processed in parallel."

Because a cognitive theory of everyday life is not available, it remains difficult to determine the extent to which differences in learning, as evidenced in these studies, are strongly consequential. If in everyday life, associative learning is omnipresent, the concrete consequences of the real trouble experienced by elderly persons who face with associative learning tasks in the laboratory likely would be considerable. However, if associative learning is marginal and functional learning is omnipresent in daily life, the consequences of these same troubles likely

are limited. In addition, if the assumption that direct relations between events are the rule and inverse or nonlinear relations are exceptions holds true, the concrete consequences of the trouble experienced by elderly persons facing a combination of inverse and direct relations may be minimal, especially if many inverse relations can be reframed easily as direct relations.

Before making any definite claims about the daily consequences of cognitive differences between younger and older persons, it is absolutely necessary to consider not just the psychological side of any concrete situation but also its ecological, environmental side. Suppose a person is about to buy a new car. As has been well demonstrated, when presented in the laboratory with several types of cars among which they should choose, elderly persons tend to consider fewer options than younger persons and explore these options less completely. As a result, from a cognitive viewpoint, elderly persons appear severely handicapped at the moment they choose a new car. But as economists and marketing researchers highlight, any option in the market is a surviving option, so in the car market, each car available is, in a certain way, a good deal. If an option were overpriced according to its overall quality, this option would have disappeared. As a result, even if the buyer is not mentally well equipped to choose an option, this person is bound to select at least a valuable one, because the laws of the market (i.e., the law in the environment) protect the person from choosing an extremely bad option.

In brief, such a handicap evidenced in the laboratory likely has practically no dramatic consequences. Building a cognitive theory of everyday life would offer an important step that should be taken into serious consideration in the future. With regard to learning, many important questions remain to be addressed. Is learning in everyday life mostly associative, mostly functional, or both, and in which proportions? Are direct relations dominant in the cognitive

environment? To what extent may non-direct relations be converted easily into direct ones? How many cues must people combine to arrive at a sound judgment (decision) in most concrete cases?

2.3 Motivated Cognition and Neural Changes with Age

Section Author: Angela Gutchess

Limitations in cognitive resources occur with aging: Older adults perform mental operations more slowly and remember less information in their working or long-term memory than do younger adults (e.g., Salthouse, 1996; Park et al., 2002; Zacks, Hasher, & Li, 2000). However, neuroimaging data reveal that brain activity does not always mirror these behavioral declines with age (Park & Gutchess, 2005). Although in some cases, young adults activate regions of the brain more robustly for tasks than do older adults, in many other cases, older adults recruit regions of the brain that are not engaged by younger adults. Specifically, for some memory tasks, elderly adults increase the activity in the prefrontal regions in both hemispheres, whereas young adults activate only one hemisphere (see Cabeza, 2002), particularly when they fail to activate medial temporal regions, implicated in memory processes, to the same extent as the young (Gutchess et al., 2005). These changing patterns of neural activation with age may serve compensatory functions (e.g., Cabeza, 2002; Grady, 1994; Reuter-Lorenz & Lustig, 2005); at the very least, they suggest flexibility in the engagement of cognitive and neural resources that is not apparent from behavioral data.

Recent behavioral work has begun to identify those circumstances in which older adults' cognitive performance reflects preservation and malleability and thus converges with neural evidence to suggest that cognitive limitations with age are not absolutes. Motivations change with age and thus affect information prioritization, such that as a person's remaining lifespan shortens, older adults become more attuned to maintaining intimate, personal relationships and

are less interested in acquiring new knowledge, compared with younger adults (Carstensen et al., 1999). Socioemotional information relevant to a person's well-being can motivate older adults to deploy cognitive resources flexibly and perform equivalently to younger adults. For example, one ability particularly impaired with age is source memory, that is, the ability to recall from whom, or where, a fact was learned. Therefore, when they study a series of statements presented by Pat or Chris, older adults respond less accurately than young adults about which speaker presented each statement. But when participants are told that Pat is honest and tells the truth and that Chris is a liar who makes false statements, older adults recall the source information just as well as young adults (Rahhal, May, & Hasher, 2002). Character (Rahhal et al., 2002) and safety (May, Rahhal, Berry, & Leighton, 2005) information also motivate older adults to remember information as well as young adults. These important findings suggest that memory and resource limitations with age can be improved, depending on the goals and motivations of the individual.

Furthermore, stereotypes may affect older adults' performance on memory tasks. That is, if older adults themselves hold negative stereotypes about aging, engaging in cognitive tasks under conditions of stereotype threat can impair their performance (Hess, Auman, Colcombe, & Rahhal, 2003; Levy 1996). Some evidence (Levy and Langer 1994) suggests that these effects also operate at the level of culture, such that older adults exhibit little performance decline in cultures that hold relatively positive stereotypes of aging (i.e., Chinese or Deaf cultures). However, these results appear inconsistent across studies (Yoon, Hasher, Feinberg, Rahhal, & Winocur, 2000).

Socioemotional information is not the only type of information capable of motivating older adults. For example, when older adults are asked to remember realistic price information for groceries, they perform as well as younger adults (Castel, 2005). This pattern contrasts with

the age impairment associated with remembering unrealistic prices, as well as the typical poor performance of older adults when they must recall information, that is, self-initiate retrieval in the absence of external cues (Craik & McDowd, 1987). Whether a single motivational mechanism explains the benefits of both socioemotional and financial information, such as personally relevant prices for goods, remains to be discovered. Such personal relevance could represent a single common mechanism that explains both sets of findings. However, relating information to personal relevance is not sufficient to ameliorate age differences in memory (Gutchess, Kensinger, & Schacter, 2007; Gutchess, Kensinger, Yoon, & Schacter, in press). Furthermore, recent behavioral data suggest that financial information can prime self-sufficiency, in which case motivation related to financial information appears to oppose the idea of social, interpersonal motivation (Vohs et al., 2006). With age, the increase in interpersonal orientation could come at the expense of attention to financial information that has implications for a person's well-being.

Culture also appears to influence the types of processes prioritized with age. For example, Westerners may attend to object information alone, whereas Easterners consider the object in relation to its context (Nisbett, Peng, Choi, & Norenzayan, 2001). Recent fMRI evidence shows that neural responses to objects may be attenuated with age for elderly East Asians but remain relatively intact for Westerners (Goh et al., 2007). Culture even influences consideration of the *types* of relationships between objects (Chiu, 1974; Ji, Zhang, & Nisbett, 2004), such that Westerners reportedly attend to features and categories, whereas Easterners attend to functional relationships (e.g., nurturance). Elderly Americans use categories to organize information in their memory more than elderly Chinese, whereas young persons from each culture use categories equivalently (Gutchess et al. 2006). This pattern suggests that some

cultural differences emerge later in life as cognitive resources become more restricted. Park and colleagues (Park & Gutchess 2006; Park, Nisbett, & Hedden 1999) also indicate that automatic processes may be particularly prone to enhanced cultural differences later in life, because of greater absorption of culture and because implementing cultural frames is not highly resource dependent for such processes. In contrast, effortful cognitive tasks may be associated with cultural convergence later in life, because declining cognitive resources limit older adults' ability to implement effortful cognitive strategies.

In terms of older consumers, a remaining and important question pertains to the extent to which brands, or more generally classes of objects, represent unique domains. For young adults, objects and persons represent distinct domains, such that the medial prefrontal cortex gets engaged by person information but the left inferior frontal cortex is engaged by object information (Mitchell, Heatherton, & Macrae, 2002; Mitchell, Macrae, & Banaji, 2005). Furthermore, fMRI research suggests that brands and people do not engage the same neural regions in young adults and that the activations for brands occur in the same region identified for objects (Yoon, Gutchess, Feinberg, & Polk, 2006). In addition, data indicate that person judgments evoke a stronger response in reward regions than do brands (Yoon, Gutchess, & Bettman, 2006). These studies imply that for young adults, person categories are more motivating than are brands in terms of engaging encoding processes successfully and activating reward regions in the brain. The studies do not address the relative motivational value of brands compared with objects; it may be that brands are highly motivating, but such motivation has not been detected thus far, due to the research emphasis on person judgments.

It is uncertain whether these distinctions exist to the same extent among older adults. Older adults lose some specificity in the distinction between classes of visual objects with age,

due to dedifferentiation in ventral visual regions (Park et al., 2004), which suggests the possibility that objects and persons, or even objects and brands, may be less distinct for older adults. However, recent fMRI data also suggest that some specialized functions of the medial prefrontal cortex in person processing remain intact, because the region appears similarly engaged by self-relevant information among both the young and the elderly (Gutchess et al., 2007). Furthermore, older adults' ability to recruit frontal regions (e.g., Reuter-Lorenz & Lustig, 2005) may indicate they can harness additional resources in some circumstances, and motivating conditions likely provoke the engagement of additional frontally mediated mechanisms. Because many elderly adults' financial decisions pertain to consumer products, it is important to understand the ways in which brands differ from other classes of objects, as well as how their motivational properties change across people's lifespan.

Beyond the need to compare the distinction among person, object, and brand domains with age, aging research has not explored the neural regions mediating reward and socioemotional processes sufficiently. Literature on aging remains restricted primarily to study of the amygdala and the processing of faces, and several studies note that the response of the amygdala appears reduced in older adults (Gunning-Dixon et al., 2003; Iidaka et al., 2002; Tessitore et al., 2005), though this finding is not universal (e.g., Mather et al., 2004). Other than the amygdala, the medial prefrontal cortex response remains intact with age when people reference information to themselves (Gutchess et al., 2007) and exhibits a larger role in emotion regulation among older adults (Williams et al., 2006). The finding that the number of dopamine receptors decreases with age (Volkow et al., 2000) suggests that activation patterns in dopamine-sensitive regions related to reward, such as the striatum and ventromedial prefrontal cortex, may change with age, but this claim has yet to be established. With aging, the extent to which these

networks recruit additional regions or remain relatively intact, in contrast to many cognitive domains, represents an important area for further research. By studying the benefits and pitfalls of motivated cognition in aging, researchers can learn which information processing mechanisms people can harness to frame information in a way that is motivating for older adults and enables them to make better decisions.

Extant literature focuses largely on the ways in which motivation influences memory, predicated on the logic that when cognitive resources are limited, as with aging, those resources will be devoted to attending to and encoding information that is more personally motivating. Thus, motivating conditions result in superior memory. However, whether this influence on memory ultimately affects the choices ultimately made by older consumers remains to be tested.

3.0 Outcomes: Decision Making, Habits, and Brand Choice

3.1 Decision Making

Section Author: Ellen Peters

Age differences in affective/experiential and deliberative processes have important theoretical implications for both judgment and decision theory, as well as important pragmatic implications for decision making by older adults. Age-related declines in the efficiency of deliberative processes predict poorer quality decisions as people age, whereas theory associated with age-related adaptive processes, such as motivated selectivity in the use of deliberative capacity, an increased focus on emotional goals, and greater experience, predicts better or worse decisions for older adults, depending on the situation (Peters, Hess, Västfjäll, & Auman, 2007). Proposals for improving people's decision-making abilities (e.g., Hammond, 1996; Keeney, 1993) rely primarily on research results obtained from younger adults, but decision making

remains essential to life at all ages, and older adults increasingly are being asked to make their own decisions about vital life issues. No longer are health and financial decisions left to specialists such as the family doctor; instead, older adults currently face more choices and more information than did previous generations, at a point in their lives when their abilities to deliberate carefully about important decisions may be declining. Thus, research-based advice about how to improve older adults' decision making is essential.

To make good decisions, decision makers must have information that is available, accurate, and timely, but they also must comprehend the information and its meaning. They further need to be able to determine meaningful differences between options and weigh various factors to match their needs and values. Finally, they must be able to make trade-offs and ultimately make a choice (Hibbard & Peters, 2003).

Aging-related changes in the landscape of information processing suggest that older and younger adults differ in what helps them make better decisions. For example, deliberative abilities including comprehension of unfamiliar numbers declines with age (Hibbard et al., 2001), though a person's educational level provides a protective factor. In this sense, do older adults make consistently different types of errors than those made by younger adults? Research into how to present numeric information to decision makers who differ in their number ability may assist older adults in particular. Specifically, this research suggests that less can be more when it comes to presenting numeric information (Peters, Dieckmann, et al., 2007), such that people's comprehension and use of numeric information may increase with decreases in the cognitive effort required to process the information. Less cognitive effect is needed when information providers provide only the most relevant information, highlight the meaning of the most relevant information, provide numbers consistent with how people perceive the number

line, and do the math for decision makers rather than requiring them to make inferences (Peters, Hibbard, et al., 2007). Organizing information for older adults also benefits memory for and adherence to medication regimes (Park, Willis, Morrow, Diehl, & Gaines, 1994; Park, Morrell, Frieske, Blackburn, & Birchmore, 1991; Park, Morrell, Frieske, & Kincaid, 1992). Older adults seem to use memory aids spontaneously to summarize or check information at the end of their information search, as if to verify forgotten information, whereas younger adults appear to use these same aids in the middle of a search, as if for planning rather than memory purposes (Johnson, 1997).

Yet deliberative decline offers too simple an explanation for adult age differences in decision making, for three reasons. First, older adults selectively use their deliberative capacity (Hess et al., 2005). With greater relevance and engagement in the task, older adults allocate more cognitive resources and monitor and control the impact of less relevant information. Younger adults, with their greater resources to begin with, are not as selective in their use of these resources and suffer fewer effects from irrelevant information in their judgments, regardless of whether the decision is relevant to their interests. Research about how to increase motivation in decisions among older adults therefore holds promise.

Second, accumulated experience can compensate for age-related declines. Meyer, Russo, and Talbot (1995), for example, show that older women behave more like experts in breast cancer decisions by seeking out less information, making their decisions faster, and arriving at decision outcomes that are equivalent to those produced by younger women. However, it is not clear how an intervention might work off of this notion, other than simply providing greater experience within a domain.

Third, emotional focus appears to increase with age. Affect, or the good and bad feelings associated with options, guides decisions and perceptions of information, by acting as a source of information and meaning (Slovic et al., 2002). Good choices most likely emerge when decision makers think as well as feel their way through decisions. Decision makers therefore need to be able to consider information carefully but also understand and be motivated by the meaning that underlies that information.

Research suggests that affective/emotional information may matter more in the decisions made by older adults (Peters, Hess, Västfjäll, & Auman, 2007). Research thus far, however, does not clarify whether a greater influence results from emotional information (emotional bias), positive information (positivity bias), or the lesser influence of negative information (lack of negativity bias). The evidence thus far points to a positivity effect caused by a motivational shift as people perceive the end of their life is nearing (Carstensen, 1993; Löckenhoff and Carstensen, 2007). This motivational shift causes greater attention to emotional goals and content, especially positive information (Carstensen, 1993). This positivity effect appears especially prominent among high-functioning older adults (Mather and Knight, 2005).

The notion that affective information weighs more in the decisions of older adults has significant implications for how information is presented. Peters and colleagues test affective markers of information and find that their presence has a significant effect on decisions by older adults, particularly those who process information more slowly (Peters et al., in review). However, they did not test the positivity effect. Mikels and colleagues examine a similar effect by providing younger and older adult subjects with a series of information about various health choices (e.g., health insurance plans). After each piece of information, subjects were assigned to report either their feelings about the option shown or their memory for the option (a between-

subjects experiment). Subsequent to the presentation of the information, subjects again chose between the two options. Mikels et al. (in process) found that younger adults chose approximately the same way in both two conditions, whereas older adults made superior choices in the affective condition compared with the memory condition.

In conclusion, older adults process information in ways that likely differ from how younger adults process information, just as they face more decisions about vital health, financial, and other personal issues. Because research results (and advice) thus far remain based primarily on research with younger adults, an extended research stream focused on the elderly could have far-reaching implications for the growing older adult population.

3.2 Aging and Habits

Section Author: Aimee Drolet

Most consumer behaviors are performed on a routine basis, and most of these behaviors are driven by habits. Habits begin as associations in memory. With repetition, associations form between behaviors and their periodic occurrences, and these associations are then translated automatically into corresponding tendencies to repeat these behaviors. The repetition of habit behavior leads to routinization and automation and the tendency for habit behavior to be controlled by nonconscious processes. Thus, habituation reduces the amount of deliberate thought needed to act. Habituation is adaptive in this sense.

As people age, the relationships between associations and stimuli and between associations and behaviors become increasingly reinforced. Therefore, the elderly are more likely to activate (through external stimuli) and rely on habits to make decisions. Accordingly, age may represent a proxy for the amount of association reinforcement; according to existing

research, age is associated with reductions in individual tendencies to generate uncommon free associations and the desire to repeat a purchase behavior (Drolet, Suppes, & Bodapati, 2007).

Furthermore, aging relates to certain cognitive deficits that may lead to increased development of and reliance on more automatic, habit-driven behavior. Although cognitive and behavioral performance tends to slow with age, field studies show that the real-world performance of elderly adults usually matches that of young adults. Therefore, it appears that the development of habits helps equalize performance. Ironically, older persons may be wiser, even though they tend to expend fewer cognitive resources, because they can rely on well-established habits.

Although age can capture many socioeconomic (e.g., income, generation) and individual (e.g., cognitive ability, emotionality) difference characteristics, research shows that elderly and young adults (separated by nearly 50 years) generally agree about which habits are "good" versus "bad" (Drolet & Suppes, 2007). However, differences exist between age groups in terms of the kinds of habit behaviors. For example, compared with young adults, the elderly emphasize habits related to interpersonal relationships, such as friend behaviors (e.g., giving, helping). Such a shift in the habits of elderly versus younger adults is consistent with the qualitative shift in how elderly versus younger adults process information and make decisions. Specifically, the elderly tend to focus more on personal experiences and emotion—a qualitative shift that appears adaptive for older adults (LaBouvie-Vief, 1998).

3.3 Brand Choice

Section Authors: Raphaëlle Lambert-Pandraud and Gilles Laurent

3.3.1. Choice implying deliberative decision making

In important purchases involving complex comparisons, such as purchasing a new car, subscribing to a health care plan, or signing up for life insurance, consumers should engage in "deliberative decision making with the classic five stages" (Yoon and Cole 2006, p. 28). However, such an extended choice process is less obvious among older consumers than among younger ones.

3.3.2. Older consumers make choices from a smaller consideration set

In new car purchases, prior research results converge strongly. Johnson (1990) and Srinivasan and Ratchford (1991) observe that older consumers search for less information before they make a decision, and Maddox and colleagues (1978) find that the older age of consumers decreases the number of car brands they consider. From another perspective, Punj and Cattin (1983) find that car buyers who consider a single dealer are significantly older, which they attribute to the higher psychological cost of information search. Lapersonne, Laurent, and Le Goff (1995, p. 55) also indicate that being aged 60 years and older significantly increases the probability that the consumer will have a "consideration set of size one" before he or she purchases a new car, which in four of five cases leads to a repeat purchase. Lambert-Pandraud, Laurent, and Lapersonne (2005) also measure the fewer brands and models considered, the greater tendency to consider a single brand and a single dealer (in particular the previously purchased brand and dealer), and the more frequent brand repurchase by new car buyers aged 60 years and older, which become even more notable for consumers 75 years of age and older.

The findings are similar for other cases of complex decision making. According to Ende et al. (1989), older patients search for less information before making medical decisions. In addition, older consumers relied on fewer sources for investment information than younger

consumers" (Lin and Lee 2004) In a managerial environment, Streufert et al. (1990) find that teams composed of older, middle-level managers ask for less additional information in a business simulation than teams composed of younger managers.

For frequently purchased goods, research results depend somewhat more on the context or the measure. In a supermarket setting (Cole and Balasubramanian 1993), older buyers do not inspect fewer cereal boxes, unless they have to comply with a nutritional content constraint. However, the limited information search engaged in by older subjects is confirmed in a computer laboratory setting, in which subjects had to search for the cereal that best provided the the requested nutritional content. Uncles and Ehrenberg (1990) also observe that on average, older households (i.e., members 55 years and older) buy fewer brands of frequently purchased consumer goods, partly because of their slower purchase rate, though the number of brands per person is not smaller.

These findings raise several possible interpretations and subsequent questions. First, do smaller considerations sets among older buyers happen only for product categories involving complex decision making, not frequent purchases? Cognitive decline with age (Yoon and Cole 2006) may explain why older consumers consider fewer options in complex choices. Neuroimaging techniques (Hedden and Gabrieli 2004) also reveal age-related declining functions in the prefrontal cortex, such as working memory (MacPherson, Phillips and Della Sala 2002), which helps people encode and retrieve recent events and evaluate options. Older buyers therefore may behave differently because their memory limits their consideration set to the previously owned or already known brands or because they are no longer able to evaluate several complex options in minute details. But in a grocery setting, where the options are displayed on a shelf, cognitive decline may not play as significant a role in the choice process. More generally,

researchers still do not know the kinds of choices and shopping situations in which good cognitive functioning proves really useful to decision makers.

Second, older buyers with more experience may be experts and therefore should choose and process relevant information more effectively For example, older women seek less information when making treatment decisions about breast cancer than do younger women. However, they make decisions more quickly with an equivalent outcome (Meyer, Russo and Talbot 1995). Thus, Lambert-Pandraud et al. (2005) find that older buyers who had bought more cars were more experienced. Unexpectedly, buyers claiming their expertise also consider more options than other buyers, which contrasts with the habits of older buyers.

Other explanations include biological aging, specifically, physical decline at a late age: Whereas 80% of young-old persons “go everywhere” (David and Starzec 1996), only 34% of those 80 years and older do so. In theory, the Internet could compensate for the lack of mobility of the elderly, but Ratchford, Lee, and Talukdar (2003) assert that Internet users are younger, search for more information than nonusers, and would search even more if they had not used Internet. Thus, it appears that the Internet, though it makes a search easier, does not stimulate greater search. Therefore, older buyers should still search for less information than younger ones, especially for complex choices. Finally, following the theory of socioemotional selectivity (Carstensen et al. 1999), older persons perceive their temporal horizon as limited and therefore emphasize emotional rather than informative goals. Older buyers may have established a relationship with chosen suppliers over the years, such as car dealers, and thus prefer to buy new cars from them. Moreover, motivations may interact with processing, such that older subjects tend to support their own prior choices. That is, they memorize the positive attributes of their chosen options and the negative attributes of the rejected ones (Mather and Johnson 2000),

particularly in deeper cognitive processing conditions (e.g., second versus a single recall, full attention versus divided attention, subjects with more versus less cognitive control; Mather and Knight 2005). More generally, people's goals when buying a complex product may influence their choice process as much as their cognitive resources do. With their different goals, older buyers may not assess product characteristics as younger buyers do. Finally, older persons tend to be more cautious in their decision making (Botwinick 1978) and probably avoid risk and/or difficult decisions by repeating their previous choice.

3.3.3. Older buyers consider older brands

Few empirical studies analyze how brand preferences vary with age. As Shocker and colleagues (1991, p. 192) state, "much research dealing with consideration sets has focused upon descriptive aspects (notably size) and ignored their specific content and structure." For example, Furse, Punj, and Stewart (1984, p. 421) perform a cluster analysis of search patterns among purchasers of new cars, in which one cluster consists of older buyers, who are "most likely to consider favorably the products of Ford and General Motors." According to Lapersonne, Laurent, and Le Goff (1995), respondents aged 60 years and older, when purchasing a new car, are more prone to consider only their previous brand. Lambert-Pandraud et al. (2005) further show that older buyers of a new car are more likely to consider and choose long-established national brands. In several articles, Holbrook and Schindler demonstrate that consumers maintain their preferences for cultural items first encountered in their late adolescence and early adulthood, including older movie stars (Holbrook and Schindler 1994), car styles (Schindler and Holbrook 2003), and music forms (Holbrook and Schindler 1989).

Different mechanisms may lead to such results; for example, Holbrook and Schindler argue for nostalgia, such that consumers develop preferences during a "critical period," say

between 15 and 30 years of age, and keep them for life. This theory would imply preferences cannot develop at a later lifestage. An alternative mechanism suggests a transposition of the notion of attachment to a material possession (Kleine and Baker 2004; Ball and Tasaki 2001). Consumers therefore could develop, over the years, an attachment to a movie star, a music style, or a brand, even if their first encounter with it occurred at a later age, much beyond the "critical period."

Another alternative explanation relies on the absence or decrease of innovativeness among older consumers. Although existing results are contradictory, younger consumers may have a higher tendency to explore new options (Hauser, Tellis and Griffin 2005). In comparison, older consumers, because they are less innovative, may be more likely to prefer long-established options. Botwinick (1978) supports this increased "cautiousness" of older persons.

Carstensen's socioemotional selectivity theory (Carstensen et al. 1999, 2003) argues that older persons, because they perceive their time horizon as limited, put more emphasis on affective factors, which leads them to prefer long-known options, such as meeting well-known acquaintances rather than making a potentially interesting new encounter. Although a potentially interesting explanation, it applies only to persons who feel they have a limited time horizon—namely, very old consumers—not consumers in their 40s, 50s, or 60s, who still feel they have many years to go.

Cognitive impairments associated with aging provide another family of explanatory variables, such as a reduction in processing speed or decrease in working memory capacity. These impairments affect brand recall (Bryan and Luszcz 1996), which likely influences the content of the evoked set. They also have an impact on a person's ability to memorize and manipulate information in general and new information in particular. Such effects could cause a

simplification of consumer choice processes, the use of heuristics, and a tendency to choose long-known options.

In summary, when they buy complex products such as a new car, older buyers make their choices from a smaller consideration set composed of older brands, and they repeat their choice more frequently. Does this finding mean that they behave less rationally? On the ecological side of their decision, they rely on long-established brands that have survived for a very long period and offer an extended dealer network. Furthermore, in real life, rationality often has a different meaning than in a laboratory setting, where a problem is to be solved. Goals in daily life may not necessarily lead to optimal choices but rather to choices coherent with these goals.

4.0 Age, Cohort, Period

Section Authors: Gilles Laurent and Cathy Cole

Differences in a cross-sectional data set between older and younger consumers could be due either to an aging effect (i.e., consumers change their behavior as they age) or to a cohort effect (i.e., consumers of different cohorts or different generations behave differently). In this context, a cohort is "the aggregate of individuals who experienced the same event within the same time interval" (Rentz, Reynolds and Stout 1983, p.12), based on Ryder 1965). However, if similar data get collected on different dates, a third effect may be at work, namely, a period effect (i.e., consumers tend to behave similarly on the same date but differently on different dates). These potential effects create a major statistical problem, because perfect colinearity may exist among the three variables. If a cohort depends on the person's birth year and period according to the year of observation, by definition, age = period – cohort. In a regression approach, the matrix of explanatory variables does not have full rank, and the ordinary least

squares estimate cannot be computed, because the same predicted values (and errors) will be obtained by different combinations of the age, period, and cohort coefficients.

Omitting one or two explanatory variables may seem to solve the problem (Maddala 2001, p. 287), but doing so also may lead to misleading analyses, as illustrated by Rentz et al. (1983, 1991). The omission creates a specification error (Greene 2003), and the estimates of the coefficients of the remaining variables become biased and will not converge because of the correlation among age, cohort and period. That is, the expected value of the estimate equals the true value of the coefficient, plus the true value of the coefficient of the omitted variable times the correlation between the omitted variable and the remaining variable. Depending on the specific phenomenon, this bias may create an over- or underestimation. As already shown by Durkheim (1951) and Lazarsfeld (1955), spurious effects, distorters, or suppressors in turn can emerge (Rosenberg 1968). Another solution might impose a priori constraints on specific coefficients; for example, consumers belonging to two neighboring cohorts have identical coefficients. However, the problem here is that the estimated results may vary widely depending on which constraints get imposed.

Rust and Yeung (1995) propose applying Occam's razor, a principle of parsimony, and considering only those estimates that minimize the sum of squared errors, then choosing the solution in which the largest possible number of coefficients equal 0. In other words, they recommend picking, among all the solutions that obtain the same best fit, the one that requires the fewest explanatory variables. Two problems result though: The final solution is completely data driven and makes no use of a priori theoretical or practical information, and the algorithm becomes time consuming if the measures of age, period, and cohort are very precise, year by year.

4.0.1. Literature using cohort analysis

Cohort analysis pervades sociology in research into topics such as political alienation, earnings of couples, changes in attitudes toward working women, suicide rates, men's late-life labor force participation rates, and saving behavior. However, the technique has not been used as widely by marketing researchers, although one published study revealed that the amount of soft drinks consumers buy depends more on their birth cohort than their age (Rentz, Reynolds and Stout 1983; Rentz and Reynolds 1991). Market researchers then may forecast future consumption rates by age classes, according to current consumption rates. However, these studies fail to address issues related to intercohort or intracohort differences, as well as how they might interact with age, adequately. Therefore, results that hold among the elderly today may not generalize to different cohorts of elderly in the future.

4.0.2. Further research

We identify as a priority more cohort analyses by marketers to separate the effects of cohort, age, and time on consumer behavior. For example, relationship marketing increasingly emphasizes the need to maintain long-term customer relationships (Reinartz and Kumar 2000). Underlying this emphasis is the belief in a strong positive customer lifetime–profitability relationship, resulting from the exchange efficiencies that emerge when firms retain consumers for a long time. Cohort analysis might help determine whether changes in retention rates across time are due to period effects, such as deregulation or a new entrant; cohort effects, such as increased participation by a cohort with unique values; or age effects, such as the negative correlation between age and search. As researchers build longitudinal data sets from scanner panels, additional opportunities for applying sophisticated data analysis techniques may disentangle the effects of age, cohort, and time period.

In terms of data collection, though it would be extremely interesting to collect consumer panel data (following the same persons over time), this approach poses major practical problems. A feasible alternative would be to collect data about representative samples of the same cohorts over time (without forgetting, of course, the "mortality" problem; Shadish et al. 2002).

5.0 Avenues for Further Research

This article began by asserting that consumer cognition, affect, and goals all influence choice. Therefore, when older consumers' choices and choice processes differ from those of younger consumers, that difference likely results from age-related changes in these fundamental processes. Overall, a significant need to study how individual (e.g., wisdom, experience), environmental, and task characteristics influence the relative impact of cognitive, affective, and goal changes still exists. Researchers should consider in particular whether older adults use the same processes weighted in different ways or use totally different processes to make decisions and choices.

An important methodological issue pertains to selecting age groups for study. First, more and more people now live to be very old, so researchers should try to delineate the changes that occur in people in their 60s, 70s, 80s, and 90s, rather than lumping together everyone over the age of 60. Second, among older adults, there may be considerable variance in the cognitive abilities, goals, and motivations of people of the same age because of differences in gender, past professional experience, health and so forth. Third, the retirement age of 65 years often served as the cut-off for elderly designations, but as people work longer and stay healthier longer, this criterion may need to change (which also could mean a change in the definition of "old"). Fourth, aging does not start abruptly at 65 years, and more research on aging affects should concentrate on the initiation by including middle-aged respondents. Studying middle-aged

subjects would allow an assessment of when changes linked to aging are linear or nonlinear and at what age some phenomena emerge. This research could cast more light on possible underlying mechanisms of changes and perhaps help resolve some causality problems. For example, some theories focus on older respondents' perceptions of a limited time horizon, such as Carstensen's socioemotional selectivity theory. But respondents in their 30s, 40s, or 50s should not perceive that they have a limited horizon, so the age-related changes they undergo must have other causes.

Prior research may have focused too much on decline and poorer performance linked with age, thus almost defining age as a pathology, often through simple lab tasks. (In this sense, researchers might question whether or why this stereotype of the elderly persists among scholars.) However, in the real world, at least some older persons perform exceedingly well in complex choice situations. Konrad Adenauer governed post-war Germany very effectively till the age of 89 years, and many successful executives and heads of states are older than 60 years. Therefore, additional research should consider which aspects of choice processes, and through which mechanisms, older people may perform better than younger ones. Is it only "wisdom" or experience? Or is it the development of better decision-making abilities? Moreover, laboratory studies often seem artificial, depriving subjects of their acquired expertise and imposing time constraints, so it seems important to study older people in real (or realistic) situations, in which they can use the expertise they have developed over the years and take all the time they may need. Similarly, having subjects work on important, motivating, or involving tasks may produce different results than those obtained from inconsequential lab decisions. Certain product or service characteristics also may have different meanings, importance, or value to younger and elderly subjects. Choice processes (and changes in these processes) may differ. Also, most older

research subjects likely consist of retired people with free time rather than busy executives, senators, or Supreme Court justices. Imagine the parallel problems, for example, if researchers studied sports performance only using retired athletes.

Does a normative theory of "good" decision making, that confirms older people make "poorer" decisions and do less well as a consequence, really exist? Is a consumer less well off because he or she wears a scent that he or she has been wearing for decades rather than trying new perfumes? Does any existing theory of grocery shopping really evaluate the "quality" of older consumers' purchase processes? In what everyday situations does a complex, cognitively rich decision process make a really useful difference? What indicates that either prevention or promotion foci are really "better?"

Various other issues also exist that challenge aging research to improve:

- Identifying aspects for which there are no differences between the old and the young would be very useful (though perhaps harder to publish).
- Cross-cultural effects in aging are likely important.
- Although it seems logical to focus on the brain, the impact of other biological limits, such as impairments in vision, hearing, taste, walking ability, and so forth, also may be important.

In addition to concerns about preconceived notions by researchers, the stereotypes held by subjects may affect their performance. Therefore, further research should consider the impact of manipulations that reinforce or reduce such stereotypes that come to bear on the task (e.g., memory task or not?) or the subjects themselves (e.g., manipulating the feeling of being old).

Finally, aging research may be prey to a huge variety of confounds that additional research must address. Many cognitive abilities and other factors vary together; for example,

people’s time horizon shrinks as their experience increases. How can cohort effects be separated from aging effects, not to speak of period effects? Do some cohort effects interact with age?

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